Organising Mobility: A Sociological Investigation of the
Operations of an International Airport

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Submitted for the Attainment of the Degree Doctor of Philosophy

2005
Abstract

Mobility on a global scale as a product of increased interconnectivity has been a subject of interest for writers working within various disciplines in the social sciences and beyond. Few accounts, however, examine how mobility is performed by the operations of international airports. Through data acquired in interviews conducted with the management of an international airport administration, this project adds to existing accounts of mobility with an examination of the strategies, techniques, and performances that allow an international airport to operate, and which in turn, enable transportation worldwide. To analyse an airport as an organisation, this project employs a model advocated in John Law’s (1994) influential study *Organizing Modernity*. Law’s (1994) framework focuses attention on the often hidden performances within organisations that strain towards governance, regulation, durability, and routine. Incorporating Law’s (1994) framework, this project illuminates aspects of an airport’s operation in four thematic chapters, ‘Ordering’; ‘Communication’; ‘Materials’; and ‘Space’. Overall, this project depicts the international airport as a complex socio-technical assemblage that requires multiple, varied, and interwoven ordering performances to operate effectively.

**Key Words:** Mobility, Airports, Organisation, Actor Network, Ordering
Acknowledgements

The PhD is a most peculiar beast. It is a solo project, a task that lends to insular reflection and hours spent clambering over text in silence. Yet, to accomplish the task, the PhD researcher requires a network of colleagues, friends, family, and peers to assist at virtually every stage of the exercise. Any successes that this project has are theirs as well as mine. With those thoughts in mind I would like to thank the following people.

First, I would like to thank my colleagues and peers who assisted me immensely including Dr Barbara Hanna; Dr Barbara Adkins; Professor Clive Bean; Steve Jender; Dr Paul Harrison; Emma Woodley; Alison McCallum; Dr Bruce Rich; Joanna Rose; Jean Bowra; Mark Bahnisch; Stuart Koschade; Rahimah Ibrahim; Paula Callon; Stephanie Bradbury; Dr Karen Barnett; and Chanel Bailey.

Secondly, I wish to acknowledge the support of the project’s supervisor Associate Professor Gavin Kendall. Without his ‘cheerleading’ this project would have been abandoned many times over.

Thirdly, I wish to thank the thesis examiners for their contribution. Their insights and expertise were much appreciated.

Fourthly, I would like to thank the management of the Heffernan International Airport. Only with their support was the project possible.

Finally, I owe a debt of gratitude to my friends and family. In particular, I would like to thank my mother, Michelle and my father, Gary for their love and support. Deepest thanks, however, is owed to my beautiful partner, Bree. Through the choice of pseudonym, Heffernan, to disguise the airport’s identity, this project is dedicated to her.
Funding for this project was received from a bursary provided by the Queensland University of Technology Faculty Based Award (QUTFBA) and from the Centre for Social Change Research.
“The work contained in this thesis has not been previously submitted for a degree or diploma at any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.”

Signature: ________________________________
Date: ________________________________
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“Looked at in this way organisation is an achievement, a process, a consequence, a set of resistances overcome, a precarious effect. Its components – the hierarchies, organisational arrangements, power relations, and flows of information – are the uncertain consequences of the ordering of heterogenous materials.” (Law 1992: 8)

“Twenty four hours a day, 365 days a year, an aeroplane takes off or lands every few seconds somewhere on the face of the earth. Every one of these flights in handled is the same, uniform manner, whether by air traffic control, airport authorities or pilots at the controls of their aircraft. Behind the scenes are millions of employees involved in manufacturing, maintenance and monitoring of the products and services required in the never-ending cycle of flights. In fact, modern aviation is one of the most complex systems of interaction between human beings and machines ever created.”

(International Civil Aviation Organisation 2004)

“Movement and the organization of movement are not different.” (Law 1994: 15)
Chapter 1: Introduction

1A: Bringing the Airport to the Fore: Supplementing the Sociology of Global Mobility

The cover of Pascoe's (2001) book *Airspaces* depicts a Concorde in the process of taking off. It is a stark and vivid image. The super sleek aircraft is almost dwarfed by the magnitude of the sky as a dirty trail is left in its wake. There is a beauty and poetic resonance to the picture. The aircraft appears to be powering away from the confines of the earth both symbolically and literally. Its journey seems to symbolise hope, opportunity, escape, and the possibility of freedom. As De Botton (2002: 41) describing the takeoff of an A340 explains:

> [T]he swiftness of the plane’s ascent is an exemplary symbol of transformation. The display of power can inspire us to imagine analogous, decisive shifts in our own lives; to imagine that we might one day surge above much that now looms over us.

As a philosopher of travel, De Botton (2002) is especially aware of the power that images of mobility possess and similarly, the cover of his work *The Art of Travel* depicts an image of travel that expresses the virtues of escape and opportunity. In this case, the image is from onboard a plane looking out at the vast undistinguishable landscape far below. The image is majestic and powerful. Like a vessel at sea, the aircraft is alone but it is also, more or less, free.

Images of airports, aircraft, and the process (as opposed to the product) of travel are reoccurring themes in the work of many visual artists. Near empty departure lounges,
baggage carousels, departure information boards, travelators, concourses, and
duty-free stores have become the subject matter in the works of photographers and
writers (Brambilla 1999; Rosler 1998; Fuller and Harley 2004; Lovegrove 2000). These authors and artists use their canvasses to tell stories about the experience of mobility and travel and its accompanying spaces. Their stories are of loss and hope; solace and commandery; speed and delay; freedom and restriction; arrival and departure; and familiarity and distance.

Similarly, this project was originally envisioned as an exploration of global mobility. Inspired by authors like Urry (2000a; 2000b), Augé (1995), De Botton (2002), Bauman (1996) and Pascoe (2001; 2003), this project was initially intended to analyse global mobility through an illumination of concepts such as flow, travel, interconnectedness, consumption capital, and nomadology. However, as influential and important as the works of authors like Urry (1990; 2000a; 2000b) are, this model for studying global mobility would soon be abandoned as a missing element within the existing social scientific literature became increasingly apparent. In particular, existing accounts of global mobility found in the social sciences are principally occupied with exploring the ‘real meaning’ or identity of spaces, people, and artefacts and investigating the wider impacts of increased travel and global interaction rather than specifically addressing the complexities of processes of global air transportation

1 These artists and authors are certainly not alone. Images of airports, complete with accompanying symbolic references are frequently used in film and music as well. The climax of many love stories, most notably *Casablanca*, occur with an airport as backdrop. The airport here is not only the practical and logistical site of departure but also a metaphorical representation of departure, of loss, and of conclusion. Many other films find their characters in a heroic race to prevent another character departing (most recently *Love Actually* but also films such as *Sleepless in Seattle*). Yet, the airport is not only seen as site of departure or arrival but also as a metaphorical site of hope and possibility. For instance, the music video that accompanied the U2 song *Beautiful Day* depicts a ‘lost soul’ wandering Paris’ Charles de Gaulle Airport (somewhat ironically considering the case of Alfred see pages 263 - 264) before experiencing joy and salvation on one of the airport’s runways as (digitally added) 747s roar spectacularly overhead.

2 For a discussion of social scientific accounts of global mobility see pages 53 - 59.
that permit and enable global mobility. In other words, while recognising the enormous contribution that Urry (1990; 2000a; 2000b) and others\(^3\) have made to the study of mobility and travel, this project seeks to add to the body of knowledge within the emerging field with a discussion of the routine and mundane processes that actually facilitate the movement of millions of passengers every day.

In short, this project seeks to examine global mobility through an analysis of the management and operations of an international airport. However, to accomplish this task, this project will need to supplement the sociology of global mobility with a sociology of organisation.

To construct a sociology of organisation this project draws heavily on contributions from Law (1994), Latour (1990), Kendall and Wickham (2001), and Callon (1986a), a group of authors whose work is often collectively described under the banner-term ‘Actor Network Theory’\(^4\). In particular, Law's (1994) work Organizing Modernity is especially important. In fact, Organizing Modernity, in combination with his other influential accounts\(^5\) is seen to prescribe a viable, innovative, and generalisable framework for studying organisations in different settings. In other words, Organizing Modernity is viewed as an important and influential study of social theory and organisation that prescribes a repeatable method for examining organisations and

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\(^3\) The list is large and contains authors from multiple disciplines but see for example Makimoto and Manners (1997), Castells (1996), Beck (2000a), Bauman (1993; 1996), Smith and Timberlake (1995; 1998; 2001), Song (2000), Berman (1986), and Gottdiener (2001.) Again, for a detailed discussion of the contributions of previous accounts of global mobility see pages 53 - 59 of Chapter Two.

\(^4\) The description ‘Actor Network Theory’ is considered problematic by many of the authors most associated with it. Latour (1997), in particular, derides the term and has often attempted to distance himself (Latour 1997; Callon and Latour 1992) from it, preferring the classification Science and Technology Studies.

\(^5\) See for instance {Law, 1986 #447;Law, 1987 #800;Law, 1991 #799;Law, 1992 #436;Law, 1997 #506;Law, 2002 #558;Law, 2000 #601;Moser, 1999 #441;Law, 1995 #450;Law, 2003 #589;Law, 2000 #640;Law, 2002 #559}. 

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more than (what Law (1994) modestly presents it as) a limited case study or
description of an English scientific laboratory. This project will build on Law’s
(1994) work, developing and reapplying the concepts of ordering and governance
within the new context of an international airport.

Nevertheless a caveat must be issued here. The ever modest Law (1994) is less sure
that his work can serve as framework for conducting sociology. This claim, however,
is seen by this project to be a misplaced modesty. As the following passage
demonstrates, much of Law's (1994: 2 - 33) text strives to move beyond a limited case
study of Daresbury Laboratory to deal specifically with his vision for a ‘modest
sociology’:

> [W]hat I’m after, though it’s illustrated by talking about events in the laboratory, is
> not very often about the laboratory as such at all. In other words, I’m chasing after
> issues in social theory, not matters to do with Daresbury. (Law 1994: 39)

Furthermore, Kendall and Wickham (2001: 28 - 30, 67 - 75) in their prescription for
creating better cultural studies employ Law (1994) extensively as a theorist who
carries potentially powerful methodological contributions to social thinking. In
particular, like this project, Kendall and Wickham (2001) are drawn to Law's (1994)
interest in ordering as a concept that can be used to illuminate the hidden
performances of the networks of the social. Occasionally too, even Law (1994: 138)
sees his work explicitly as possessing wider implications for thinking about
organisation:

> My assumption is that versions of these strategies are found elsewhere: that they are
> not peculiar to Daresbury. It is this that makes the Daresbury case-study of general
> rather than specific interest.
In these comments the logic for the title *Organizing Modernity*, as opposed to a less ambitious ‘*Organizing Daresbury*’ becomes apparent. While caged in a deliberately modest and reflexive language, Law's (1994) work, much like his analyses of the 16th-century Portuguese Naval empire (Law 1986; 1987), uses case studies as a base to make observations about organisations and about the ways in which sociology should go about studying them.

Yet, like all models for studying society, the prescriptions for studying society proposed by Law (1994) and Latour (1990) are often contested. As shall be discussed in further detail later in this chapter (11 – 12), Collins and Yearly (1992) provide a scathing attack on Actor Network Theory. Moreover, Lee and Brown (1994) provide a critique of Actor Network analysis that is more subtle and effective than that presented by Collins and Yearly (1992). Lee and Brown’s (1994: 778) critique is not that the work of Latour (1992) and others is not generalisable, but rather that it is too generalisable. By expanding the boundaries of interest, they argue, Actor Network Theory in fact leaves sociology with no where to go and subsequently no relevant arguments to make. As Lee and Brown (1994: 778) explain “ANT has broadened the franchise to grant the right of representation to anything – anything at all. There is nothing which cannot be brought into the fold.”

Nevertheless, a counter to Lee and Brown’s (1994) powerful argument might be that a sociology of the type advocated by Law (1994) and Latour (1990) cannot be the ‘final, final word’, as Lee and Brown describe, because as a lens to view the socio-technical world, the kind of sociology practiced by Law (1994) and Latour (1990), and strained towards by this project, is inherently incomplete and understands
its place as alternative form of social description rather than a singular way of
describing the social world. Although this position may seem overly modest and
relativist, the idea that a form of sociology can be different and occasionally radical,
while simultaneously recognising that its prescriptions are not a single unifying
answer is refreshing. Where Lee and Brown (1994) read ANT as grand narrative in
drag, this project’s reading of Law’s (1994) prescriptions allows the creation of social
descriptions that supplement, enhance and augment rather than replace existing
depictions of organisations, environments and institutions.

Indeed, as highlighted above, this project believes, like Kendall and Wickham (2001),
that such Law’s (1994) observations are extremely useful in devising methods for
describing organisations and ‘social’ institutions and phenomenon. So much so that
this project reapplies a version of Law's (1994) sociology of organisation to explore
an international airport administration. Put differently, Law's (1994) contribution to
the sociology of organisations is viewed as transportable to other settings, including
an analysis of an International Airport Administration. By adopting the framework
and insights of Law's (1994) work in combination with those of authors with similar
theoretical and methodological interests6, this project will examine the often mundane
and ordinary procedures, performances, and socio-technical assemblages enacted by
the management of an International Airport that, in turn, contribute to the operations
of global mobility. These efforts at management, while imperfect and provisional
(Law 1994: 5; Malpas and Wickham 1995: 40 – 41), strain towards efficiency,
regulation, and governance of the airport and its many actors. By investigating the

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(1997; 2004), Kendall and Wickham (1999; 2001), Malpas and Wickham (1995) and even Foucault
interactions of materially heterogeneous network assemblages and the ‘ordering
performances’ (Law 1994) of airport managers this project strives to shift the focus of
the sociology of global mobility from general commentaries on broad social trends
towards mobility and mobile identities\(^7\) to a more specific and grounded analysis of
the procedures and systems enacted in an international airport that enable the constant
transportation of scores of travellers across the globe.

To engage in this alternative sociology of mobility the operations of a specific airport,
the Heffernan International Airport, were investigated. Heffernan International
Airport is a pseudonym employed as part of a research agreement reached between
the researcher and the management of the airport’s administration. In the
contemporary age of privatisation, the aviation industry, especially in the
Anglo-American and European World, has become extremely competitive and, in
turn, corporate security and secrecy have become privileged. In return for the
guarantee of anonymity the Heffernan Airport Corporation permitted access to its
management for a series of interviews. These interviews, combined with information
obtained from the existing industry literature on airport design and administration\(^8\),
which has but for a few exceptions been passed over by sociologists of mobility\(^9\),
provides a depiction of the operations, management, and organisation of a
contemporary international airport.

\(\text{\textsuperscript{7}}\) See for example the debate regarding cosmopolitanism (Bauman 1996; Thompson and Tambyah
1999; Beck 2000a) and nomads (Makimoto and Manners 1997; Sklair 1998). For a detailed discussion
of this debate see pages 53 - 59.

\(\text{\textsuperscript{8}}\) See for instance de Neufville and Odoni (2003), Horonjeff and McKelvey (1994), Kazda and Caves
(2000), Wells (1994; Wells and Young 2000), Dempsey (2000), Ashford (et al. 1997), and Graham
(2001) as well as the contributions to industry publications like Airports International, Airport
Magazine, Aviation Daily, and Airports.

\(\text{\textsuperscript{9}}\) Gordon's (2004) recently published, excellent history of the airport as a cultural and architectural icon
is a notable exception, as is Fuller's (2002) work on airport terminal signage.
Much ground has been covered very quickly so far in the chapter, and it is worthwhile pausing to reflect on the vision of this project described in the previous sections. For convenience this project’s goals and objectives as they stand to date might be summarised in point form as thus:

1. This project is based within social scientific accounts of global mobility. These accounts share a common interest in investigating travel and mobility that strain towards greater global interconnectedness.

2. However, this project asserts that present accounts of global mobility, while insightful and important do not sufficiently address the role that airports play in enabling mobility to occur.

3. Thus, this project strives to create a sociology of the airport as an organisation to supplement existing social scientific accounts of global mobility.

4. In turn, to construct this sociology of global mobility, a framework for studying organisation embedded within Law's (1994) *Organizing Modernity* is pursued. It believed that Law's (1994) text, in combination with others\(^\text{10}\), provides an ideal and generalisable theoretical and methodological framework for illuminating the operations of organisations, including an international airport administration.

5. In particular Law's (1994) work emphasises the importance of performances and mundane procedures a feature that is embraced and repeated in this text.

6. Following Law (1994), this project directs its attention to a specific organisation, in this case the Heffernan International Airport Corporation.

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7. In sum, knowing more about how the Heffernan International Airport operates contributes to knowledge about how mobility on a global scale operates.

1B: Limitations, Constructing a Modest Sociology

The depiction of airport management contained in this project, however, is incomplete. It cannot hope to be anything but incomplete. This is the first of many lessons to be learned from Law's (1994: 8 - 18) Organizing Modernity. Perfection or dreams of purity and order, Law (1994: 2 – 9) argues are fantasies. Sociological research is a performance that attempts to portray a subject of inquiry with accuracy but never can fully succeed. Some error and omission are inevitable. In response to what he views as the weaknesses in sociology, Law (1994) recommends an approach to sociology that favours modesty. Sociology, he argues, should limit itself to telling stories (Law 1994: 9). These stories recognise the complexity and interconnectivity of their subjects of inquiry. They recognise that their subjects of inquiry will always be partially unknowable or, at least, impossible to depict impeccably. As Law (1994: 9 emphasis in original) expands:

Such descriptions simplify, for to tell a story about anything is already to simplify it. But they are less prone to heroic reductionisms than some, for they also tell, or at any rate assume, that they are incomplete. And they tell they are incomplete not because haven’t quite finished the business of sorting out the order of things, but rather because they know that it is necessarily that way: they will always be incomplete.

This project shares Law's (1994) desire for producing modest sociology. Like Law (1994: 14 emphasis added) it will limit itself to “tell[ing] stories” about the processes
of managing and organising an international airport. It will provide depictions of an airport’s operations that enable international travel and help produce global interconnectivity, while simultaneously, recognising that such depictions are simplified and incomplete. It will tell stories, both short and long, about the operation of the complex and materially heterogeneous world of airports, including tales of aspects considered by traditional sociological accounts of mobility to be of negligible interest. It will describe (some of) the ordering performances enacted by, and on behalf of, the airport’s management that enable the Heffernan International Airport to transfer passengers to and from the world’s airlines. So where previous sociological accounts of global mobility have mused on the identity of travellers, this project will explore the complexities of ordering performances and artefacts exposing the hidden worlds of, for instance, committee meetings (Communication: 167 - 176); airport terminal signage (Materials: 227 - 239); runway tarmac (Materials: 213 - 219); scaled drawings (Materials: 246 - 252); passports (Materials: 278 - 287); regulatory regimes (Ordering: 119 - 126); and busy hour measures (Ordering: 144 - 149).

However, the pursuit of the modest sociology advocated by Law (1994) is not without dangers. In striving for a sociology that recognises (and in some senses celebrates) the mundane, a risk exists that the end product will be a diluted sociology. It will be a dull sociology, one without theoretical insight let alone a critical social awareness, or biting social commentary that will bare little difference from the industry’s own management texts\footnote{See for instance See for example de Neufville (1995), de Neufville and Odoni (1992; 2003), Dempsey (2000), Graham (2001), Kazda and Caves (2000), Wells (1994), Wells and Young (2000), and Horonjeff and McKelvey (1994).} and the discourse of airport administrators garnered from interviews from which this project draws so much data.
Collins and Yearley (1992), for instance, are highly critical of the approach adopted by Latour (1987; 1988a; 1992) and Callon (1986a; 1986b). In *Epistemological Chicken*, Collins and Yearley (1992: 309 - 322) attack Latour's (1988a; 1992) and Callon's (1986a; 1986b) fascination with the mundane asserting that the ‘French School’s’ contribution is little more than a theoretical game of ‘chicken’ where the participants see how far sociology can be taken away from its traditional, and in Collins' and Yearley's (1992) opinion, legitimate arenas of interest. Indeed, for Collins and Yearley (1992: 319) the works that would form the centre-pieces in the ‘Actor Network’ catalogue (Callon 1986a; 1986b; Latour 1988a; 1992) should be the subject of ridicule, a sociological joke akin to a sketch comedy routine12.

Responding and reacting to this challenge has been central to the development of this study as similar charges (although with less venom) that resonate with those of Collins and Yearley (1992) were levelled by colleagues at early discussions of the project’s intentions13. Here, the concern forwarded was that the project was no more than a celebration of airport logistics, more suitably couched within the less sceptical confines of business and management studies. Indeed, the researcher’s own confidence that the study was not a business school wolf posing in sociological sheep’s clothing was to be tested at many stages in the project’s development. Nevertheless, in its completed form this project is emphatically sociological. The response to allegations to the contrary is that the tone, methodology, and theoretical underpinnings are sociological, albeit a very different and often radical type of

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12 Collins and Yearley (1992: 319) equate Latour's (1992) discussion of doors as missing masses with a routine by the British comedian, and former *Young Ones* cast member, Rik Mayall.

13 This discussion was held in 2002 and I would like to thank Mark Bahnisch for his critical feedback following the seminar.
sociology that has rarely been applied in explorations of civil aviation\textsuperscript{14} and never in large scale examinations of airports. Central to this project are examinations of some of sociology’s most cherished concepts including organisation; power; representation; communication; space; control; discipline; movement; and change. Indeed, the interest is not in performances and artefacts like runway tarmac, NOTAMs, and procedures for dealing with birds per se but rather, the interest for this project lies in what results and products these performances strain to achieve and how they go about straining to achieve results. In other words, this project does not tell stories of the mundane for its own sake or merit but because these performances generate effects, like those of control or spatial dualisms (to name only two) that are of immediate sociological interest.

Perhaps this project is not so much ‘un-sociological’ as it is occasionally ‘anti-sociological’. It is ‘anti-sociological’ in the sense that it challenges traditional sociological perceptions, its privileging of human actors and its lip-service to the role of ordering performances in enacting socio-technical systems. Supplementing the conventional sociology of mobility permits a redescription of the airport as a complex socio-technical system, a system that requires administration, planning, coordination, information exchange, maintenance, monitoring, and effort to operate. By adjusting the lens of sociological inquiry\textsuperscript{15} this project strives to illuminate the complexity of a deceptively simple question; how does the Heffernan International Airport operate? Or, put differently, this project seeks to examine;

\textsuperscript{14} Law (2000; 2002a) and Law and Callon (1992) have written extensively on the halted development of the British TSR2 warplane, while Suchman (1993) has applied an Actor Network approach to studying Air Traffic Control Procedures.

\textsuperscript{15} Or, in Law's (1994: 85) terms, “redraw[ing] the conventional boundaries of relevance and irrelevance to include some matters that are normally excluded.”
What socio-technical ordering performances, principally enacted and administered by the Heffernan International Airport Corporation, enable the airport’s operation, which in turn, contributes to global mobility?

This question is a mouthful and certainly needs to be broken down into more digestible components.

- First, there is the idea of the ‘socio-technical’. As elaborated further later in the chapter (33 - 36) this project shares the desire of social thinkers like Law (1994), Latour (1988a; 1992), and Callon (1986a; 1986b), and Akrich (1994) to explore society as a combination of social (human) and material (nonhuman) elements.

- Secondly, embedded within the question is an emphasis on ‘ordering performances’. Like the ‘socio-technical’, ordering performances are a concept that requires further explanation (Ordering: 115 - 118). However, provisionally, it might be said that ordering performances resemble techniques of governance and management.

Pausing momentarily, the first part of the question should now be clearer. Combining the first and second elements, this project is interested in exploring social (human) and material (nonhuman) management strategies and techniques.

- Thirdly, this project is interested in those ‘performances (or call them for the moment management strategies) enacted by the Heffernan International Airport Corporation that enable the Heffernan International Airport to operate’. This project is principally interested in those performances initiated by the Heffernan International Airport’s administration. However, when compiling the project, it became apparent that performances of other
organisations like government agencies (Space: 286 - 295), international regulatory bodies (Ordering: 119 - 126), and aircraft manufacturers (Materials: 240 - 252) were of such importance that their absence from the text would be unwise. Thus, while this project’s attention is ‘principally’ on the Heffernan International Airport Corporation, the performances of other entities, when they directly impact the actions of the airport administration will also be discussed.16

- Finally, this project explores the operations of the Heffernan International Airport ‘which contributes to global mobility’. This project is not interested in airports in their own right. Instead, situated within the sociology of mobility literature, the overarching goal of this work is to supplement existing accounts of travel and global interconnectedness with an exploration of the airport as an organisation that contributes to mobility on a global scale.

So, combing these four elements a longer but hopefully less mysterious version of the question emerges,

*What social (human) and material (nonhuman) ordering performances (or provisionally, management strategies and techniques) are used by the Heffernan International Airport’s management (and other entities) that enable the airport to operate, which, in turn, allows travellers to fly in aircraft around the world?*

Nevertheless, much of the ‘fat’ in this expanded question can be trimmed to reveal another, more simplified version;

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16 Further, drawing from airport management literature such as de Neufville and Odoni (2003), this project regularly invokes examples from other international airports.
What techniques, known as ordering performances, are enacted by the Heffernan International Airport Corporation and others to facilitate the movement of aircraft and passengers at Heffernan International Airport?

1C: Why Airports? A Justification

Before diving headlong into the material prepared in this document it is worth considering why a sociology of the airport, and in particular an alternative sociology of the airport, is a worthy contribution to sociology. Indeed, even with the explosion of accounts of globalisation and global mobility\(^{17}\) that echoed in sociological schools in the 1980s and gathered momentum in the 1990s, scant sociological interest has been applied to airports. In contrast, sociology has a long and illustrious history investigating the operations of other institutions including schools (Feinberg and Soltis 1998; Torres and Mitchell 1998; Tozer et al. 1995), prisons (Foucault 1977; Adler and Longhurst 1994; Stojkovic and Farkas 2003), hospitals (Cockerham 1998; Turner and Samson 1995; Vosk and Milofsky 1999), and the public service (Hill 1972; Beetham 1998). The lack of a comparable interest in airports appears incongruous given the importance of airports as organisations that leave an indelible mark on the landscape and infrastructure of cities, are essential to the operations of most corporate, and for that matter, public sector organisations as facilities that contribute to the contemporary condition of global interconnectedness that we are increasingly experiencing.

Air travel, for much of its early history the domain of the rich and powerful (Lovegrove 2000), has become routine for so many that Gottdiener (2001) urges

\(^{17}\) For more details on social scientific literature on globalisation see pages 46 - 50.
strategies for *Surviving the New Culture of Air Travel*. Indeed, as Dempsey (2000: 4 - 91) illustrates, the growth in air travel is a truly global phenomenon as developing nations in Asia (including the old Soviet block nations), Africa, and the Middle East launch aggressive expansions of their aviation facilities desperate, not to be left behind in the push for greater global connections. Moreover, the growing phenomenon of ‘No-Frills’ airlines in Europe (Ryan Air, Easy Jet, Sky Europe, Jet 2) has led to upheavals in the old guard of British Airways, Lufthansa, Air France, and KLM. This trend, furthermore, which had its origins in the deregulated U.S market (Gottdiener 2001: 170 - 176), is quickly spreading to Australia (Virgin Blue, Jet Star) Asia (Dragon Air, Air Deccan) and the Middle East (Air Arabia). Spiritually and logistically the airport has become an integral and indispensable part of contemporary society. Changing work patterns and notions of distance have lead to an alternation in the perception of air travel to the extent that some, particularly in geographically compact Europe, incorporate air travel as part of their daily commute. Airports, so often previously on the margins or borders of the social (Rosler 1998; Augé 1995; De Botton 2002) have, for some, become evermore familiar environments, as Australian-based academic Fuller (2003: 1) explains, in the case of Singapore’s Changi:

> I know Singapore airport almost as well as my local mall. I seem to transit in Singapore almost every time I travel. I use the airport’s email centre, smoke on the rooftop terrace garden, eavesdrop on conversations at the carp pond, and buy American cigarettes at a good price.

Yet, if the airport is spiritually and logistically central to contemporary society it is the logistical quality that has been ignored by sociology. This project seeks to aid in the rectifying in this imbalance. Indeed, while drawing much of its source material from
airport management texts this project’s sociology, derived from the prescriptions of Law (1992; 1994), Latour (1986; 1990; 1992), and Kendall and Wickham (2001) makes an innovative contribution to the study of the airport as an organisation by shifting focus from the airport as a site of ‘management’, to view the airport instead as a materially heterogeneous assemblage governed by various, multiple, and incomplete ordering or ‘disciplining’ performances. So, in summary, the justification for engaging in a sociological exploration of the airport as an organisation is two-fold. First, airports as institutions which contribute much to the present condition of society warrant sociological attention. Second, a sociology styled on Law's (1994) *Organizing Modernity* is able to make a contribution that adds to, rather than supersedes, conventional management accounts by viewing airports as complex socio-technical networks, which require an equally complex and multiple array of governing performances (we might call ordering performances) that strain to manipulate the actions of actors human and nonhuman across spatial and liminal barriers.

Although Law’s (1994) interest in organisation, management and the operation of systems mirrors that other social commentaries on management (Keyton 2005; Clark 2000; Clegg 1990), Law’s (1994) model is unique and useful because, due in part to its links with Foucault’s (1990) work on governmentality, it depicts organisation as an inherently limited and flawed performance. In other words, within Law’s (1994) work there is no perfect organisation or system. Unlike most organisational studies, Law’s (1994; 1997) work carries less prescriptions for good management techniques and more commentary on the difficulties and complexities of management. Where

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most management texts are concerned with defining and determining industry best practice, Law (1994; 1997) tends to interested in the practices that just allow industry to exist. Likewise, while traditional sociological interpretations of organisation (Clegg 1990) focus on the ability of a certain actor to control others, this project sees systems of management and governance as more omnipresent and ethereal. In other words, in contrast to most sociological writing on organisation, this project sees the ability to order and govern as characteristics possessed by all actors including materials. Moreover, where many sociological accounts of organisation focus on the initiatives enacted by ‘powerful’ managers in response to broad challenges, this project enquirers about the everyday and mundane attempts at management that nonetheless depict the complexity and sophistication of organisations and socio-technical assemblages more generally.

1D: Theoretical Underpinnings: Guidelines for a Modest Sociology of an Airport

As indicated above, this project draws its theoretical underpinnings from authors working within the school of so-called ‘Actor Network theory’[^19], and especially, Law's (1994) *Organizing Modernity*. Understanding the theoretical underpinnings of this project is important as these educate not only the style and tone of the text but ultimately dictate the subject matter of the text. Certain streams of thought preclude, or alternatively, encourage particular types of analysis. A feminist account of the Heffernan International Airport, for instance, would likely pursue a different but no

less useful set of research questions based on questions of continuing patriarchy in the aviation industry. However, by drawing on the likes of Latour (1990), Callon (1986b), and Law (1994), this project’s emphasis is directed towards investigating how the airport as an organisation operates rather than analysing its relationship vis-à-vis concepts of class, ethnicity, gender, or community. Although Law’s (1994) theoretical and methodological contribution to this project is immense, four key emphases, contained within Law’s (1994) text are of particular importance to this project: first, an emphasis on ‘ordering’ as a topic of social research; second, an emphasis on organisation as a performance or outcome; third, an emphasis on the importance of materials in ‘social’ systems; and finally, fourth, an emphasis on the multiplicity of management techniques. These are emphases worth exploring in some detail.

First, Organizing Modernity (Law 1994) provides this project with a theoretical framework for studying organisations focused principally on identifying the instruments of governance and management called ‘ordering’, which enable an institution to operate. Ordering is the cornerstone theme in this project. Its importance and use extends beyond the chapter (Ordering: 115 - 163) that carries its name, to infiltrate and permeate the contents across this work. Ordering is so central because its performances enable and create organisations. Ordering might provisionally be thought of as management or governance (Kendall and Wickham 2001: 28; Malpas and Wickham 1995: 41) but its meaning extends well beyond the limitations of that term. Ordering performances might be summarised as the ‘work’ or effort that contributes to the stability of a system. Occasionally, this work is

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20 Or, more accurately, they temporarily coordinate a materially heterogeneous assemblage that, working together, has the appearance of an organisation (Law 1994: 110 - 111).
conspicuous, although more often the effort in ordering performances is not noticed. Ordering performances strain and strive towards routine and predictability, efficiency and reliability, and surveillance, monitoring, and control. As Kendall and Wickham (2001: 25) explain: “Ordering is everywhere. Ordering is part of human life, whatever we think of it.” Ubiquitous then, ordering can be seen in all an airport’s operations. Ordering performances coordinate flight paths and schedule times for take-offs and landings; they dictate staff levels and issues instructions for when and where maintenance should be conducted; they administer files, draw up memorandums, and follow protocols to comply with regulatory requirements; they refuel aircraft and check that passengers have boarded; and they monitor security, scanning for traces of bomb-making chemicals and metal weapons that could endanger the lives of thousands. Ordering performances allow the ‘empire’ to exist (Law 1986; 1987; 1992; 1997; 2002c; Law and Hetherington 2000). They enable a system, organisation, or institution to operate effectively and efficiently and enable actors (be they managers, generals, kings, or commoners) to be powerful or influential. Conversely, when these ordering performances fail, the ‘empire’, while perhaps not crashing down, will endure pains of varying degrees (Law 1994: 5; 1992: 8).

Law's (1994: 11 – 16, 33 - 34) second contribution21 to the theoretical underpinnings of this project is that organisations are not a single entity, but rather, the performance or outcome of many components. Returning to the quotation that commenced this chapter, Law (1992: 8) explains:

21 This idea has a lineage from other authors especially Akrich (1994), Callon and Latour (1981), and Latour (1992).
[O]rganisation is an achievement, a process, a consequence, a set of resistances overcome, a precarious effect. Its components – the hierarchies, organisational arrangements, power relations, and flows of information – are the uncertain consequences of the ordering of heterogenous materials.

Law's (1994: 11) insight challenges preconceptions of dualisms of macro and micro, forcing sociologists to consider the multiple actors, both human and nonhuman, that, in combination give an appearance of a stable and singular network, organisation, or entity. In other words, size or scale, previously thought of as a natural distinction, is revised to be instead viewed as an outcome of socio-technical performances (Law 1994: 11). Law's (1992: 8; 1994) acknowledgement of ‘organisation as effect’ had significant repercussions for the way in which the airport as an organisation was theorised in this project. To investigate how the operations of an international airport are coordinated by an airport administration, the airport and the airport administration as entities must be broken down. Yet, dissecting an airport into all of its constituent elements is patently impossible and inane. As Akrich (1994: 223 fn 1)\textsuperscript{22} discusses in respect to a similar dissection of an automobile:

\begin{quote}
Doubtless it would be satisfying to paint on a broad canvas, starting with nuts and bolts, pistons and cracks, cogs, and fan belt, and moving on to voting systems, the strategies of large industrial groups, the definition of the family, and the physics of solids. In the case of such an inquiry we would no doubt find a mass of guides (people, texts, objects) ready to suggest ways in which we could extend our network. But such suggestions would be endless. On what grounds the analyst stop – apart from the arbitrary one of lassitude? Quite apart from the indefinite amount of time such a study would take, there is also the question as to whether it would be interesting.
\end{quote}

\textsuperscript{22} This quote is also contained on page 211 in footnote 150.
The solution adopted by Law (1994: 5, 14) and followed by this project, is to tell stories; stories that understand that they do not need to feign comprehensiveness but nonetheless illuminate hidden aspects of managing an airport which contribute to the operations of the airport as an organisational or ordering outcome.

The third theoretical contribution of Law's (1994) *Organizing Modernity*, hidden in part in the second, is that the elements that make up an organisation are a combination of human and non-human actors. The recognition of the importance of materials in the so-called ‘social world’ has been a long standing element with the work of ‘Actor Network’\(^\text{23}\) theorists (Latour 1987; 1988a; 1988b; 1990; 1993; Callon 1986a; 1986b; Callon and Latour 1981; Akrich 1994; Akrich and Latour 1992). Appreciating that the ‘social’ world is better thought of as the ‘socio-technical’ world extends the parameters of sociological interest to encompass the performances of material actors which in conventional sociology would often be excluded (Law 1994: 85). As Kendall (2004: 3) elaborates, the focus on the combination of human and non-human actors strives to alleviate a human-only fiction of the social depicted in much conventional social science:

> [I]f we look around our world, it is impossible to see any situation which is made up of purely human actors; we are always enmeshed in a complex set of technologies… We [as sociologists that focus on humans relations] imagine we see pure humans everywhere, and where we see nonhumans, we downplay their importance: we do not take them seriously as actors.

\(^{23}\)Again, the term ‘Actor Network’ is used because of its popularity rather than its accuracy (Latour 1997).
For this project, the emphasis on exploring organisations as materially heterogeneous assemblages contained in Law's (1994: 33 – 34, 103 – 104, 140 - 148) work focuses attention on the combination of human and non-human that permit an international airport to function. Expanding the points of reference to encompass material actors increases the scope of this document to include investigations of the performances of actors like runway tarmac (Materials: 213 - 219), airport terminal signage (Materials: 227 - 239), telephones (Communication: 190 - 194), queues (Ordering: 150 - 161), fences (Space: 296 - 301), and manuals (Ordering: 127 - 132). These material performances, in tandem with those of human actors like managers, staff, and airline passengers strain towards the organisation of the entity known as an international airport. Acknowledging the interrelated interactions and performances of human and non-human actors as a socio-technical assemblage provides a far more complete picture of the operations of an international airport than a depiction that recognises only social interactions, or for that matter, a technological determinist perspective that treats materials entities as if they were in a ‘social-less’ vacuum.

Finally, Law's (1994) fourth major theoretical contribution to this project is his emphasis on the multiplicity of management strategies and techniques. In particular, Law (1994: 52 - 86) discusses various modes of ordering that he observed during fieldwork, arguing that different managers use varied techniques and strategies to strain towards particular organisational outcomes. Classifying these modes into four major categories; Enterprise, Administration, Vision, and Vocation, Law (1994: 75 – 86) demonstrates that organisations as outcomes require various ordering performances including those that strain for dynamism (Law 1994: 61 – 66, 75 - 77)

refers to these as ‘enterprise’ or alternatively ‘heroic’ performances) as well as those that can be labelled more mundane that seek to establish routine and predictability. While Law (1994: 77 - 86) perhaps places too much emphasis on these classifications, the acknowledgment of the multiplicity of ordering performances is a valuable insight that has been incorporated in this study of the administration of the Heffernan International Airport. Learning from Law (1994) this project does not strive to locate a single type of ordering by which the airport is administered but instead depicts a range of various ordering performances each that use different techniques to strain towards different outcomes or results. Thus, this project examines multiple ordering performances such as interactions between airport administrations (Communication: 195 - 201), efforts to forecast future trends (Ordering: 132 - 143), or adapt the airport’s sources of income (Space: 317 - 328), which might in Law's (1994: 75 – 76) terms be labelled ‘heroic’, as well as administrative ordering performances that strain towards routine and standardisation for example, international aviation regulation (Ordering: 119 - 127), formal communication techniques (Communication: 182 - 190), and directions provided by airport terminal signage (Materials: 227 - 239).

1E: Format of the Document

Engaging25 with the project’s dominant question:

What socio-technical ordering performances, principally enacted and administered by the Heffernan International Airport Corporation, enable an airport's operation, which in turn, contributes to global mobility?

led to the development of four chapters each pertaining to interrelated but analytically separate concepts; ‘Ordering’ (115 - 163); ‘Communication’ (164 - 204); ‘Materials’

25 The term ‘engaging’ is used deliberately. The alternative ‘answering’ is far too definitive for a modest sociology.
This format was favoured over a traditional ‘results’, ‘discussion’, and ‘analysis’ model for theoretical and methodological reasons. Employing a concept based format permitted a freedom to more accurately convey the complexity, multiplicity, and interconnectedness of the airport’s operations while also better matching the Law-inspired approach employed in this project. In the following sections the contents of these chapters will be explored. This summary acts as an initial signposting of the project’s intentions and aspirations as well as a preliminary exploration and explanation of the key theories, concepts, and terms that will form the analytical tools or ‘lenses’ from which this project’s depiction of an international airport will be constructed.

1F: Summary of Chapter Two, ‘Global Mobility and Airports: A Survey of Literature’

Following this introduction, chapter two provides a survey of existing accounts of global mobility and airports. This chapter focuses principally on accounts located within sociology and social sciences although industry literature like the managerial handbooks produced by authors such as de Neufville and Odoni (2003), which has been a source for this project’s secondary data, will also be discussed. Many descriptions of global mobility within the social sciences draw their theoretical inspiration and direction from the growing field of research relating to increasing global connections. Reflecting this lineage, the opening section of this summary explores in broad terms key accounts of the processes popularly known as ‘globalisation’.
Second, this chapter considers a range of social scientific accounts of travel and tourism. This literature, which focuses on the meaning, implications and effects of tourism on culture and identity, is seen in accompaniment with discussions of tourism and travel derived from hospitality and management studies that strive to determine ‘best practice’ for leisure-related industries.

In contrast, the chapter’s third section delves into the sociological, philosophical, and cultural studies descriptions of global mobility. Here, the increased interest in mobility lead by Urry (1997; 1998; 1999; 2000a; 2000b; 2001; 2003), that sees traditional stability of society being rattled by a greater proliferation of flows is explored. Additionally, the works of authors like Bauman (1996; 2000; 2001) and Beck (2000a; 2000b), which explore the apparent termination, or at least replacement, of national identity with global cosmopolitan or nomadic identities are investigated.

Fourth, this chapter directs its attention more specifically to the subject of the airport. Leaving social scientific perspectives behind for a moment this section explores airport managerial texts like the handbooks produced by de Neufville and Odoni (2003), as well as acknowledging the contribution of periodicals like *Airport World*, *Aviation Daily*, and *Airports.*

Finally, this chapter investigates the existing social scientific literature of airports. As previously noted, these accounts have centred on analysing the airport in spatial rather than operational terms. This section will examine the airport as non-place (Augé 1995) or transitory space (Rosler 1998; Fuller 2003; Fuller and Harley 2004; De Botton 2002) and evaluate these identity-focused accounts, concluding that while this
existing social scientific literature on airports is often appealing and captivating, a sociology that examines the complexities of international airports as organisations, which permit global interconnections, is also worthy, viable, and important contribution to the sociology of global mobility.

1G: Summary of Chapter Three, ‘Research Methods’

The third chapter describes the research methods adopted in this project. Here, the logic and techniques of interviews with airport management as the primary data collection device are examined. In the first section the reasons for selecting the Heffernan International Airport as a research site are examined. Proximity to the researcher and the airport’s relatively low passenger turnover (when compared to the heavyweights of London Heathrow, Tokyo Narita, and Chicago’s O’Hare) are presented as the primary grounds for selecting the Heffernan International Airport administration as the subject of enquiry.

Second, this chapter analyses the thematic groupings or ‘coding concepts’ that were used to develop the research model and the interview questions. These six coding concepts, Material Delegation; Obligatory Points of Passage; Immutable Mobiles; Coordination and Cooperation; Power; and Space, drawn from ‘Actor Network-style’ research, and in particular academics like Law (1986; 1992; 1994), Latour (1986; 1988a; 1990; 1992; 1993; 1997), and Callon (1986a; 1986b; Callon and Latour 1981) were originally intended as thematic-based chapters. However, as the project developed and the intentions of the work became more focused this format was abandoned. Nevertheless, these coding concepts were synthesised and incorporated

26 With the exception of the retained Materials’ and ‘Space’ chapters.
into the text’s new format becoming the theoretical and analytical backbone used by
this project to depict the operations of the Heffernan International Airport from an
innovative Law-inspired sociology.

Finally, the chapter examines the rationale and techniques for interviewing members
of the Heffernan International Airport administration incorporated in this project. As
explored in the final section two rounds of semi-structured interviews were used.
First, a preliminary round was used to establish contact with the airport management
and learn more about the airport from a logistical and practical standpoint. Second, a
larger series of interviews, referred to in this text as the Major Interview Round, was
conducted. While deliberately open-ended and designed (as much as possible) to
allow managers in different fields to speak on their area of expertise, the questions
from the major round each related to one of the predetermined coding concepts and
were designed to target particular areas that this project deemed to be of sociological
interest. In retrospect, and is often the case with social research, although these
interviews are considered to be an overwhelming success, much of this project’s more
interesting and valuable data would be gleaned from questions considered originally
to be of the least significance.

1H: Summary of Chapter Four, ‘Ordering’

The body of this document will commence with a chapter pertaining to the concept of
ordering. Evidently, charting all of the airport’s ordering performances would be
impossible and fruitless. So this project will instead limit itself to some of the more
interesting performances that emerged from aviation industry literature and
discussions with the managers of the Heffernan International Airport.
The contents of this chapter will be divided into seven parts. First, the chapter will expand on the definition and description of ordering located above. In particular, ordering as it is employed in Law's (1994) text *Organizing Modernity* will be investigated. Here, ordering will be presented as essential but ultimately fragile and limited performances that permit systems, organisations, and other entities both large and small to operate and which create “temporary pools of order” (Law 1994: 5) and fleeting moments of coordination, routine, and efficiency.

The second section onwards marks a shift from the abstract and theoretical to the concrete as regulatory devices like the protocols issued by the International Civil Aviation Organization (2003) and Civil Aviation Safety Authority (2003) are explored as ordering performances that strive to establish routine, standardisation, and homogenisation in aviation operations globally. Regulation is an ideal starting point in this discussion of ordering performances as the quest for routine and predictability is a key component of ordering and furthermore a defining quality of airports and aviation systems more generally. As explored in the chapter, almost every conceivable element in the operation and occasionally even design of airports follows a complex, overlapping series of international guidelines, standards, and recommended practices that shape the procedures of airports globally contributing to the familiar forms that travellers have come to anticipate.

More importantly, in section three, how these regulations and standards operate is analysed through an examination of a segment of Civil Aviation Safety Authority's (2003) text on the management of bird as hazards. It is argued that simplicity in
instruction, or in other words, a breaking down of commands into more digestible and easily understandable forms aids in compliance. Indeed, in both sections two and three parallels are drawn with Law's (1986) work on methods of long distance control. Like Law's (1986) work, regulation and standards are seen in this project as ordering performances that seeks to ‘drill people’ (Law 1986: 254) with succinct, military-like commands ensuring that aviation systems are immutably mobile (Latour 1990: 27 - 28; Law and Hetherington 2000: 38 - 40), that is, constant and reliable regardless of movement or location.

Where sections two and three discussed regulation, sections four and five tackle the subject of forecasting as an ordering performance. Section four will discuss the multiple techniques and tactics cited in the airport management literature (de Neufville and Odoni 2003: 765 - 769; Horonjeff and McKelvey 1994: 220 - 221; Kazda and Caves 2000: 352 - 353; Wells 1994: 267 - 270) and in interviews with the Heffernan International Airport administration (Major Round Interview A; F; J). Drawing from social thinkers De Laat (2000), Michael (2000), and Brown and Michael (2003), section five argues that by linking development and construction of new facilities with a master plan airport administrators designate a chosen future for the airport to follow. Through marketing and the development and redevelopment of facilities like terminals, hangars, runways, and non-aeronautical components airport managers strive to make their estimates true by conducting performances that strain towards the ordering of their desired future.

Section six returns to the topic of governing at a distance (Law 1986) by considering the role of the ‘busy hour’ measure employed by airport administrators to enable
managers to monitor performance, accumulate data, and generally initiate commands and possess some level of control from afar. Following Law (1992; 1994; 1997; Law and Hetherington 2000), it is argued that influential actors or entities are not influential in their own right, but rather, are influential because they are equipped with tools, apparatuses, and arrangement that make them influential. Compacted into surveyable forms the busy hour serves as such a tool, enabling the airport administration to make important decisions especially those related to airport runway and terminal capacity quickly and knowledgeably from a distance.

The exploration of governance continues in the chapter’s concluding section. Here, attention is focused on the ordering performances that strive to regulate, manage, or govern the multitude of people (mostly passengers) who move through an airport terminal daily. Again using the data acquired from meetings with Heffernan International Airport administration (Major Round G) and industry management texts (de Neufville and Odoni 2003), this section examines the strategies and techniques such as manipulations of design and architecture that strain towards the regulation and ordering of flows in the airport terminal space. These mundane and easily overlooked performances attempt to limit architectural blockages and alter the mood of the environment, ideally producing calm and unruffled passengers who are far more likely to proceed through the airport divisions quickly and efficiently.

11: Summary of Chapter Five, ‘Communication’

The project’s fifth chapter, ‘Communication’, was originally envisioned as a section of the chapter ‘Ordering’. Yet, following the interviews with Heffernan Airport management a wealth of (largely unanticipated) data, insights, and interesting points
and issues emerged that warranted further and more developed consideration. In response a framework for a new chapter devoted to investigating the uses and complexities of communication in the airport was constructed. This chapter would explore communication as a mode of ordering (Law 1994), a device to convey information, relay commands, establish routine, and govern and administer actors. However, what became quickly apparent from the interviews was that the forms of communication used by the airport’s management were multiple and varied.

Using classifications extracted from Law (1994), this chapter will explore various forms of communication observable in many of the daily actions of the airport’s actors. In Law's (1994) Actor Network analysis of Daresbury Laboratory, communication, while only occasionally addressed in name, is a repeated subject of inquiry and the descriptors ‘heroic’, ‘administrative’, ‘formal and informal’ embedded in Law's (1994) work serve as useful analytical tools when describing the airport’s communication performances. Each form of communication performance, it is argued, enables and permits different orderings each of which are useful in particular circumstances and equally unsuitable in others. Investigating these varied performances illuminates the multiple and conditional ways in which information is exchanged and instructions are issued in the airport environment.

Like the previous chapter ‘Ordering’, the chapter ‘Communication’ will continue the format adopted in this project, telling stories about the practices and performances highlighted in interviews with the management of the Heffernan Airport Corporation.
In this case, the chapter will be partitioned into six sections. The first of these sections will elaborate further on the interpretation and understanding of communication found in this project. It explains that, for this project, communication is particularly interesting as an instructive mode of ordering. Successful communication is essential for performances that strain towards the goal of long distance control and thus a key component in the management and governance of organisations like an international airport.

The second component explores the role of committee meetings as communication performances. Although frequently lampooned in conversation, committee meetings are a seemingly ubiquitous device for exchanging information and determining outcomes in organisations, including the Heffernan International airport. This section ponders the purposes of committee meetings arguing that their role and contribution may be misunderstood. On one hand, it is asserted that committee meetings enable administrative ordering (Law 1994), that while not especially dynamic, work beneath our immediate perception linking actors and enacting essential performances of information exchange that oil the wheels of organisation. On that other hand, it is asserted that committee meetings can occasionally also be dynamic if, to use Law's (1994: 62 - 70) classification of managerial types, ‘heroic’ managers take it upon themselves to lead the meeting and drive towards ‘dynamic’ outcomes by: “master[ing] the inertia of structure by bending that structure, [and] by acting as entrepreneurs.” (Law 1994: 68)

Third, the chapter ‘Communication’ explores the role informal communication plays in organisations. Here, benefits of interactions outside the official channels of
scheduled meetings and committees are investigated. It is argued that for some of the airport’s managers informal communication afforded opportunities for information retrieval and proximity unattainable by formal communication performances.

In contrast, through the examples of Air Traffic Control and the issuing of NOTAMs, section four of the chapter discusses the use of formal communication in the aviation industry. Formal communication is portrayed as an ideal ordering tool to limit the opportunity for error in the complex and difficult task of coordinating aircraft.

Section five shifts attention to the material entities that enable communications at the airport. Here, the material assemblages, both complex (email, telephones, facsimiles) and mundane (post-it notes, memorandums) that permit long distance ordering are highlighted. It is asserted that without these objects, so often ‘missing masses’ (Latour 1992) in social research, communication and thus action become limited to the confines of proximity.

Lastly, the ‘Communication’ chapter investigates the increasingly complicated relationship between administrators of competing airports. Airports while competitors must also work together to ensure maximum safety in their operations and thus a challenge exists for administrators to exchange information without divulging valuable secrets. This section analyses this balancing act concluding that a combination of multiple performances is used by airport managers. In some cases, dialogue is formal and regulated, in others, conversations move to the backroom where the heroic elite are more free to talk (Latour 1992: 179 - 181), and in other
cases again, when no threat is foreseen, information exchanges are most free and can take on educational and paternal forms.

**IJ: Summary of Chapter Six, ‘Materials’**

As this project has strived to create a depiction of the operations of an international airport using many of the prescriptions for the creation of modest sociology laid out by Law (1992; 1994; Law and Hetherington 2000), an acknowledgement of the integral role of material entities in socio-technical systems (rarely if at all found in social scientific accounts of global mobility) is one of this project’s key aims. ‘Materials’ brings this recognition of the technical component in socio-technical systems to the fore by exposing the performances of material heterogeneous assemblages that enable the airport to conduct its operations.

It opens with a discussion of the importance of sociology pursuing inquires within the socio-technical rather than the impossible vacuum of purely social. Here, the strengths of a sociology inclusive of humans and materials as practiced by authors working within the Actor Network tradition27 are advocated. Thus this chapter (and the wider project for that matter) will discuss material neglected in previous ‘social’ explorations of the airport.

For instance, the second part of the ‘Materials’ chapter will investigate runway tarmac as an actor (or in reality a network of even smaller actors and relations) whose durable and reliable performances an airport relies upon to operate effectively. Here, the

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notion of ‘gradients of durability’ (Law and Mol 1995: 279 - 280) will be introduced to explore the ways in which the ‘durable’ network relations ‘translate’ (Law 1994: 103) into, or perform a stable and reliable airport runway. It is argued that entities like runway tarmac cannot be thought of stable or durable in their own right but rather their durability is an outcome of a performance of a materially heterogeneous assemblage working together. Only when the elements in the network such as in this case a runway the base, sub-base, and maintenance crews cooperate will the runway tarmac function.

Third, using the example of baggage handling the concept of ‘material delegation’ (Law and Hetherington 2000: 41 - 43; Latour 1988a: 299) is analysed. The term material delegation refers to the process by which the responsibilities, duties, or roles of one actor (or a network of actors) are transferred to another (hopefully) more durable set of actors. In the example of baggage handling, transfers of responsibility from human actors to their mechanical counterparts and vice versa that strain towards that attainment of more reliable and dependable outcomes can be witnessed. Such delegations, however, are only effective if the delegated systems and their users are properly governed or ‘disciplined’ (Latour 1988a; 1992; Akrich 1994).

In the fourth, fifth, and sixth sections the multiplicity of material performances is examined with an account of airport terminal signage. In these three sections the interwoven character of networks and ordering performances is analysed. Ordering performances, like those of airport terminal signage, which strain towards the governing of passengers, are said to be at once ordering and simultaneously the subject of ordering. In others words, while terminal signage seeks to govern the flows
of passengers through the terminal space, at the same time ordering performances like the regulatory standards govern the design and layout of the airport terminal signage. Such examples highlight the complexity and interconnectedness of the networks of the socio-technical.

Finally, by incorporating a case study of the new A380 ‘super-jumbo’ aircraft, the ‘Materials’ chapter concludes with a discussion of the techniques and strategies of incorporating new technology into existing systems. This multipart exploration, first, examines the ways in which representations in the forms of blue-prints, scale drawings and diagrams, and manuals ‘speak for’ (Law 1994: 180) the material entity long before its maiden test flights. Drawing on Latour (1990: 26 - 44) these representations are said to strive for ‘optical consistency’ translating the mechanical characteristics of the aircraft, its weight, wingspan, speed, landing requirements, load potential into an easily transmittable paper form allowing airport planners to make the necessary developments to airport facilities prior to their introduction in 2006.

Moreover, in the subsequent section, the role of ‘speculative reporting’ produced particularly by industry newswires like Airwise is considered28. While the uses of such resources may initially appear limited, it is asserted that these reports, much like the so-called ‘squawk boxes’ on global business satellite television programs, enable a speed of information retrieval impossible via more formal means. This emphasis on speed trades depth and occasionally accuracy for immediacy allowing ‘heroic’ (Law 1994: 62 - 69) managers to make dynamic initiatives rather than simply responding to opportunities once they may have already been lost.

28 Drawing from news agency Reuters, Airwise http://www.airwise.com offers an email information service that provides multiple daily stories from the aviation industry.
1K: Summary of Chapter Seven, ‘Space’

Space is such an important concept for existing social scientific accounts of airports (Augé 1995; Brambilla 1999; De Botton 2002; Fuller 2003; Fuller and Harley 2004; Pascoe 2001; Rosler 1998), that this project would not be finalised without a elaborated discussion of the topic. This project, however, examines space differently seeking to act again as a counterpoint for those works fascinated primarily with the meaning or identity of airports as a space, place, or even non-place (Augé 1995). Instead, this project views space as an outcome or performance and its interest focuses on how space is managed and manipulated to meet the objectives of organisations.

The perspective of space as performance is elaborated in the first and second sections of the chapter. Drawing on Law's (1994) analysis of Daresbury Laboratory, these sections describe the possibilities and difficulties in analysing space as a material performance. Like Law (1994), this chapter views spatial dualisms, otherwise considered to be natural, stable, and concrete (such as inside/outside or office/waiting room) to be instead spatial performances, the results of ordering that strain towards the maintenance and integrity of those divides. To better understand space as a sociological concept, this section argues, the ordering performances that go into performing spatial dualisms and divisions must be taken apart.

Building on this opening examination, section three develops a classification system for depicting the spatial performances within an international airport terminal that strain towards the creation of dualisms. Spatial dualisms within the airport terminal are told to be performed by boundaries, barriers, or gates and gatekeepers. Each of
these classifications represents a particular ordering performance that strives for
different levels of spatial division. ‘Barriers’, for instance, represent physical or
material divides, while in contrast, ‘boundaries’ are depicted as those partitions that
rely more on social conventions and norms. Of particular interest in this chapter,
however, are the performances labelled ‘gates and gatekeepers’. ‘Gates and
gatekeepers’ as spatial performances strain towards dualisms and divisions that can
only be crossed or passed through if certain ‘tools of transition’ are presented.

In section four, travel documentation is presented as an example of a tool of
transition, capable, if it remains immutable and mobile (Latour 1990), of passing
through the ‘gates’ of international borders. Yet, as explored in this section travel
documentations qualities as immutable mobile (Latour 1990) are provisional on the
maintenance and compliance with international standards (International Civil

Fifth, this chapter continues the examination of travel documentation as a device that
enacts spatial performances by exploring it in relation to long distance control (Law
1986; 1987; 1997). Travel documentation, like the busy hours measures explored
earlier in the project29, are portrayed as governing apparatuses that transform actors
into ‘knowing subjects’ (Law 1997; Law and Hetherington 2000).

In the chapter’s sixth component attention shifts from the terminal to beyond with an
analysis of the spatial performances that strive to maintain separations between the
airport and the environment. Here, performances, like techniques devised to manage

29 For the discussion of busy hours see pages 144 - 150.
birds, are presented as orderings that strain to create artificial dualisms of airport space and environmental space.

Meanwhile, moving from the concept of space to the interrelated concept of time, section seven examines the ways in which time, like space, is manipulated or performed to enact particular socio-technical realities. Time in the airport is performed in multiple ways through timetables, routines, and other flight schedules that circumvent ‘natural’ or even local ‘clock time’ tying the airport to multiple and global ‘times’.

Returning directly to the subject of space, the chapter’s eighth part analyses Augé's (1995) claim that airports are a non-place devoid of authenticity, a sense of place and humanity. Contesting this interpretation it argues that the sense of alienation experienced by travellers described by Augé (1995) and depicted by Brambilla (1999), Fuller (2003), and Rosler (1998) is the result of performances that strive for familiarity or routine. In other words, airports may appear repetitive and impersonal but these properties are a result of convention and standardisation rather than inherent properties of the space.

Finally, the ‘Space’ chapter ponders the future of the airports with an examination of the airport’s attempts to diversify its revenue sources through the construction of commercial, industrial, and leisure facilities. Caged within the theoretical understanding of space as performance this section reviews the methods by which the vision for an ‘airport city’ is strived towards. It asserts that the techniques for straining towards diversified space can be divided into two categories. On one hand
the airport’s initiatives are driven towards through planning and forecasting, and in particular the creation of a *Master Plan* (Heffernan Airport Corporation 2003). While on the other, a diversified space cannot be worked towards without material performances that, paradoxically, strain towards the creation of dualisms that separate the space’s constituent elements.

**1L: Chapter Eight, ‘Conclusion’**

The project’s concluding chapter summarises the anticipated contributions of the text. In addition to exploring the project’s limitations and the future directions of research, the concluding chapter argues that the project makes contributions to two separate fields. First and foremost this project contributes an innovative and alternative sociology of global mobility. Drawing from Law’s (1994) account of organisation, this project constructs a sociology of airport management that seeks to identify the multiple socio-technical ordering performances enacted by the Heffernan Airport Corporation’s administration that enable the airport’s operation. The concluding chapter posits that the major contribution of this project is an emphasis on the systems, strategies, and performances that perform or permit global mobility rather than an interrogation of global mobility’s influence on identity or the purely and abstract social.

Secondly, the concluding chapter also asserts that this project contains some insights for existing airport management theory. While based within sociology this project is seen to demonstrate a multiplicity and complexity in the process of managing an airport not depicted in most airport management handbooks.
Furthermore, the project’s final chapter also lays out a series of provisional recommendations for the management of the Heffernan Airport Corporation, provisional in the sense that the objectives of this project are descriptive rather than perspective. Nevertheless, given the subtle inconsistencies and variations in relation to attitudes to regulation and informational security apparent in interviews with the airport’s management it is asserted that the senior airport’s management may be prudent to engage in educational and training mechanisms to ensure that all managers were collectively ‘working off the same page’. Overall, however, this project’s aims and objectives rest firmly in creating a descriptive sociology of the operations of the Heffernan International Airport, which in sum asks;

*What socio-technical ordering performances, principally enacted and administered by the Heffernan International Airport Corporation, enable the airport’s operation, which in turn, contributes to global mobility?*
Chapter 2: Global Mobility and Airports: A Survey of Literature

2A: Introduction

Mobility, and in particular mobility through air-travel, is a key feature of contemporary society (Urry 2000b; 2000c). Yet the ability to travel quickly and relatively cheaply over great distances is a recent phenomenon. Whether for business, leisure, or family, scores of travellers board aircraft daily. Representations of the joys and pains of mobility infiltrate our collective consciousness through the media. Lifestyle television programs such as the documentary series Airport, and the follow-up series Airline, reinforce the interconnected nature of contemporary society with the magical world of air travel. Cable news and business networks like CNN, CNBC Asia, Bloomberg, and BBC World advertise air carriers, airports, and destinations furthering the image of the global traveller business nomad, who armed with a laptop, palm pilot, passport, and boarding pass can confront the new world of instant capitalism.

Consequently global mobility has become the subject of inquiry for social scientists, philosophers, and sociologists. Within these accounts, however, great diversity exists in scope, intentions, and findings. This chapter will survey the diverse literature. It will chart the concern with global mobility from its broadest foundations as a component within globalisation; to its incorporation within discussions of travel, mobility, and contemporary nomadism, to finally, explorations of airports, from on
one hand, a management and logistics perspective and on the other, accounts within the social sciences.

First, this chapter will commence with a broad survey of the social sciences’ concern for globalisation and global interconnectivity. While accounts of globalisation are multiple and divergent, interest in mobility on a global scale within the social sciences has largely been informed by a wider interest in global interconnectivity. Thus, this first section will explore the influence of the accounts that tell of ‘the world becoming a single place’ (Robertson 1992).

Second, the vast literature concerning travel and tourism shall be outlined. This section will detail the social sciences’ increasing interest in tourism and travel, lead by the work of Urry (1990a; 1990b; 1997), which examines the meaning and impact of travel within contemporary society supplementing descriptions found in leisure management studies.

Third, this chapter will turn attention to the exploration of mobility on a global scale. Again, this field has been influenced enormously by the work of Urry (2000a; 2000b; 2000c; 2001c) who brought issues pertaining to mobility to the forefront of globalisation debates. Yet, as the section shall explore, Urry's (2000a; 2000b; 2000c; 2001c) contribution (while very influential) represents only a portion of the much larger literature concerned with mobility on a global scale and the related issues of nomadism, global networks, and movement.
Fourth, this chapter will shift its attention from the general to the specific by narrowing its gaze to literature on airports. In this section, the summary of airport literature will commence with those drawn from the study of airport management. These texts, which form the secondary data source of the project, concern themselves directly with the design, management, and logistics of airports as organisation. In addition to industry periodicals like *Airport World* and *Aviation Daily* this section will explore the contribution of industry handbooks lead by the influential work of de Neufville and Odoni (2003).

Finally, this chapter will conclude with an examination of social scientific accounts of airports. This section argues that existing accounts of airports within the social sciences view the airport as a ‘special’ form of social space. As such, the social sciences contribution to the study of the airport has focused principally on the meaning of the airport as a space, place, or non-place (Augé 1995) and its impact on identity.

2B: Globalisation and Global Interconnectivity

Globalisation has, and continues to be, one of the most discussed and debated concepts within academic discourse. Moreover, the usage of the concept of globalisation has been matched, and possibly even superseded, by spokespeople in the media, non-government organisations, the corporate world, and government. Such is the plethora of globalisation discourse that the term ‘buzzword’ seems almost insufficient. Debates regarding globalising processes and increasing interconnectedness have occurred in the disparate fields of economics, culture,
politics, identity, human rights, gender, and most importantly for this paper, travel and mobility.

While definitions of globalisation are contested, many theorists tend to follow the conceptualisations of Harvey (1989) and Giddens (1984; 1990; 1995; 2003). First, Harvey (1989) asserted that developments in production and financial systems and increased travel and mobility had caused the barriers of time and space to contract. Harvey (1989: 147, 240, 306) labelled this reduction in natural obstacles ‘time-space compression’. Meanwhile, Giddens (1984; 1990; 1995; 2003) applied the mirror ‘time-space distanciation’. For Giddens (1984; 1990; 1995; 2003), time-space distanciation is a process whereby social relations, like systems of power, are extended through both time and space through technologies such as transport, logistics, and communications. As Friedland and Boden (1994: 28) explains:

Through modernity’s unique capacity for what he [Giddens] calls ‘time-space distanciation,’ or the ability of social systems to ‘stretch’ their influence and control across vast reaches of space and time, social institutions are able to act ‘at a distance’.

Other conceptualisations of globalisation are more radical. For example, Mann's (1993: 11) definition of globalisation, while slightly overdramatic and imprecise, nonetheless provides an important illustration of the orientation and magnitude of globalisation:

Today, we live in a global society. It is not a unitary society, nor is it an ideological community or a state, but it is a single power network. Shock waves reverberate around it, casting down empires, transporting massive quantities of people, materials and messages, and finally, threatening the ecosystem and atmosphere of the planet.
Mann's (1993) definition clearly demonstrates that on one level globalisation is a macro process affecting most of the key institutions of finance, politics, and culture.

Firstly, the increased global interconnectedness can be observed in the arenas of economics, finance, and production. For authors including Ohmae (1990; 1995), Reich (1990; 1992), Holland (1987), Sassen (1991; 1994; 1999), Jones (2005), Strange (1986; 1996; 1997; 1998), and Dodd (1997) the importance of national economies is being diminished in the face of rapidly increasing global trade, mobile labour and production, constantly shifting commodity and money markets, and multi-national corporations whose ownership and operations are based in many different regions across the world. In particular, authors such as Harvey (1989); Arndt and Kierzkowski (2001); Reich (1990; 1992); Bellofiore (1999); Moden (1993); Ohno (1998); Shiomi and Wada (1995); Voss and Clutterbuck (1989); and Elger and Smith (1994) have examined the systems production known as ‘toyotism’ or ‘just-in-time production’ where goods are manufactured in different locations to take advantage of local conditions like cheap labour costs and maximise profits. While authors such as Leyshon and Thrift (1997); O'Riain (2000); Boyer (2000); Fratianii and Pattison (2002); Lash and Urry (1987; 1994); Beddoes (1999); Garrett (2000a; 2000b); Giron and Correa (1999); Marshall (1996); Strange (1986; 1996; 1997; 1998); and Bergesen and Sonnett (2001) have examined the explosion in global financial trade, foreign direct investment, and futures trading, a world of ‘casino capitalism’ (Strange 1986), ‘where all that is solid melts into air’ (Marx 1990) and is transferred in digital format across satellite and fibre optic networks.
Secondly, the move to a global economy and the increased role for trans-national actors such as non-government organizations and international cooperatives like NATO, OPEC, the EU, and ASEAN have caused many theorists to ponder the future of the nation state (Albrow 1996; Appadurai 1996a; 1996b; Sakamoto 1994; Held 1995; 1997; 2000; Held and Archibugi 1995; Held et al. 1998; Held et al. 1999a; Held and McGrew 2000; Held et al. 1999b; Fulcher 2000; King and Kendall 2004; Drucker 1993; 1997; Rondinelli and Cheema 2003; and Van Deth 1995). Some theorists like Ohmae (1990; 1995); Camilleri and Falk (1992); Cable (1995); and Martin and Schumann (1997) foretell the death of the nation state, while others such as Habermas (1996; 2001) and Held (1995; 1997; 2000) are more optimistic, asserting that globalization presents a possibility for a system of governance with greater democracy.30

Finally, many social scientists have debated the implications of globalization on the notions of culture and identity (Tomlinson 1999; Leach 1997; Meyer and Geschiere 1999; Featherstone 1990; 1995; 2001; Ben-Rafael and Sternberg 2001; Robertson 1992; Tobin 2004; Pieterse 2004; Appadurai 1996a). Again a divide can be observed between those that favour the macro-influence of global forces and those that stress the power of local resistance. On one hand, some sociologists have warned that globalisation is causing a cultural homogenisation to occur. For these authors the influence of ‘Western’ media and the spread of global brand names have caused a decline in local cultures causing greater uniformity, a phenomena variously labelled ‘Americanization’ (Owolabi 2001; Hutton and Giddens 2000), ‘McDonaldization’ (Ritzer 1983; 1996a; 1996b; Smart 1999), ‘McWorld’ (Barber 1996), ‘Coca-Cola

30 Indeed, other authors like Hirst and Thompson (1996) temper these two competing perspectives by cautioning that the nation-state remains an important social actor and despite the challenge posed by global forces will continue to be the ‘container’ in which most social activities occurs.
Colonialism’ (Sklair 1991; Wagnleitner 1994), or ‘Disneyfication’ (Bryman 1999; Eeckhout 2001; Zukin 1991). In contrast, authors including Schlze-Engler (1998); Warren (1994); Cox (1968); Luke (2001); Robertson (1995); Obi (1997); and Smith (2001) point out, the forces of global homogenisation are often met with heavy local resistance that may indeed involve a strengthening of local identities. The balance between global and local forces is reflected through the term ‘glocalization’ as used by Robertson (1995). ‘Glocalization’ indicates that the increased global interconnectedness produced by globalization operates on micro- as well as macro-levels. Indeed, the dual influence of globalization on micro and macro aspects can also be observed in the writings of Hill and Kim (2000); Lo and Yeung (1998); Marcuse and van Kemen (2000); Sassen (1991; 1994); Shin and Timberlake (2000); Yeoh (1999); and Taylor (2000; 2001c; 2004) on global cities.

2C: Travel and Tourism

One of the most common features of globalisation, highlighted by theorists, is the increasingly proliferation and importance of travel. Like finance, commodities, and knowledge, travellers are presented as one of the major flows that traverse global networks (Urry 2000b; 2000c). Nevertheless, discussions and debates about the meaning of travel extend well beyond those of globalisation, and indeed, the social sciences. Unsurprisingly it is the schools of tourism, and leisure, hospitality and event management that dominate the study of travel and tourism. A litany of management texts exist discussing why people travel and how best to cater to tourist demands (Cohen 2004; Watt 1998; Morrison 1996; Foley et al. 1997; Go and Pine 1995; Tribe 1995; Theobald 2004; Davidson 1994; Horner and Swarbrooke 2001; Lumsdon 1997; Laws 1995; Leiper 1990; Mill 1990; Williams 2003; Mason 2003; Glaesser 2003;
World Tourism Organisation 1995). Moreover, countless numbers of papers have been published in journals such as *The Journal of Tourism Studies; The Journal of Travel and Tourism Marketing; The Journal of Vacation Marketing; Progress in Tourism; Tourism Analysis;* and *Tourism Management.*

Within the social sciences studies of tourism and travel have had to struggle for legitimacy. Nevertheless, as sociology, anthropology, and cultural studies became more pluralist and interdisciplinary the study of tourism and travel developed into an accepted interest in the social sciences and particularly the sociology of consumption. In British sociology, much of the pioneering for the sociology of tourism can be attributed to Urry (1990a; 1994a; 1994b; 1995; 1997; 1998; 1999; 2000a; 2000b; 2000c; 2001a; 2001b; 2001c) and to his occasional collaborator Rojek (1989; 1993a; 1993b; 2000; Rojek and Urry 1997). Urry's (1990b) main contribution was the concept of the ‘tourist gaze’. According to Urry (1990b), tourism was a form of consumption, whereby travellers consumed images and other sensory elements. Indeed, Urry (1990b: 16 - 39) argued, just as ‘conventional’ forms of consumption require sites or spaces, so also are sites of tourism and the tourist gaze constructed to meet the needs of mass tourism.

Urry (1990b) and Rojek (1993b), however, were not the only sociologists to examine tourism. In the American context, Kaplan (1996) has been particularly influential. Kaplan's (1996: ix) work, in particular, explored the significance of travel in the maintenance of kinship bonds over great distance. Additionally, Clifford's (1992; 1997) anthropological studies, as well as Morris' (1987) and MacCannell's (1973; 31)

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31 For an analysis of sites of consumption see Shields (1989; 1994) influential studies of shopping malls.
1986; 1992; 1999) inquiries into the ‘authenticity’ of tourist locations have also played prominent roles establishing tourism as a viable and worthy subject of study for sociology.

Moreover, sociological research into tourism and related concepts appears to becoming more popular with authors including Graburn and Barthel-Bouchier (2001); Harrison (2001); Taylor (2001a); Lloyd and Clark (2001); Gottdiener (1998); Edensor (2000); Osborne (2000); and Desmond (1999) making recent, general contributions to the field. Others have employed case studies to investigate more specific issues pertaining to the social consequences of tourism. For instance, Clift and Carter (1999); Wonders and Michalowski (2001); Taylor (2001b); Evans et al. (2001); Jeffreys (1999); Pettman (1997); Truong (1990); and Davidson (1996) have exposed the exploitation of young women, especially in the developing world, through ‘sex tourism’, while Lennon and Foley (2000) and O'Rourke (1998) have explored the trend towards the macabre in what they view as increasingly postmodern tourist consumption spaces.

Alternatively, writers like Wessely (2002); Lane and Waitt (2001); Rosa (2000); Macleod (1999); Thorns (1997); Wilson (1994); Guneratne (2001); Routledge (2001); Hoffman (2000); and Mitchell and Reid (2001) have analysed the implications of tourism on local and, especially indigenous populations. Finally, a growing collection of writers including Muzvidziwa (2000); Vivanco (2001); Bigg (2004); Kousis (2000); Weiss et al. (1998); Stonich (1998); Brohman (1996); Linberg et al. (1996); Hjalager (1996); Poirier (1995); and Shackley (1995) have investigated the environmental affects of tourism and the possibility of sustainable or ‘eco’ tourism.
While explorations of tourism and travel will continue to be an important area of
study for many social scientists, increasingly some sociologists have begun to
examine the implications of what they regard as a ‘mobile society’. As Lash and Urry
(1994: 252) succinctly described: “Modern society is a society of the move.” Lash
and Urry's (1994) statement captures the idea that people in affluent societies are
moving around more than ever before. From international air travel, to the daily
commute across ever-increasing metropolises, the contemporary condition of
movement has lead many to inquire on the meanings of this increased mobility.

Firstly, as was the case with research on travel and tourism, Urry (1998; 2000a;
2000b; 2000c; 2001b; 2001c) is one of the major figures in current debates regarding
mobility within contemporary society. Urry (2000b; 2000c) proposes that the subject
of sociological inquiry must be modified from society to mobility. For instance, Urry
(2000b; 2000c) argues that sociology should focus on the flows of people,
information, finance, and commodities that traverse the globe constantly rather than
interrogate the concept of the ‘social’ for its own value. In other words, sociology
should explore:

[H]ow the development of various global ‘networks and flows’ undermines
endogenous social structures which have generally been taken within sociological
discourse to possess the powers to reproduce themselves. (Urry 2000c: 1)

In order to understand the new world of mobility, Urry (2000b; 2000c; 2003) adopts a
series of analytic descriptors ‘flows’, ‘scapes’, ‘networks’, and ‘fluids’. Applying
these terms, Urry (2000b; 2000c) argues that sociologists must analyse the abstract flow of material entities such as travellers, money, goods, referred to as ‘scapes’ across stable global networks and their more unpredictable and variable cousins global ‘fluids’.

Recently, however, the focus of Urry's (2003) work has shifted. Perhaps influenced by his Lancaster colleague John Law, Urry's (2003) most recent examinations attempt to illuminate the complexity and multiplicity of global systems. While this merging of mobility theory and Actor Network-style ideas contains some excellent insights, the completed result of Urry's (2003) text reads too much like a harried compromise of the two strains of thought. Nevertheless, Urry's (2003; 2004) recognition of Actor Network-style marks a departure from traditional accounts of global mobility and one continued further developed in his forthcoming works *Mobilities* (Urry 2006 forthcoming), *Mobilities and Materialities* (Urry and Sheller 2005 forthcoming), and *The Complexity Turn* (Urry 2005 forthcoming).

Like accounts of travel and tourism, Urry's (2000b; 2000c) contribution to mobility, while extremely important and influential, only represents a fraction of social science’s inquiries. For many writers, including Bertman (1998); Virilio (1977; 1997); Makimoto and Manners (1997); Greenblat and Gagon (1983); Maffesoli (1997); Berman (1986); Schivelbusch (1978; 1986); Prato and Trivero (1985); Pascoe (2001; 2003); Shields (1997); Lury (1997); and Chambers (1990) movement is seen to dominate the contemporary age. Among these authors Virilio's (1977; 1997; 2000a; 2000b) work on speed has been particularly influential (Redhead 2004), while
Schivelbusch's (1978; 1986) analysis of the alteration of perspective via movement has also become an often cited work across academic fields and disciplines.

Additionally, the interest in mobility and interconnectivity as increasing social phenomenon has informed related accounts of mobility using metaphors of networks, and cosmopolitans and nomads. First, in describing global interconnectivity and mobility the network metaphor has become very popular. The theorist most noted for the deployment of the network model, as an analytic tool for explaining globalization is the highly influential sociologist Castells (1983; 1996; 1997; 1998; 1999; 2000a; 2000b; 2000c; 2000d). Castells' (1996) ‘network society’ is a world of global news networks, high-speed Internet connections, international finance, multinational production, and massive intercontinental passenger movements.

However, the network model proposed by Castells (1996) tends to be both highly abstract and mechanical. The network is described almost as the perfect machine, an inhuman actor with no moral or aesthetic dispositions, whose only interest is its own maintenance and expansion (Castells 2000c: 15 - 16; 2000d: 695 - 696). As Castells (2000c: 15 - 16) explains:

All there is in a network is useful and necessary for the existence of the network. What is not in the network does not exist from the network’s perspective, and thus be either ignored (if it is not relevant to the network’s task), or eliminated (if it is competing in goals or in performance)... Networks, as social forms, are value-free or neutral. They can equally kill or kiss: nothing personal.

Moreover, Castells (2000c: 116) asserts, once established, networks are entirely autonomous. Although social actors originally construct a network they cannot control it. To change a network’s parameters is to threaten it, an action that would
encounter resistance from the network. Thus, Castells (2000c: 116) argues the structure of a network can only be changed through the construction of an alternative network complete with different operations or goals.

*Castells’ (1996) vision of networks, however, ought not be confused with the understanding found in Actor Network accounts of Latour (1993) and Law (1994).*

For Actor Network Theory’s associated authors the network metaphor proposed by Castells (1996) is far too mechanical (Sheller 2004: 40; Law 2000; Law and Callon 2004). As Law and Callon (2004: 7 - 9) explain:

[I]t is wrong to talk of a ‘network society’. The problem here is that, despite the best efforts of its proponents, talk of networks tends to fix things and imply predictable trajectories.

Indeed, in a rare attack-in-name Law (2000: 5) laments:

A series of academic luminaries – the most recent of whom is Manual Castells – tell us that we live in a ‘network society’ which is ordered quite differently from its predecessors. In a related way we are repeatedly told that we live in a world in which global flows circulate through new and ever more complex networks. We’ve reached the point where every man, women, child and dog seems to be talking of networks.

Droll talk of canine contributions aside, Law (2000) is certainly correct when suggesting that Castells (1996) is not alone in his use of the network paradigm. Authors such as Barnes and Ritter (2001), and O'Riain (2000) have employed network metaphors in their work on global finance, while, similarly Townsend (2001), Morley and Robins (1995), and Van Dijk (1999) have analysed Internet and media connections using a network based understanding of global processes and Graham (1998) has investigated the implications of ‘a network society’ on urban space.
Moreover, and of particular interest for this project, network metaphors have also been applied in examinations of global transport systems. For authors such as Keeling (1995; Beaverstock et al. (2002); Rimmer (1998); Shin and Timberlake (2000); Smith and Timberlake (1995; 1998; 2001); Taylor (2000; 2001c; 2004); Wackermann (1997); and Song (2000) the world’s cities are connected in a network of transportation links. In their various texts, these authors explore the linkages between international cities such as London, New York, Tokyo, and Hong Kong. Of central importance for these authors is determining the quantitative flows of passengers and commodities through particular nodes. As such, much of their research seeks to rank cities based on their role within the transport network. However, the emphasis contained in the works of authors such as Smith and Timberlake (1995; 1998; 2001), Taylor (2000; 2001c; 2004); and Beaverstock et al. (2002) on counting passenger numbers and ranking airports leads to a contribution of global mobility on a macro level.

Secondly, the increased mobility experienced by many people, and especially the international nature of labour, has led to some theorists’ suggestion that stable national identities are being eroded and replaced by those of a cosmopolitan disposition. Authors like Beck (2000a; 2000b; 2001); Thompson and Tambyah (1999); Bauman (1993; 1996; 2000; 2001); Kanter (1995); Appadurai (1993; 1996b); Boies and Rothstein (2002); Stevenson (1997); Cheah and Robbins (1998); Hannerz (1990; 1996); Bader (2001); Ess (2000); Brown (2000); and Pollock et al. (2000) argue, to varying degrees, that national identities are being replaced or destabilised by cosmopolitan aesthetic dispositions. Although debate rages about the exact significance and implications of cosmopolitanism, these writers assert that a new class
has emerged (or is, at least emerging), that is characterised by corporeal mobility, flexibility and adaptability in foreign cultures, and an absence of traditional conceptions of national identity.\textsuperscript{32}

Moreover, a growing collection of writers are employing nomadic or transitory metaphors to describe the increasingly transient lifestyle experienced by individuals in the apparent ‘mobile society’. Writing in the 1960s, Toffler (1970) was perhaps the first sociologist to speak of a new nomadic class of business travellers (Gordon 2004: 214). In contrast, Deleuze and Guattari (1986) applied the term ‘nomad’ to describe the dispossessed refugees of the world. Other writers including Makimoto and Manners (1997); Urry (2001c); Sklair (1998); and Kanter (1995), however, followed Toffler’s (1970) lead, using the nomadic metaphor to describe people at the other end of the economic spectrum. Rather than refugees or exiles, the nomadic metaphor to explain the transnational business class, the ‘jet set’ (Gordon 2004: 174), the ‘mobile service providers’ (Virilio 1997: 76), and ‘symbolic producers’ (Reich 1992) who traverse from one oasis-like international hotel to another carrying with them the ubiquitous tools of the contemporary nomad, a laptop computer, cellular phone, passport, and credit card. As Myoda describes in his forward to Brambilla’s (1999: i) \textit{Transit}, these nomads are the:

\begin{quote}
[R]epresentative[s] of a new class of supra-terrestrial nomads: Frequent Business Travellers, Resident Expatriates, Mile Highers, Global Beings, a breed characterized by major air time in the interest of business.
\end{quote}

Furthermore, others like du Gay et al. (1997); Bull (2000a; 2000b); and Makimoto and Manners (1997) chart the rise of mobile and digital technologies that further

\textsuperscript{32} For a further critical summary of literature concerning cosmopolitanism see Skrbis et al. (2004).
permit the bending of spatial boundaries allowing manipulations of traditional notions of distance and proximity.\textsuperscript{33}

Yet, acceptance of the nomad metaphor has not been universal. For instance, Joiken and Veijola (1997) and Wolff (1993) have criticised the male orientation of the nomad metaphor, although conversely, Braidotti (1994) regards the values of nomadism as a potential opportunity for female emancipation. Additionally, Cresswell (1997: 377) has criticised the apolitical application of the nomadic metaphor, asserting that the metaphorical nomads are “unmarked by the traces of class, gender, ethnicity, sexuality and geography.” Finally, Bauman (1993; 1996; 2000; 2001) also rejects the nomadic metaphor. For Bauman (1993; 1996; 2000; 2001) the idea of the nomad as a fluid, character caught in a state of perpetual motion has been misused. Instead, Bauman (1993: 249) insists, traditional nomads, like the Bedouin People, do not travel haphazardly or unpredictably\textsuperscript{34} but rather “circle around a well-structured territory with long invested and stable meaning assigned to each fragment.” In place of the notion of the nomad, Bauman (1993; 1996; 2000; 2001) employs the metaphors of ‘pilgrim’, ‘tourist’, ‘vagrant’, and ‘vagabond’ to describe the new mobile subjects. However, it is questionable that any of these metaphors is capable of capturing the essence of the mobile subject in a single idea any better than the metaphor of the nomad.

\textsuperscript{33} For a greater description on the notions of bending distance and proximity see Law and Callon (2004), Urry (2004), and Sheller (2004).

\textsuperscript{34} While Bauman is correct in suggesting that the metaphor of the nomad should not be applied to those unplanned travellers that appear to embody the postmodern ethic of flux and fluidity, his point is somewhat muted as that most contemporary travellers labelled nomadic by Makimoto and Manners (1997), Kanter (1995), Virilio (1997), and Sklair (1998) are said to follow well-defined, predetermined, and even seasonal, routes.
Embedded within most social scientific accounts of mobility is an acknowledgment that airports are important gateways that permit the international interactions that form globalisation. Castells (1996), for instance, describes airports, along with international hotel chains, as one of the ‘space of flows’ that connect his ‘network society’, while, similarly, in much of the nomad literature, cosmopolitans are depicted as setting their temporary camps within the confines of the airport departure lounge (Sklair 1998; Brambilla 1999; Kanter 1995; Makimoto and Manners 1997; Iyer 2000).

However, in the following two sections, this project will turn its attention to those authors that examine the airport in greater detail. For these authors the airport is the subject of inquiry. This summary has been divided into two sections. First, accounts within airport management studies that have formed a valuable secondary data source will be surveyed, while, in the following section this summary of literature will conclude with an exploration of the social scientific accounts of the airport drawn from diverse fields such as sociology, anthropology, cultural studies, philosophy, and semiotics.

Aviation industry literature on airports can also be separated into three main categories; texts on airport terminal architecture and design, texts on airport operations, and texts that report recent developments and convey aviation industry news. Firstly, given its collective history as a site for spectacular, and sometimes even extravagant, architectural expressions (Gordon 2004) the airport has long been the subject of intense architectural interest. In this field, Jahn (1991) is regarded as a particularly eminent designer and critic, although accounts of airport terminal architecture are also provided by Blow (1996); Gensler Airports (2004); Images

Secondly, issues pertaining to the planning and operations of airports are described in various handbooks and management texts. Of these de Neufville and Odoni's (2003) *Airport Systems: Planning, Design, and Management* is perhaps the most comprehensive and accessible. Professor at the prestigious Massachusetts Institute of Technology, de Neufville (1994; 1995a; 1995b) has established himself as arguably the leading expert on airport management. No less comprehensive but far more technical and abstruse is Horonjeff and McKelvey's (1994) work *Planning and Design of Airports*, while other texts like those produced by Dempsey (2000; Dempsey et al. 1997) provide specific case studies of the construction of particular airports. In many cases, however, it is difficult to distinguish the content of these industry management handbooks. Certainly the similarities between texts like those of Ashford et al. (1997); Sealy (1976); Blow (2005); Hart (1985); Kazda and Caves (2000); Graham (2001); Wells (1994; Wells and Young 2000); and Wiley (1981) outweigh their differences, with each containing comparable material on subjects like security, planning, financing, access, and capacity. Nonetheless, it is worth repeating that despite the repetition found in these industry handbooks the works of de Neufville and Odoni (2003) and others provide an essential insight for this project into the operations of international airports beyond that garnered from interviews with the Heffernan International Airport Administration. In particular, the airport management handbooks provide this project with an important description of how
airports ‘should’ operate and detail the varied methods of ‘best practice’ used to strain towards optimum efficiency and safety.

Thirdly, in the rapidly changing world of aviation, newswires and frequently issued periodicals provide a valuable tool to track technological developments, market trends, industry speculation, and alterations to aviation practices. Airwise News (http://www.airwise.com), for instance, offers multiple daily email alerts of aviation news, covering issues including financial statements, aircraft safety incidents, acquisitions, legal actions, and technological developments. Moreover, industry periodical publications Airports International; Airport Magazine; Aviation Daily; Airports; Flight International; Aviation Week and Space Technology; Air Transport World; ICAO Journal; Journal of Transport Engineering; Flying; Jane’s Airport Review; Airports Today; and Airport Report provide a seemingly never-ending stream of aviation updates. A compromise of speed over analysis, the articles contained in these types of publications offer news, information, and rumour in a style predicated on an economy of words.

2F: Airports in the Social Sciences

The social sciences have typically depicted the airport with literal and poetic resonance as a social space apart from society, a ‘borderland’ (Fuller 2003), that confers a very different set of social meanings on its remote and transitory inhabitants. Part of this predominant style can be attributed to the multidisciplinary nature of social scientific accounts. The lines between philosophy, sociology, cultural studies, poetry, photography, art, semiotics, and anthropology are often blurred when social thinkers turn to the airport. The works of Brambilla (1999) and Rosler (1998), for
instance, combine incredible photographic imagery coupled with poetic references to elsewhere, travel, transit, and solitude. Indeed, the solitary, introverted environment of the airport terminal appears to inspire reflexive accounts. This reflexivity often results in depictions of the airport based on personal experience (Fuller 2003; Augé 1995; De Botton 2002; Gottdiener 2001) rather than on more conventional social scientific methodologies such as ethnography or participant interviews. The results of these reflexive accounts are often captivating and lucid. They highlight the airport as an extraordinary space, a unique venue where worlds meet within a theatre of steel, glass, travelators, and hard departure lounge furniture.

Probably the most influential theoretical contribution to social scientific accounts of the airport as a transitory space originates from the French anthropologist Augé (1995). Augé's (1995) *Non-Places: Introduction to an Anthropology of Supermodernity* argued that the emphasis on speed, efficiency, and mobility found in contemporary society has lead to the creation of new forms of space. These spaces, referred to by Augé (1995) as ‘non-places’, could be characterised as homogenous, inauthentic, and dehumanising. Frequently associated with travel, Augé (1995) saw airport departure lounges and highway service stations as the principal examples of this growing trend towards sameness and solitude. As Augé (1995: 86 emphasis in original) notes: “The traveller’s space may thus be the archetype of *non-place.*” Augé's (1995) persuasive but esoteric Gallic writing style and his uncompromising deconstruction of concepts of space and place led to widespread consideration of the book’s ideas within the social sciences (Arefi 1999; Aubert-Gamet and Cova 1999; Boswell 1997; Crang 2002; Martinotti 1999; Urry 2000c). Indeed, akin to Baudrillard's (1983; 1995) controversial later works, Augé's (1995) contribution to
social scientific accounts of the airport is perhaps better measured by its ongoing influence and debate rather than by the actual content of the work.

Yet, Augé (1995), was not alone in his consideration of new forms of placeless space. As De Botton (2002) describes in his fascinating *The Art of Travel*, influential American artist Edward Hopper has strived throughout his career to depict the isolated and solitary travelling spaces of the American landscape. Indeed, the term ‘non-place’ was coined by American urban sociologist Webber (1964: 108) in the 1960s (Arefi 1999: 180; Martinotti 1999, 171). Urban sociologists like Webber (1964), Jacobs (1961), Cox (1968), and especially Relph (1976; 1981) analysed the inauthentic, repetitive, formless, and impersonal landscape of American suburbia. By exploring the notions of non-place and placelessness, these authors shed light on the complexities of the desolate uniform expanses of housing estates and the kitschy, simulated worlds that line America’s highways, but failed to apply their theoretical insights to the world of jet travel that was also emerging at the time35.

For other authors, however, the airport embodied the sameness, homogenisation, and dystopic repetition derived from Western global capital. In the 1960s, Nelson (cited in Gordon 2004: 214) asserted that the growth in commercial aviation in the United States had created a ‘synthetic landscape’ of departure lounges and hotels, where the: 

> [F]amiliar look of a Hilton in Rome, Cairo, or anywhere else provides reassurance and the guarantee of a sanitary, English-speaking refuge with corn flakes for breakfast.

35 The legacy of Webber (1964), Jacobs (1961), Cox (1968), and Relph (1976; 1981) would be continued by authors such as Kunstler (1993), Entrikin (1991), Garreau (1988), and Kolb (1990) who sought to examine the phenomenon of suburbia and absence of place in American cities.
Nelson’s comments cited by (Gordon 2004: 214) had been preceded by Boorstin (1961), and more recently, ideas of the airport as a safe, seamless, and homogenous passage for international travellers gathered new impetus in the works of authors including Urry (2000c: 63); Augé (1995); Tomlinson (1999: 6); Benko (1997: 24); Boswell (1997: 3); Ritzer (2004); Fuller (2003); Rowley and Slack (1999); and Castells (1996).

Through the implementation of placeless transitory spaces travellers are said to be able to flow effortlessly across the world in a sheltered, cultureless environment almost entirely devoid of any sense of locality. As Castells (1996: 417) explains, Western capitalism creates:

> a secluded space across the world along the connecting lines of the spaces of flows: international hotels whose decoration, from the design of the room to the color of the towels, is similar all over the world to create a sense of familiarity with the inner world, while inducing abstraction from the surrounding world; airports’ VIP lounges, designed to maintain the distance vis-a-vis society in the highways of space of flows.

In describing the airport as a homogenous entity and a space devoid of senses of meaning, place, and location Castells (1996: 417), Urry (2000c: 63), Pascoe (2001), Gottdiener (2001), Fuller (2003), Ritzer (2004), Augé (1995), and others\(^\text{36}\) contribute to a depiction of the airport reproduced in the photographic works of Brambilla (1999) and Rosler (1998) and projected, additionally, by numerous novelists and film-makers\(^\text{37}\).

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\(^{36}\) See Tomlinson (1999: 6); Berman (1986); Rowley and Slack (1999); Aubert-Gamet and Cova (1999); Arefi (1999); Eco (1987); De Botton (2002); Iyer (2000); Lovegrove (2000); and Lloyd (2003).

As highlighted previously, these conventional social scientific accounts of the airport are eloquent and often even poetic in their depictions. They lavishly describe a familiar environ of check-in counters, baggage carousels, corporate advertising, tubular causeways, duty free stores, and ever-smiling staff fluent in an International English. However, perhaps our familiarity with such depictions of airports diminishes them as works of social science\textsuperscript{38}. Social science’s, and particularly, sociologies’ greatest strength is, arguably, its ability to challenge conventional perceptions of social phenomenon and to depict social institutions and identities in new and unheralded ways. By joining the multitude of writers, artists, and film-makers in depicting the airport as no more than as a transitory space most social scientists who examine the airport have contributed to the prevailing logic. This is not to say that the depiction of the airport as a ‘non-place’ (Augé 1995), ‘border-land’ (Fuller 2003), or space of perpetual transit (Brambilla 1999; Rosler 1998) is necessarily incorrect. For those lucky enough to experience global travel, the accuracy of Augé’s (1995), Fuller's (2003), and Castells' (1996) depictions of airport departure lounges and like spaces are fairly evident. Nevertheless, social science should strain to explore the airport as important social institution in different ways.

Indeed, occasionally, the social sciences have gone beyond the conventional depictions of the airport to explore the airport as an important social institution with its own history and hidden complexities. For these accounts, airports may still be on the margins of our collective social consciousness, and at least on the surface, homogenous and solitary ‘travelling spaces’ but they are also, simultaneously, the site of sophisticated interactions between humans, machines, and spatial arrangements. In

\textsuperscript{38} Martinotti (1999) makes a very similar criticism of Augé (1995).
these alternative descriptions, airports are placed within their broader context in the volatile and multifaceted aviation industry (Gottdiener 2001) and are depicted as institutions that are continually evolving to changes in technology and aviation demand (Gordon 2004).

First, the subject of Air Traffic Control has been analysed by numerous authors including Sanne (1999); Gras et al. (1994); Suchman (1993); Harper and Hughes (1993); Weick (1990); Hopkin (1995); Tajima (2004); and Nolan (1999). These authors illuminate the challenges of safely and efficiently coordinating landing and takeoff of aircraft at ever-increasingly busy airports. Like most procedures at an international airport, Air Traffic Control requires complicated interactions between humans and machines, interactions that are made all the more difficult by stress and fatigue (Gras et al. 1994; Suchman 1993; Harper and Hughes 1993). Moreover, in the global system of air travel, the dangerous wildcard of language is combated against with attempts to maintain uniformity with the protocols of International English (Weick 1990; Hopkin 1995; Tajima 2004; Nolan 1999)\(^{39}\).

Second, although Gottdiener's (2001) *Life in the Air* does not contain the level of theoretical depth of his others works (Gottdiener 1995; 1998; Gottdiener et al. 1999), the text does contribute an engaging commentary of aspects of airports and air travel in the American context such as deregulation, air rage, sex and air travel, the physical and psychological impact of frequent flying. Gottdiener's (2001) style of presentation using quick snapshots (each ‘story’ is no more than three pages long) and the absence of substantial social critique or analysis makes his work more journalistic than

\(^{39}\) The complexities of communication in Air Traffic Control as are discussed on pages 182 - 189 of the chapter ‘Communication’.
sociological. As such, Gottdiener's (2001) short stories are occasionally reminiscent of Barthes' (1979) *Mythologies*. However, unlike Barthes' (1979) seminal work, Gottdiener (2001) does not envision his text within a larger context of social theory. Nevertheless, Gottdiener (2001) succeeds in conveying the complexity, and especially, intensity, of the contemporary aviation industry. Airports are depicted in perpetual battle dealing with increased demand, adverse weather conditions, heightened security arrangements, disgruntled passengers, and erratic deregulated airlines. Gottdiener's (2001) story of ‘mediated chaos’ is thus far different from the image projected in Rosler (1998) where lone, anonymous passengers sit calmly in a spatial and liminal void.

Thirdly, Gordon's (2004) *Naked Airport* contributes a stimulating exploration of the social history of the airport charting its evolutions from its first incarnations at the time of Lindbergh to its rise as monstrous conglomerations of walkways, departure lounges, security checkpoints, and baggage collection halls. Gordon's (2004) history seamlessly combines perspectives from airport executives, architects, passengers, and popular culture emphasising the changing face and role of the airport as air travel became ‘democratised’ as facing challenges of increased loads and the threat of political insurgents. While mostly a wonderful and exceptionally readable account of airports that offers considerable insights into the complexity and nuances of the airport as a social institution Gordon's (2004) work does tend to overly glorify the period prior to the jet-inspired boom in the late 1960s, simultaneously denigrating the post jumbo-jet world. Although still containing merit Gordon's (2004: 217 - 263) vision of the ‘sterile concourse’ of the 1970s is too simplified and more recent developments such those explored in Gottdiener (2001) do not receive due attention.
Finally, while Fuller's (2003) reflexive commentary *Life in Transit* errs little from the style and direction of conventional accounts, her earlier semiotic analysis of airport terminal signage (Fuller 2002) contributes useful insights into the underlying logic of the design and placement of terminal iconography. Unlike many social scientific analyses of the airport, Fuller's (2002) examination attempted to incorporate ethnographic findings derived from fieldwork conducted in Sydney’s International Airport. Building on these two accounts Fuller and Harley's (2005) next venture is the ambitious *Aviopolis Project*. Building on research drawn from studies in Australia, Japan, and the United States Fuller and Harley's (2004; 2005) elaborate account includes a text, internet database of 'blogs' and commentaries (http://www.aviopolis.com), and extensive, and in many cases, dramatic pictorial reviews that rival those produced by Brambilla (1999) and Rosler (1998).

In terms of scale and use of multiple forums Fuller and Harley's (2004) project is impressive, although at the time of writing, the website consisted predominately of images collected in various ethnographies and contained only a handful of textual entries. Moreover, as at the time of writing Fuller and Harley's (2005) major textual component has not yet been published, the contribution of Fuller and Harley (2005) is impossible to fully determine. Nevertheless, based on the material located on the Aviopolis Internet resource (Fuller and Harley 2004), such as the book’s proposal, Fuller and Harley's (2005) account of elements such as flow appears to strain towards the type of account offered by Rosler (1998) and Brambilla (1999). However, Fuller and Harley's (2004; 2005) work still represents an exciting contribution to the social scientific exploration of airports; a field of concern that, as this chapter has
demonstrated, has not received due substantial and detailed sociological consideration despite considerable interest in related areas of global interconnectivity and mobility.

2G: Literature in Summary

Although the history of literature on global mobility is relatively short, the diversity and depth of its explorations by the social sciences is quickly approaching levels of interest found previously only in the classical concepts of class, ethnicity, and gender. Fuelled by a seemingly insatiable interest in the rapid expansion of globalising forces and influences, these works often merge or transcend traditional disciplinary fields to describe the ‘new’ world of unprecedented travel, interconnection, and flow. This chapter has charted the boundaries of this literature, starting with its origins within the wider concern for globalisation and global processes before moving deeper to investigate its more specific forays into the world of travel and airports.

Overall, this chapter has recognised the important contribution made by the global mobility literature. Yet, it also identified opportunities for expansion and further, or at least ‘different’, investigations into global mobility. In particular, this chapter has demonstrated that the social science descriptions, although very good at exploring the broader social meanings of mobility and travel, have been generally less adept at describing the specific organisational performances, like those that occur at an airport, which enable international flows. The review of literature contained in this chapter has applauded the strengths of the works of Urry (2000a; 2000b), Augé (1995), De Botton (2002), Bauman (1996), Fuller and Harley (2004; 2005) and Pascoe (2001; 2003), among many other too numerous to mention, but it has also highlighted an opportunity for this project to provide a meaningful and unique contribution to the
sociology of global mobility. In sum, this chapter has shown combining the detailed accounts of airport operations found in management texts (de Neufville and Odoni 2003; Ashford 1997; Wells 1994; Dempsey 2000) with an understanding of the importance of socio-technical ordering (Law 1994) presents an unique insight into the operations of an institution that is central to enacting global processes and flows.

However, as discussed in the following chapter Research Methods, this unique perspective required a similarly distinctive methodology. In particular, as the next chapter in this project shall demonstrate, constructing an Organizing Modernity (Law 1994) of the Heffernan International Airport required an occasionally difficult balance to be forged between permissible research opportunities and techniques and the requirements of an Actor Network style analysis.
Chapter 3: Research Methods

3A: Lessons from Law: Introducing a Methodology

As discussed in the project’s opening, this dissertation adapts the work of Law (1994) to provide a ‘modest sociology’ of the operations of an international airport. As such, in developing this project, it was critical to consider the methodologies advocated and adopted by Law (1994) and his colleagues such as Latour (1990) and Callon (1986). However, determining a clear and discernable methodology within the collective works of Law (1994), Latour (1990), and Callon (1986) is not an easy task. As much as 'Actor Network Theory' provides a potentially powerful lens to view the socio-technical, it is often unclear whether the works of Law (1994) and especially Latour (1990) can be viewed substantially as a methodology. Methodology or not, it can be at least asserted that there are methodological teachings contained in the work of Law (1994) and Latour (1990). Occasionally, like in Law's (1994) Organizing Modernity the prescriptions are fairly explicit, but more often these methodological instructions are imbedded, obscured from view they only become apparent by their repeated use.

At the risk of overgeneralising it might be said that, with the notable exception of texts such as Organizing Modernity (Law 1994), Aircraft Stories (Law 2002a), The Pasteurization of France (Latour 1988b), and Aramis or the Love of Technology (1996), ‘Actor Network’ inspired authors favour small canvasses to conduct their very different type of sociology. Indeed, the metaphor of the canvass is most appropriate because the objective of the works of these authors is to depict socio-technical
assemblages. Typical of such miniature depictions are Law’s (1986) account of the 16th-century Portuguese Navy, Moser and Law’s (1999) discussion of a disabled woman, or Latour’s (1992) portrayal of automatic door hinges. In all three examples, the sociology takes the form of short narratives about the complexities of the socio-technical.

Yet, regardless of scale of the study, from a methodological standpoint the common thread throughout the work of so-called ‘Actor Network theorists’ is an emphasis on description. Or, to put it differently, although Law (1994: 9, 14) in Organizing Modernity is fond of the phrase ‘telling stories’, he could equally talk of drawing mental pictures for his readers. Law’s (1994) ‘account’ of the operations of Daresbury Laboratory is precisely that, an account or description of what occurred at Daresbury at a particular time. Thus, the methodology favoured by Law (1994) and Latour (1992) is one that permits descriptions, depictions, or representations of socio-technical assemblages.

As such, research conducted in the vein of Law (1994) and Latour (1992) can accommodate several different types of data collection. For example, over the course of his research career Law (1994) has used techniques as diverse as ethnographic observation and semi-structured interviews (Law 1994), document analysis (Law 2002a; Law and Mol 2001), and historical research (Law 1986; 1987). Again, however, despite the variation in research technique in all of Law’s (1986; 1987; 1994; 2002) accounts the end product was similar. In each case, descriptions emerged of the complex amalgamations of human and machines and their interactions with forms of regulation, governance, and ordering. Here, the deceptive methodological
teaching of Law (1994) can be seen. In most cases, a commitment to the key theoretical underpinnings of a ‘modest sociology’ is far more important than the use of a particular data collection method.

As highlighted in this project’s Introduction (2 - 43), four implicit but critical theoretical underpinnings exist in Law’s (1994) work. These key underpinnings, coupled with the ‘Actor Network’ objective to describe or alternatively ‘tell stories’ shape the methodology of a ‘modest sociology’. Recalling these underpinnings, first and foremost Law’s (1994) Organizing Modernity contains an emphasis on exposing the techniques of management and governance, which he labels ‘ordering’, that allow systems and organisations to operate. From Law (1994) it might be inferred that as the ‘science of the social’, the role of sociology should be to catalogue these ordering strategies that strain, but never fully succeed, at controlling and managing the complex and chaotic socio-technical world. Here again, the emphasis on sociology’s need to describe can be seen. Indeed, this emphasis on description runs throughout the three remaining underpinnings in Law’s (1994) text. In particular, Law (1994) argues that sociology should depict organisations as a consequence of complex performances by ‘telling stories’ of their construction through the mundane and minute. Moreover, Law (1994) extols the need to describe the social as the socio-technical and chart nonhumans and humans on a single page, treating them equally. Finally, Law (1994) urges sociology to portray the multiplicity of ordering performances. In other words, Law (1994) asserts that sociology should represent attempts at governance and control as complex and multiple.
In sum, from Law (1994) a clear, preferred methodology can be seen. However, unlike some sociological models, this recommended methodology does not especially privilege one research technique over another. Instead, privileged in Law’s (1994) model is any technique that permits a description of ordering, of organisations as performance, of socio-technical assemblages, and of the multiplicity of management and governance. As explored in this chapter, this project believes that interviews with an airport management, coupled with references to airport management texts and handbooks, provides the best opportunity to engage in the type of description favoured by Law (1994).

By using primary data acquired from interviews with the management of the Heffernan International Airport this project will construct an account of the operations of an international airport that enable global mobility. In the course of this project’s development the intended research techniques have evolved and been reconfigured. Originally, it was anticipated that through extensive observational research an ethnography of the airport could be created in line with the principals established by writers such as Fetterman (1989: 11; 1998: 473); Dobbert (1982: 4); Schwartzmann (1993: 1); Silverman (1993: 32 - 35; 2000: 37); Spradley (1979: 3 - 6); and Hammersley and Atkinson (1983: 2). However, due to initial challenges gaining access to the airport’s facilities these plans were shelved. In the first year of the project, attempts to gain access to the Heffernan airport were met with some resistance. Concerned with corporate secrecy and security post-September 11th, the airport’s management first declined involvement. However, following negotiations an agreement between the researcher and the airport’s management was reached whereby
interviews with the airport’s administration would become the primary data collection device.\footnote{The assistance of Dr Bruce Rich in establishing verbal contact with the airport’s management must be noted. Without his efforts allowing the project to get a ‘foot in the door’ this project would never have grown to fruition.}

Data would be collected in two interview rounds. The first, a Preliminary Interview Round conducted with six airport managers, would introduce the researcher to the site and provide an opportunity to ask questions of a general nature about the operations of the airport. Additionally, the use of a semi-structured format in the Preliminary Interview Round permitted the development of more focused questions for the second set of interviews, where responses gathered in the Preliminary Interviews could be expanded upon or ‘teased out’. Constructed using a series of coding concepts, the second, a Major Interview Round consisting of ten additional interviews, would target more specific questions about the operations of the airport, and in particular, the ordering measures that strain towards (among other things) governance, regulation, accurate information exchange.

In retrospect, the shift in direction to interviews as opposed to observational, ethnographic fieldwork gave the project a distinctive perspective in understanding the operations of an international airport. Few social scientific accounts of the airport have incorporated airport management perspectives acquired from primary sources. Indeed, when authors such as Fuller (2002), Gottdiener (2001), Gordon (2004) have quoted members of the aviation industry they have relied solely on secondary accounts taken from industry publications.\footnote{Whether Fuller and Harley’s (2005 Forthcoming) text Aviopolis will continue this trend is impossible to determine.}
In relation to research methods, the ambition of this project was to incorporate a methodology that was simple but not simplistic. In other words, this project sought to incorporate research methods that were thoroughly interconnected with the Law-inspired (1994) theoretical underpinnings of the unit and worked toward the project’s goals and objectives whilst, simultaneously, balancing the practice limitations of studying an airport as a commercial site fearful of spilling secrets to terrorist organisations and corporate competitors. While detailed ethnographic research featuring months of extensive fieldwork, like that undertaken by Law (1994) in Daresbury Laboratory, would yield significant results, the complexities and sensitivity of the research site demanded that less intensive, yet worthwhile research be conducted.

Managers of the Heffernan International Airport were selected as interview respondents for logistical and theoretical reasons. First, as an engagement with a sensitive commercial site, one of the initial concerns expressed by the airport’s administration was who the study might wish to interview. Lower-level employees, they suspected, would be more likely to spill secrets, divulge confidential information, or generally embarrass the organisation with tales of corporate mismanagement and administrative incompetency. Such ‘juicy’ material would normally be ideal fodder for a critical sociological analysis, especially one concerned with issues of hierarchy and power. However, for this project, couched within the theoretical and methodological parameters advocated by Law (1994; 1997a) and Latour (1986; 1990), interest in possible tales of scandal and ineptitude, even if true, was lessened by the more pressing objective to explore how actors strained towards the ordering or governance of the airport as an organisation. In other words, this project sought to
describe the actions and techniques actors employed to strain towards the ordering or governance of the airport. As an examination of the management of the airport it would seem valid and reasonable that the best people to talk to in creation of the project would be managers of that organisation. Indeed, as an examination of attempts ordering the stories told in the project are of actors that attempt to govern, manage, regulate, and control. These stories too have not only concerned human managers but also instruments, tools, and documents, entities like international aviation regulations, terminal signage, travel documentation, committee meetings, and manipulations of architecture.

Nevertheless, the decision to interview only managers made in completing this project must be viewed somewhat as a limitation to the comprehensiveness of the project. Interviews with staff and passengers would have highlighted many other ordering performances, providing insights unattainable by interviewing only management. However, in defence of this position, although interviews occurred solely with management, this project was able to gain access to managers from varying levels of rank, role, and experience. Some managers interviewed, like Manager ‘B’ (Major Round Interview) were clearly closer to the ‘coal face’ than others such as Manager ‘A’ (Major Round Interview) or Manager ‘J’ (Major Round Interview). Indeed, those responsible for operational teams like Manager ‘B’ (Major Round Interview) and Manager ‘E’ (Major Round Interview) appeared to be more closely aligned to general staff than to the more senior (in terms of hierarchy rather than age or experience) planning and executive management.
The diversity in management interviewed was not due to chance or coincidence. Although management were opposed to interviews with general staff and passengers, the project’s industry contact Manager ‘J’ (Major Round Interview) was explicit in his intent to invite managers from a diverse roles, experience, and expertise. Indeed, in negotiations, Manager ‘J’ (Major Round Interview) remarked that he would seek to invite managers from different areas of the airport’s business including some that would be ‘entertaining’ and ‘colourful’. At the time this most welcomed gesture appeared to be an attempt to make the interview process in the suspicious environment of the airport easier for both interviewer and respondent. Yet, after the interviews were held it became apparent, to the immense benefit of the project overall, that the terms ‘entertaining’ and ‘colourful’ used by Manager ‘J’ (Major Round Interview) to describe certain respondents were most likely euphemisms to describe management members that had perspectives that did not always follow the management line. Thus, although it is reasonable to regard the interviewing of management exclusively as one of the project’s limitations, this limitation is hardly fatal due to the range of management perspective that was able to be garnered. Instead of single managerial perspective, this project was able to obtain and portray varied perspectives from airport officials, who while captured under the single title ‘management’, in reality came from vastly different roles and possessed diverse attitudes and varying levels of experience.

Nevertheless, returning to the key issues of this chapter, the task for this project has been to construct a precise research model that targets the research question through an interconnection of theory, coding, and data collection. In this project, theory, and in particular the work of Law (1994) has been used as a lens or filter to view the
airport. Although primary data collection opportunities may have been restricted, the available opportunities have been selected and conducted with care to maximise the interrelations between the project’s objectives, methods, and theory. Through these interconnections a strong and rigorous research model has been developed. In the development of the project, the project’s objectives educated the theory; the theory educated the method; the method educated the objectives and so forth. Each element dictated to the other; informing it, adapting and evolving it.

In four sections, this chapter will describe the research methods employed by this project. The first will describe the process for selecting the Heffernan International Airport as a site of inquiry. It will assert that, while various other international airports were considered, both practical and theoretical considerations supported the choice of Heffernan International.

The second component of this paper will examine the theoretical coding concepts incorporated in this project. The six coding concepts Material Delegation; Obligatory Points of Passage; Immutable Mobility; Coordination and Cooperation; Power; and Space provided a lens to explore the airport’s operations and were drawn from a combination of data collected in the Preliminary Interview Round and with the theoretical teachings of theorists like Law (1986; 1987; 1992; 1994; 1997; Law and Hetherington 2000), Latour (1986; 1987; 1988a; 1988b; 1990; 1992; 1993; 1997), Callon (1986a; 1986b; Callon and Latour 1981; Callon and Latour 1992), and Kendall and Wickham (2001). Although initial plans to dedicate a chapter to each coding concept would be abandoned, this section will demonstrate that the coding concepts contributed enormously to the tone, direction, structure, and content of the project, as
well as providing the work with a focus and sense of purpose. For instance, the questions asked in the major interviews each corresponded to particular coding concepts and the influence of these themes and theoretical notions can be seen throughout the document’s stories of the airport as a complex socio-technical assemblage.

Subsequently, the third and fourth sections of the chapter will highlight the logic of the two interview rounds. These sections will explore the reasoning for the interview structure, the selection of respondents, and the formulation of interview research questions. Thus, in the third section, this chapter will examine the development and performance of the project’s initial Preliminary Interview Round. In particular, it will be asserted that the Preliminary Round provided an important ‘ice-breaker’, and was critical to the formation of early theoretical and logistical understandings of the airport.

Finally, this chapter will explore the construction and realisation of the Major Interview Round. This section will analyse the logic of questions exploring the links to their corresponding coding concepts. In particular, this section will demonstrate how the theoretical underpinnings, drawn especially from Law's (1994) *Organizing Modernity*, combined with data acquired in Preliminary interviews and existing managerial accounts of airport operations, such as de Neufville and Odoni (2003), enabled the creation of a series of questions that strived to depict the orderings of the airport as a complex, multifaceted, and materially heterogenous organisation.
3B: The Heffernan International Airport as a Research Site

The data collection for this project took place at the Heffernan International Airport. Again, it is worth reiterating that the name ‘Heffernan’ is a pseudonym. As part of the agreement reached with the airport’s management and to protect the anonymity of the organisation all references to the airport’s name or to its home city were removed. The airport’s management, clearly fearful, or at least conscious, of the possible repercussions of permitting a social scientific inquiry into their operations, granted access to their management only after it was agreed that a pseudonym for the airport be employed in the study.

The Heffernan International Airport was selected after several other sites were considered. Indeed, in line with its original interests in the notion of ‘hubs’, in the project’s preliminary phases the major international airports of Dubai, Hong Kong, Singapore, and Kuala Lumpur were all considered as a site of inquiry. However, although the operations of an international hub-airport would be an important contribution to the study of global mobility, such an undertaking would likely require a much larger study than that possible given the resources available, involving an extended period of ethnographic research with multiple researchers. Moreover, gaining access to these facilities for a lengthy study would be almost impossible given the project’s limited timescale.

Instead, this study elected to examine processes within a smaller more manageable location. The Heffernan International Airport was considered an ideal location for

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42 Following an exploration of the literature on ‘hubs’ (Taylor 2000; 2001; 2004 Shin and Timberlake 2000; Smith and Timberlake 1995; 1998; 2001; and Song 2000) the interest in ‘hubs’ would be replaced with a desire to explore the mundane features that permit an international airport to operate.
three reasons; its proximity to the researcher, its function as a stand-alone international terminal, and its scale. Firstly, the airport’s proximity and convenient location has allowed the researcher to more easily engage with the airport’s management. The proximity of the airport was particularly useful when multiple meetings over the period from November 2002 and March 2003 were held with the Airport’s management to negotiate access and determine the terms of the study. Additionally, the location of the airport permitted a degree of flexibility in the scheduling of meetings and interviews; an element of crucial importance for the airport’s management. In contrast, if alternative airports had been selected, financial limitations would have greatly reduced the potential time allocated for the research components. Moreover, establishing links with distant airports through letter writing, email, and teleconferencing would have been extremely challenging.

Secondly, as an international-only terminal, the Heffernan International Airport provided an opportunity to more easily isolate the activities that contribute to global mobility. As the Heffernan Airport facility contains distinct international and domestic terminals, the researcher was able to examine in the purest form possible the operations that allow passengers to travel globally, without contaminating the study with references to domestic-only flight processes. The processing of domestic passengers contains similarities and differences to the processing of international passengers. For instance, domestic travel does not require the same level of documentation to enable passage that international travel requires. Increasingly, domestic carriers in Australia and overseas are employing forms of electronic ticketing. However, electronic ticketing is still discouraged by Australian Customs and Immigration on most international flights from and to Australia. These regulatory
agencies fear that electronic ticketing presents increased opportunities for fraud. As this project is interested exclusively in international travel and mobility, conducting research in the international-only terminal of Heffernan enabled a clearer separation between these varying international and domestic processes.

Finally, with a relatively low passenger turnover of 2.5 million international passengers annually (2002/03 figure) (Heffernan Airport Corporation 2003: 45), the Heffernan International Airport was considered to be a manageable and appropriate size for this study. While larger airports with large passenger turnovers may be viewed to be more important in the network of global mobility, the goal of this study to provide an account of the mundane processes and performances that allow an airport to function means that the actual scale of the airport is fairly negligible. Indeed, selecting an airport with a higher turnover of passengers would make the process of data collection significantly more difficult, potentially jeopardising the findings of this study.

Approval for study would be given subject to a number of conditions. Firstly, in line with principles of good ethical research conduct outlined by the University Ethics Research Committee, anonymity for the participants was already an important element within the study. Secondly, the airport administration requested that the study did not examine issues pertaining to airport security. Given the renewed emphasis on aviation security\(^\text{43}\) this request was not surprising and given that issues of security were not of immediate interest to the researcher this omission was considered.

\(^{43}\) As Gordon (2004: 231 - 239) discusses, the aviation industry experienced its first major concern for security in the late 1960s and early 1970s. Following a spate of hijackings and other acts of extremists, airports introduced measures, now considered ubiquitous, including metal detectors and dogs trained to detect explosives.
quite acceptable. Thirdly, continuing assurances made in the project’s initial proposals the airport’s management would be provided the opportunity to review the final document and censor material that they viewed as commercially sensitive or that compromised the security or operations of the airport.

As discussed also in this project’s conclusion (347 - 351) such a provision was potentially very dangerous for the research. Allowing the airport’s administration to have a ‘final say’ on the document could compromise the work’s integrity, influencing its contents. Nevertheless, these fears are certainly not this project’s alone. Indeed, Law (1994: 38 - 39) faced an almost identical dilemma when studying the Daresbury Laboratory. As Law (1994: 38 emphasis in original) recounts, the threat of being too uncritical of Daresbury, or, in other words, ‘going native’, was especially apparent when a colleague commented that their previous account had recommended the site’s closure:

I was horrified. How could I recommend (or even think about recommending) the closure of my Laboratory?... In the end I found myself saying, ‘Would you close your tribe?’ And this is, indeed, how I felt. How, I wondered, would the anthropologist Evans Pritchard have responded to a question about whether or not the Nuer should be ‘closed down’.

Airports, like the laboratory in Law's (1994) account, are controversial institutions. A different account of the airport, like all controversial entities, could no doubt portray the airport in a negative way and be disapproving of its operations. However, even before the introduction of the ‘censor provision’ an unfavourable analysis that would

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44 For more on the limitations imposed as part of the research agreement forged with the Heffernan Airport’s administration see pages: 347 – 351.
highlight the airport’s failings was never this project’s intention. Instead, this project has steered clear of such controversies, giving itself the less contentious task of describing the performances that enable an airport to operate.

Perhaps, like Law's (1994: 39) account of Daresbury, this text seeks to be critical (or at least critically aware) of the airport’s operations while also attempting not to ‘hurt’ the organisation whose support this project has relied upon. Nevertheless, legitimate questions can be asked regarding the influence that such a provision could have on the content of the text.

However, as Law (1994: 39) explains this question cannot be answered by a researcher themselves. Although a researcher may feel that their text has not been compromised by the constraints of the research they cannot separate themselves wholly from the process of writing and research to make an entirely accurate and unbiased judgement. Conducting social research, and especially research involving partnerships with industry, is an art of the possible. While concessions had been made in the process, reaching an agreement with the airport’s management to conduct two rounds of interviews permitted the continuation of the project and allowed the development of coding concepts that would educate the questions asked in interviewed and the core theoretical themes to be explored.

3C: Coding Concepts

45 Of his own text Law (1994: 39) writes:
Do I uncritically order my stories around a managerial perspective? Is what I write simply an extension of a managerial view? Well, you can make your own judgement.
Coding is a key component in any research project (Hammersley and Atkinson 1983: 169). Indeed, the act of coding provides one of the major distinctions between academic research and acts of journalism and other forms of social commentary. For this project, coding provided a lens to view the operations of the airport. Drawn from conceptual themes contained in the work of a group of sociologists including Law (1986; 1987; 1991a; 1991b; 1992; 1994; 1997; Law and Hetherington 2000); Latour (1986; 1987; 1988a; 1988b; 1990; 1992; 1993; 1997); Callon (1986a; 1986b; Callon and Latour 1981; Callon and Latour 1992); and others\(^{46}\), and adapted following the initial Preliminary Interview Round, the coding concepts incorporated in this project determined what was to be considered important and relevant in describing an international airport as an organisation. *Indeed, as mentioned earlier, the six coding concepts Materials; Obligatory Points of Passage; Immutable Mobiles; Coordination and Cooperation; Power; and Space were originally intended to form six content chapters.* However, in the document’s final version only two, ‘Materials’ (205 - 259) and ‘Space’ (245 – 306) were retained as chapters. Nevertheless, as this section will show, the coding concepts provided the project with its tone, direction, and impetus. Not only were the concepts essential in the creation of the questions for the Major Interview Round, but their theoretical and analytical contribution as lenses, which dictated the project’s interests, can be seen throughout the document.

The first coding concept integrated was Materials. For theorists including Latour (1988a; 1990; 1992; 1997), Law (1986; 1987; 1992; 1994; 1997; 2000); and Callon (1986a; 1986b; Callon and Latour 1981) the interest in materials is illustrative of wider concern for reconfiguring sociology’s interests from the purely social to the

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Sociology, they argue, has for too long been interested in the actions and performances of human actors. Yet, Law (1994), Latour (1992), and Callon (1986b) argue the term ‘actor’ can (and should) be expanded to encompass nonhumans as well. Machines, animals, technologies, plants objects, and things all interact and exist in the ‘social’ world. Hence their works describe humans and such varied things as components for electric cars (Callon 1986a), sea scallops (Callon 1986b), pneumatic door-closers (Latour 1988a), car seat belts (Latour 1992), and 16th-century Portuguese sailing vessels (Law 1986; 1987). Yet, they do so not because of inherent interests in these entities but because nonhumans (along with human actors) contribute to the performances that construct the socio-technical world. Thus Latour (1988a; 1992) argues, to understand the operation of an organisation (or other ‘social’ phenomenon) the mundane, ‘missing masses’ that perform that organisation must be interrogated.

In seeking to produce a supplement to existing social scientific accounts of airport that explored how the an international airport functions, this project was immediately drawn to the focus on material performances contained in the works of Latour (1988a; 1990; 1992; 1997), Law (1986; 1987; 1992; 1994; 1997; 2000; Law and Hetherington 2000); and Callon (1986a; 1986b; Callon and Latour 1981). As evident from even the most casual observation an international airport is a combination of material and human actors. Yet, apart from Fuller's (2002) discussion of airport terminal signage, the role that materials play has rarely been explored in social scientific accounts of the airport. By incorporating materials as a coding concept this project sought to respond to the omission of material performances in previous accounts. Indeed, an interest in material performances would become one of the major theoretical underpinning of
this project. Throughout this project and especially in Chapter Six, ‘Materials’, (205 - 259) the airport as a ‘materially heterogeneous’ (Law 1994: 2) organisation would be explored through stories of nonhuman actors including runway tarmac (213 - 220); baggage handling systems (220 - 227); and new forms of aircraft (240 - 252).

The second coding concept incorporated into this project was Obligatory Points of Passage. While the term has its origins with Callon (1986b) it also has been used by authors including Law and Hetherington (2000: 41). In simple terms, an obligatory point of passage is a point within a network (or socio-technical system or institution) that is compulsory or unavoidable. Obligatory points are thus centres of knowledge and influence. Placing this rather abstract idea into a practical context, Andrew, the Laboratory Chief in Law’s (1994) study of Daresbury, for example, can be considered an obligatory point of passage because through access to reports and information he is able to situate himself into a position of knowledge. Ideally, all the events and major problems that occur in the Laboratory will ‘pass through’ him. Indeed, Andrew need not leave his office, as an obligatory point of passage or ‘knowing location’, he can use materially heterogeneous ordering performances (like his computer spreadsheet) to govern at a distance (Law 1997; Law and Hetherington 2000: 41).

Unlike the first coding concept, Materials, Obligatory Point of Passage would not become a chapter in its own right. However, the idea of Obligatory Points of Passage would become an important theme in the project’s explorations of methods of ‘long

47 Recalling the definition of ‘networks’ used by authors like Latour (1997), the concept of the network should not be necessarily thought of in overly mechanical terms.
48 It can only be ideally because as Law (1994) reminds these attempts at ordering are invariably incomplete.
distance control”. In particular, this project (Ordering: 144 - 149) examined the methods such as busy hour measures, by which managers at Heffernan International transformed themselves, like Andrew at Daresbury, into ‘knowing locations’.

The third concept used for coding in this study was Immutable Mobiles. The term Immutable Mobile was devised by Latour (1990: 26 - 44) to describe entities or assemblages that remain stable and intact despite movement. For example, in Law's (1986; 1987) account of the 16th-century Portuguese fleet, with a disciplined crew and properly operating equipment the empire’s vessels could successfully navigate from Lisbon to Goa (Law and Hetherington 2000: 39). In other words, the maps; compasses; astronomical tables; sextons; and even the various components of the boat itself were all immutably mobile. Despite their movement, the instruments used in sailing remained unchanged, intact, and stable.

The concept of Immutable Mobility was important for theorists like Latour (1990) and Law and Hetherington (2000) because it assisted in their various illuminations of the operations of systems. For Latour (1990: 26 - 44), describing the creation of scaled drawings and scientific tables as Immutable Mobiles provided insights into the performance of science. While Law and Hetherington's (2000: 39) reapplication of the term within the context of his study of Portuguese Navel Empire (Law 1986; 1987) shed light on the ordering or governing of large systems. In order for information to be transferred accurately and efficiently through a network, that information (and the techniques used to transmit the information) must remain stable and secure. In citing the role of Immutable Mobiles, Law and Hetherington (2000: 49).

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49 The concept of long distance control originates from Law (1986; 1987; 1997; Law and Hetherington 2000).
39) provided an account of the ordering performances that enabled a distant nation state to efficiently and accurately relay orders and instructions.

Likewise, this project incorporated the concept of Immutable Mobiles as theoretical tool to analyse the processes of information relay in the airport environment. In particular, the theme of immutable Mobiles emerges twice in the project. On one hand, mimicking Latour (1990), this project (Materials: 246 - 252) explores the process of creating scaled drawings of the new A380 super-jumbo to help airport planners prepare for the introduction of the massive new craft. As representations these drawings strain to maintain their optical consistency (Latour 1990: 35 - 42) as they are transported to airport administrators worldwide. On the other hand, this project (Space: 278 - 285) also explores travel documentation as an immutable mobile. Here, like the Portuguese vessels (Law 1986; 1987), travel documents are depicted as entities that must remain stable despite travel, a requirement for those seeking to negotiate means of access through the obligatory points of passage.

The fourth coding concept incorporated into the project was Coordination and Cooperation. Coordination and cooperation as an important coding concept for this project was adopted after a series of preliminary interviews were held with members of the Heffernan International Airport’s management in February and March 2003. Through these initial preliminary interviews it became apparent that, in many instances, the operations of the airport organisation were interconnected and interwoven with the operations of other actors. While separations in control and duties existed between the various agents operating with the airport space these barriers were rarely obvious to an external observer. How the Heffernan Airport
Corporation managed and negotiated the complex network of agents working within the airport became a critical issue for this project especially in the development of interview questions. While not directly drawn from the body of literature that provided this project with its theoretical underpinnings, the topic of coordination and cooperation has a resonance with Law's (1994) inquiry into the operations of Daresbury. For instance, in *Organizing Modernity* Law (1994) investigates the coordination of various departments, staff members, technologies, and materials.

The fifth coding concept used in this project was Power. Despite (or perhaps because of) its popularity (Brown 2004: 143 - 193), even within so-called Actor Network accounts (Latour 1986; Law 1997), power is an imprecise term. Thus, in the course of this project’s development, the term power was phased out in favour of various concepts such as influence, governance, administration, control, and especially, ordering. This shift was designed to complement the distinction from common perceptions of power as mere thuggery or domination contained originally in the work of Foucault (1965; 1975; 1977; 1980; 1987; 1990; 1991) and later built upon in the accounts of Law (1994; 1997; Law and Hetherington 2000), Latour (1986), and Kendall and Wickham (1999; 2001).

Power is not a tool that can be inherently possessed by some and not by others (Latour 1986; Law 1997). Rather power is enacted in particular situations and contexts and is conditional on the availability of resources, and in particular, access to knowledge that (as was discussed earlier) can transform actors into ‘knowing locations’ (Law 1997; Law and Hetherington 2000). In relation to this alternative perspective of power,

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theorists including Latour (1986) and especially Law (1994) sought to examine power in new ways including techniques of governance and long distance control (Law 1986; 1987; Law and Hetherington 2000), and in particular, methods or performances of ordering (Law 1992; 1994; 1997; 2003; Law and Hetherington 2000). To reiterate a point explored in greater detail elsewhere in this project (Ordering 115 - 118), Law's (1994: 5) work on ordering put an emphasis on the often hidden ‘work’ enacted by actors that strains (but never fully succeeds) in creating order.

While this project does not contain a chapter titled ‘Power’, when described instead as ‘Ordering’ the contribution of the fifth coding concept becomes apparent. Indeed, the significance of the alerted Power concept extends well beyond the project’s fourth chapter to influence the content of the project throughout. As highlighted in the chapter ‘Introduction’ (3 - 8) this project’s foremost goal is to illuminate the ordering performances that allow an international airport to operate and in the process reapply Law's (1994) study of organisation in an alternative setting. Thus, while the concern for ‘power’ waned as the project developed, it was subtly replaced with a greater interest in more specific concepts of ordering, governance, discipline, and administration.

The sixth and final coding concept incorporated into this project was Space. The concern for space was fuelled by the interest in the subject within existing social scientific accounts of the airport (Augé 1995; Fuller 2002; Rosler 1998) and by a parallel concern with challenging traditional notions of Cartesian or Euclidian space contained in the writings of Law (1994; Law and Hetherington 2000), Latour (1997),

51 See also Kendall and Wickham (2001) and Malpas and Wickham (1995).
and Thrift (1992; 1996; 1998). In particular, Law (1994; Law and Hetherington 2000) and his colleagues argue that space is a performance:

*Space is made.* It is a creation. It is a material outcome. Like objects, places, or obligatory points of passage it is an *effect*. It does not exist outside its performance.

(Law and Hetherington 2000: 43, emphasis in original)

As Law and Hetherington (2000: 36) explain, through material performances of telecommunications London is in some respects logistically ‘closer’ to New York than to some of its suburbs\(^\text{52}\). Or, as Latour (1997: 3) brilliantly describes with deceptive simplicity:

I can be one metre away from someone in the next telephone booth, and be nevertheless more connected to my mother 6,000 miles away; an Alaskan reindeer might be ten metres away from another one and they might nevertheless be cut off by a pipeline of 800 miles that make their mating for ever impossible… A gas pipe may lie in the ground close to a capable television glass fibre and nearby a sewage pipe, and each of them will nevertheless continuously ignore the parallel worlds lying around them.

In all cases, material performances have created imbalances in traditional notions of distance and proximity altering the makeup of the spatial formations.

Like the first coding concept ‘Materials’ (205 - 259), ‘Space’ (263 - 330) would remain as one of this project’s thematic chapters. Inspired by the accounts of Law (1994; Law and Hetherington 2000) the space coding concept permitted a depiction of the airport environment very different from those in the traditional social scientific accounts of the airport (Rosler 1998; Brambilla 1999; Fuller 2003; Fuller and Harley 2004). Indeed, incorporating the notion of ‘space as performance’ as a coding

\(^{52}\) Similarly Kendall (2002: 9 - 10) notes that in Colonial times London and Sydney were closer than Sydney was to the outback settlement of Broken Hill.
concept contributed a description of the airport space as an outcome of socio-technical orderings that create, among other entities, the terminal’s ‘functional areas’ (Major Round Interview A).

3D: The Preliminary Interview Round

Six Preliminary Round Interviews were held with managers of the Heffernan International Airport during the 13th and 14th of February, and the 11th of March, 2003. The participants for the interviews were selected by the project’s industry liaison at the airport in consultation with the researcher from a list of twenty-nine managers. While allowing a representative of the research site to select interview participants might appear to be another unnecessary provision, the arrangement ultimately aided the project significantly. By allowing the industry liaison to interview participants, managers who were viewed as the most likely to be able to assist the study and be willing to be involved could be selected by a colleague who had an understanding of their role and demeanour. Otherwise, interview participants would have needed to be selected ‘blindly’, without an understanding of their background, role in the airport, or personality.

In line with principles of good, ethical research conduct, all the interviews’ participants would be anonymous in the text. Research participants in the Preliminary Interview Round would be only referred to in the document as a number, for instance, Preliminary Round Interview 1, a number allocated based on the schedule of meetings. Furthermore, research participants in the Preliminary Interview Round

33 The project’s industry liaison also participated in the Preliminary Round (Interview 5).
were voluntary and signed an agreement that detailed the purpose and direction of the research.

Given that the participants had been selected by a fellow manager, questions could be raised to level that participants felt like they were required to be involved. However, as all managers interviewed\textsuperscript{54}, when asked, expressed no prior knowledge of the purpose of the meetings that had been scheduled in their diaries it is reasonable to assume that \textit{no} instructions had been issued ‘from above’ to comply with research. Most managers were enthusiastic about the opportunity to discuss their role and the direction of the airport.

Each of the Preliminary Round Interviews was approximately thirty-minutes in duration and contained open-ended questions designed with the intention of allowing the respondent to discuss the undertakings of the airport in broad terms. As semi-structured interviews these preliminary conversations allowed the researcher to select and develop questions as the interview progressed. A base set of twelve questions was incorporated for the first five interviews, while an additional three question were added for the final preliminary interview. As the roles of the respondents within the airport’s management varied greatly some questions were omitted, and in the final case added. The base questions for the preliminary interviews were as follows:

1. What is your role at Heffernan Airport?
2. What changes have you observed in your time at the airport?
3. What areas of the airport’s operation is the HAC responsible for?

\textsuperscript{54} Evidently with the exception of Manager 5 (Preliminary Round Interviews) who coordinated the schedule.
4. I have heard the airport described as a ‘transitory space,’ a place where the world interconnects, what do you think about that idea?

5. I would imagine that the aviation industry would be one in which mistakes could potentially be extremely costly. Could you explain how quality assurance mechanisms are employed in the airport to ensure that systems are running safely and effectively?

6. What aspects of the airport do you think the public misunderstand?

7. What do you think are the major challenges facing the Heffernan Airport and the aviation industry more generally?

8. Is there a lot of communication between airports? Do you share ideas and new ways of doing things?

9. How do you think the airport will change in the future?

10. Do you think that problems overseas will affect the amount of people travelling and using the airport?

11. What features and aspects make a world-class airport?

12. What is Heffernan’s role within the global air-travel network?

13. I am very interested in the relationship between airports and air carriers. Could you describe how new air carriers establish links with airports? (Interview 6 only)

14. I would imagine that maintaining a strong relationship between the airport and air carriers is very important. What types of initiatives has the HAC implemented to improve and reinforce the association between airports and airlines? (Interview 6 only)

15. Are there any particular regional markets that Heffernan Airport is targeting to expand its operations? (Interview 6 only)

The data acquired in the preliminary interviews became integral to the development of this project. Firstly, the preliminary interviews provided the researcher with insights
into the organisation of the airport that would have been difficult to acquire from different means. The Preliminary Round Interviews allowed the researcher to understand more clearly the airport administration’s responsibilities, plans and goals, current role, and looming challenges.

Secondly, the Preliminary Round Interviews were critical in finalising the objectives and methods for this project. At the outset the success of the Preliminary Round Interviews provided an initial indication that a larger, Major Round Interview component could yield substantial and significant data. Moreover, data acquired from the preliminary interviews was vital in the formulation of the questions for the main round of interviews. In particular, the Preliminary Round Interviews highlighted the need for a ‘coordination and cooperation’ coding concept to account for diversity of agents and organisations at the airport facility. Indeed, the Preliminary Round Interviews demonstrated previously unconsidered aspects of the airport’s operations such as the delicate relationship between the airports and air carriers.

Finally, the preliminary interviews also assisted in selecting interview participants for the Major Interview Round. Interview participants that were especially forthcoming or seen as providing interesting insights could be targeted.

3E: Major Interview Round

Following the success of the Preliminary Interview Round, ten Major Round Interviews were conducted with members of the Heffernan International Airport on the 18th and 23rd of June, 2003. Like the Preliminary Interview Round, potential respondents were selected by the project’s industry liaison. Moreover, like the
Preliminary Round Interview, the participants of the Major Round were voluntary and were guaranteed anonymity. For convenience, respondents in the Major Round Interviews were allocated a corresponding letter rather than a number. Elements that worked in the Preliminary Interview Round were continued in the Major Interview Round. For instance, the thirty-minute, semi-structured format used in the Preliminary Interview Round was carried over into the Major Round. As explored below (93 – 99), a set of twelve ‘base’ questions, each pertaining to a particular coding concept was employed to give the interviews structure and direction. Nevertheless, the semi-structured format incorporated permitted some deviation, allowing the researcher to omit questions considered unsuitable or repetitive. Six additional ‘bonus’ questions were also created to explore issues in greater detail and as an ‘emergency plan’ in case the interviews stalled.

In forming the research methods for the Major Interview Round the project’s theoretical lineage to authors such as Law (1994) and Latour (1993) needed to be carefully considered. As Latour (1997: 1 - 2) asserts, traditional qualitative research techniques are inappropriate for so-called Actor Network accounts. The inappropriateness of qualitative textual methods, such as textual semiotics or membership categorisation (Silverman 1993: 59 - 82) for ‘Actor Network Theory’ is derived from the emphasis on describing or depicting a giving situation or phenomenon. Thus, in other words, the objective of the accounts of Law (1994) and his colleagues is to describe the materially heterogeneous conditions that strain to construct a socio-technical phenomenon rather than analysing representations or perceptions of a giving situation, as would be derived from textual research.
The preclusion of qualitative textual research methods had major implications for the way in which the Major Round Interviews conducted were formulated. The first challenge occurred in the selection of respondents. As indicated earlier, given the objectives of this study it was felt that the managers of the Heffernan Airport Corporation’s various departments would be most qualified to assist in this study. As occurred in Law's (1994) *Organizing Modernity*, managers would effectively speak as the experts of their particular field or sector. Given their senior status in that role and their experience, the managers interviewed were assumed to possess special overarching knowledge of the airport’s systems.

The second challenge for the interview research component was based on the construction and selection of questions. The objective of interview questions was to establish what processes and systems were used by the Heffernan International Airport’s management to enable the airport’s successful operation. Unlike many qualitative textual analyses (Sacks 1974; 1992) the goal of carrying out such an interview was not to deconstruct the respondents’ answers by searching for the deeper symbolic meanings ascribed in the language they selected. Instead, this project examined the answers of the respondents as experts in their field. Thus again the project embraced Law's (1994) and Latour's (1987; 1988b; 1993) perspective that the sociologist does not contain any special or inherent knowledge of their sites of research and instead, ignorant and naïve, must use research to learn from respondents. In the specific case of this project, the interview respondents, as managers of an airport, were regarded and treated as experts in the coordination of that airport and
thus considered the most qualified people to learn about an airport’s operations. If the manager’s responses were critically analysed or deconstructed their position as experts would be undercut and the significance of their potential contribution to understanding the operations of the airport structure reduced.

The content of the questions within the Major Interview Round was tied to the coding concepts discussed earlier (86 - 95). Of the twelve questions, two questions corresponded with one of each of the six coded concepts. Moreover, each of the six ‘bonus’ questions also pertained to a coding concept. Coordinating the interviews with the six coded concepts ensured that each question would be derived from the project’s theoretical underpinnings. In other words, merging the Major Round Interview questions with the coding concepts solidified the relationship between the project’s data and the theory. Each question targeted a particular aspect of airport’s operations within a theoretical context simplifying the coding process and guaranteeing (as much as possible) that each question would be significant and useful for the project. Moreover, as the final set of questions was formulated through an examination of the data acquired in the Preliminary Round Interviews, each question in the Major Round Interviews could be asked with confidence that it would be relevant and pertinent to the operations of Heffernan International Airport. In order to both maximise the data collected and yet, simultaneously, ensure that the data related to the objectives and theory of the project, a combination of relatively open-ended and narrower, focused questions was incorporated. Occasionally,

Likewise in the consultation of secondary sources texts like Ashford et al. (1997); Sealy (1976); Hart (1985); Kazda and Caves (2000); Graham (2001); Wells (1994); Wells and Young (2000); de Neufville (1994; 1995a; 1995b); de Neufville and Belin (2002); de Neufville et al. (2002); de Neufville and Odoni (1992; 2003); Dempsey (2000); Dempsey et al. (1997); Horonjeff and McKelvey (1994) and Wiley (1981) and airport management provided an essential resource for this project.
questions that were successful or produced interesting insights in the Preliminary Interview Round were either reused or slightly reconfigured.

The first two questions used in the Major Interview Round are linked with the coded concept of ‘Material Delegation’.

**Q1:** *I am interested in the ways that the airport operates. There appears to be a great deal of activities that involve people working with machines. Can you describe the types of machines used by you and your staff members in the operations of the airport?*

This question was designed to explore the separation of tasks between humans and nonhumans (Latour 1986; 1988a; 1990; 1992; 1993; 1996; Akrich 1994; Law 1987; 1992; 1994; 2002; Law and Hetherington 2000; Law and Mol 1995). The origins of this question began after initial readings of Latour (1988a; 1992), although the focus and framing of the question evolved substantially after the Preliminary Round Interviews. Specifically, the ambition of this question was to examine the transition of responsibility in actions between nonhumans and humans.

**Q2:** *I would imagine that the aviation industry would be one in which mistakes could potentially be extremely costly. Could you explain how quality assurance mechanisms are employed in the airport to ensure that systems are running safely and effectively?*

The second question was taken directly from the Preliminary Interview Round. In relation to tone, it is more open-ended than Question One and was designed to enable the respondent to speak in general terms about the operations of airport. However, on another level, this question was designed to explore how the combination of nonhumans and humans within the airport strain towards durability and efficiency.
The second set of questions explored the concept of Obligatory Points of Passage.

**Q3:** What is Heffernan’s current role within the global air-travel network?

Are there any markets that the airport is targeting to expand its operations?

This third question was a combination of two questions asked during the Preliminary Interview Round. In their original format these questions were not designed to explore the notion of ‘Obligatory Points of Passage’. However, through the course of the Preliminary Interview Round respondents spoke of the desire to increase the Heffernan International Airport’s role in terms that, at the time, seemed to mirror the discussion of Obligatory Points of Passage (Law and Hetherington 2000: 41).

**Q4:** In its appearance the layout of an international airport terminal is very structured and regimented. What sorts of conventions exist in the design of terminals to ensure that passengers are processed orderly and efficiently?

Likewise, question four provided important insights, especially in relation to the forms of international regulation that strain towards routine (Ordering: 119 - 127).

The third set of questions explored the coding concept of Immutable Mobiles.

**Q5:** Many travellers would suggest that airports around the world are very alike. To what extent do airports world-wide follow similar systems and ways of doing things? For example, are there many international guidelines on the operation of airports?

Question five was incorporated to gauge the level of uniformity in processes and systems around the world. Ultimately, question five would, much like question three, garner some excellent insights into processes of ordering international airports (Ordering 101 - 146).
**Q6:** *What are the benefits and disadvantages of having similar systems as other airports? Can you think of any instances where the airport’s operations have been modified to match procedures with other airports?*

Question six begins with the assumption that universal systems do exist between airports around the world, based on a reading of airport management literature (de Neufville and Odoni 2003: 29 - 57; Wells and Young 2000: 53 - 91; Gottdiener 2001: 59 - 78; International Civil Aviation Organization 2004; Civil Aviation Safety Authority 2003). Question six was narrower in focus than its partner question five and attempts to delve deeper into the ramifications of universal practices by exploring the reasons for having the same systems in airports across the globe despite the variations found in different local conditions.

The fourth block of questions examined the Coordination and Cooperation coding concept.

**Q7** *In preliminary discussions with your colleagues the metaphor of the Heffernan Airport Corporation as a ‘land-lord’ of the airport space was occasionally invoked. How do you in your role as a manager of the airport liaise with the various organisations, agencies, and companies that operate within the airport space? Is this one of the major challenges faced by organisations at the airport?*

Question seven was developed from the Preliminary Round Interviews. It strove to highlight the complexities of the airport and multifaceted organisation comprising of many actors. The question was designed so that the respondent could discuss how the various organisations at the airport coexist. Data from this question was especially useful in drafting the chapter ‘Communication’ (164 - 204).
**Q8** I would imagine that a strong relationship between the airport and airlines is vital to the success of the respective organisations. What kinds of initiatives can an airport introduce to strengthen the relationship between it and carriers currently using the airport’s facilities while also fostering links with other airlines?

Question eight was a modified version of a question asked in the sixth Preliminary Round Interview. It was modified so that most managers at the airport (not just those who directly liaise with airlines) would be able to provide insight into the coordination of, arguably, the airport’s most important partners.

The fifth set of questions investigates the coding concept Power.

**Q9:** I would imagine that the air travel industry witnessed some major changes and challenges in the last few years. While it would impossible to predict many of the events that occurred in recent years what techniques does the airport employ to meet the demands of an ever-changing aviation industry?

This question broadly addressed the interrelated concepts of power and knowledge. It sought to understand the ways that airport managers plan for the future and respond to the challenges posed by economic instability, new technology, and security threats. Question nine assessed the flexibility of the airport’s operations and the ability of the airport management to counter events beyond their control. This data acquired from this question was incorporated in all four of the project’s chapters.

**Q10:** I am interested in how the flows of passengers are managed in the airport. I imagine that increasingly large numbers of travellers are processed
in the airport facility. What kinds of techniques are used to order the chaos of all these people?

Question ten was used to develop an understanding of how flows of passengers within an airport are managed, governed, and ordered. This question was designed to identify the various apparatus used by the airport administration that strained towards the ordering (Law 1994) of the terminal facility thus enabling the efficient transfer of passengers. Managers’ responses were incorporated predominately in the chapter ‘Ordering’ (115 - 163), and particularly, in the discussion of busy hour measures (144 - 149).

The final two questions within the base interview related to the coding concept of Space.

Q11: *I have noticed that the land surrounding the airport is undergoing a large amount of redevelopment. In preliminary discussions with your colleagues it was indicated that retail, leisure, and commercial sites are planned. Does this initiative reflect a widespread change in the way that space is used at airports?*

On one hand, question eleven examined the way that space was viewed in the airport. On the other, it also investigated the intentions of Heffernan International Airport management to transform the airport into a space with diversified commercial and retail interests. This question was incorporated in a number of the Preliminary Round Interviews but for the purpose of the Major Round was refined.

Q12: *I have heard the airport described as a ‘transitory space’, a space where the world interconnects, what do you think about that idea?*
This broad and conceptual question was incorporated to gain an insight into how the airport space was envisioned by the people responsible for the management of that space. More than the previous eleven questions, question twelve provided an opportunity for the respondent to speak broadly about the airport space and discuss its larger connections to the global system of mobility. This question was used to investigate the validity of some of the abstract, theoretical conceptions of the airport space found in the writings of Augé (1995), Rosler (1998), and Brambilla (1999). Question twelve had been included in the list of Preliminary Round Interview questions but was not posed as it had been regarded at the time as too abstract for the initial rounds.

To ensure that the relatively limited contact with the respondents was used effectively six additional ‘bonus’ questions were also formulated. These questions were not always included in the Major Interview Round but were used when time permitted. Just as the base interview questions, each ‘bonus’ question related to a particular coding concept used by this project. Unexpectedly, some of the supplemental questions would provide more insights that than their base question companions. In particular, the data acquired from question thirteen (regarding the new A380 ‘super-jumbo’) and question sixteen (relating to communication between airport authorities) would be incorporated extensively in the project. The six supplemental questions were as follows:

**Q13:** *What types of new technologies are being incorporated in the operations of the airport? How will the use of the new types of passenger aircraft, the A380s, influence the airport? (Material Delegation)*
Q14: Are you aware of any alternative or unusual models for processing passengers within airports around the world? (Obligatory Points of Passage)

Q15: In several preliminary interviews I conducted earlier with your colleagues efficiency was mentioned as an essential feature of a world-class airport. What sorts of systems are incorporated into airports to ensure the speedy transition of passengers? (Immutable Mobiles)

Q16: Is there a lot of communication between airports? Do you share ideas and new ways of doing things? (Coordination and Cooperation)

Q17: How do you in your role as a manager of this department keep track of operations and what is going on? (Power)

Q18: I am interested in the way that space is used at airport. Could you describe the various ways that space within the airport is designated? (Space)

3F Collating and Analysing Data

It can be argued that the task of transforming data into the written component of a project is one of the most self-reflexive elements in social science research. Certainly, pre-coding questions with key concepts assists the process of data analysis. Yet the task of examining qualitative data sets, like the interview transcripts incorporated in this project, often amounts to a highly personalised task, albeit educated by theory, to decide what is important or notable within the data acquired and how these important elements can be presented in the context of a written report.
In relation to research methods, this project has drawn from Law (1994) and similar writers such as Latour (1987) and Callon (1986a; 1986b). However, in respect to the analysis and collating data, the usually insightful Law (1994) is surprisingly silent, providing little advice on how a modest sociologist should go about collating research data to create stories of governance and ordering. Indeed, although Law (1994: 36, 43 - 47) skilfully portrays the anxiety of the sociologist concerned that they are constructing ‘gobbledygook’ from ineffectual and humdrum data, his illuminations fail to highlight how he transformed the ethnographic observations taken from Daresbury Laboratory into the text *Organizing Modernity*. From Law’s (1994) silence on collation a reader might assume that despite the anxieties expressed, the process of analysing data and creating sociological insights was unproblematic, that the data magically or mechanically transformed itself into discernible and systematic observations about the importance of ordering within the social world\(^{56}\). Yet, such a perfect transition from data collection to data presentation would be a fiction. To use Berg’s (2004: 299) analogy, sorting the “noodles from the soup” is an intricate and difficult process, but one critical to creating meaningful social scientific research. Rather than an automatic or easy transition, the process of building sociological accounts from data sets is a delicate process of determining value, evaluating content, and ultimately deciding what a project is saying and what resources will be used to construct its stories.

\(^{56}\) Perhaps these comments might seem unfair. Evidently, precious few sociologists provide accounts of how their data was transformed from raw observation or interview accounts into research outcomes. However, as elsewhere Law’s (1994) text so beautifully highlights the hidden processes and dilemmas of conducting research, the absence of a commentary on how his ethnographic observations were collated and analysed seems an unusual omission.
Indeed, the task collating and analysing data within a sociology modelled on the ‘modest sociology’ advocated by Law (1994) is further complicated by the adopted convention within Actor Network style research\textsuperscript{57} of ‘telling short stories’ or vignettes about the social world. In particular, the collating and analysing of data to construct research outcomes becomes a task predominantly of selecting which stories to tell. Yet, the process of selecting these stories, in other words, deciding what stories are relevant, interesting, or noteworthy is often, to a project’s detriment, clouded in the final written version. The measures used to determine content, to effectively ensure that the process of selecting stories to tell are scientific, or at least rational, rather than arbitrary should be highlighted, thus removing much of the mystery for why certain stories are privileged over others and why some aspects are chosen to be highlighted and investigated rather than others.

Collation in this project was performed by hand. In the project’s initial stages it was envisioned that the computer software NUD.IST might be used to assist in the collation and analysis, however, given the small size of the data set collation via traditional means seemed equally suitable. Interviews were reviewed by the researcher using traditional means of pen and paper, scanning the transcripts for comments and insights of note.

Nevertheless, the question of what comments and insights were of note or interest remains. As an extension and reapplication of Law’s (1994) *Organizing Modernity*, the project’s objective was to highlight stories of ordering and governance, the management of networks especially over distance, information exchange, the uses and

\textsuperscript{57} While the term Actor Network is problematic (Latour 1997), it nonetheless provides a useful classification for those authors inspired by the sociology advocated by Law (1994), Latour (1987), Callon (1987a; 1987b) and numerous others.
complexities of objects including technology, and the formation of space. Educated by this objective and informed by the coding concepts taken from Law (1986; 1987; 1992; 1994) and others, the interview transcripts were analysed with the intention of building a picture of the airport’s operations viewed within the project’s adopted conceptual framework. In other words, the interview transcripts were examined in order to construct representations of the airport’s operations as told by the managers of the airport, viewed through the lens provided by Law’s (1994) model for studying organisation.

By drawing on the insights provided by the airport’s management this project strained to learn from the interview participants. Initially, such a comment may appear self-evident and redundant as all interview research attempts to ‘learn’ from participants. Yet, following Latour (1987), throughout the collation and analysis this project emphasised that the data acquired from managers was paramount to building a knowledge of the airports operations. Here, the project attempted to avoid privileging sociological knowledge, a practice criticised by Latour (1987) and others including Kendall and Wickham (1999), by developing a picture of airport’s operations from the managers whose daily work (with countless other actors) allow the airport to operate effectively and efficiently.

Subsequently, in the collation and analysis of interview data this project sought foremost to identify elements that the managers identified as critical to the operations of the airport. In other words, the stories selected to be told were opted for because those were stories that the respondents highlighted. So, for example, when posed with

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questions regarding regulation and conformity (Major Round Interview Question 5; 6; 10) respondents not only frequently spoke of International Civil Aviation Authority regulations (Major Round Interview A; B; C; D; G) but also the interactions between national regulatory bodies (Major Round Interview E; I) and general principles of ‘good practice’ adopted by airport terminal designers (Major Round Interview G; J). Thus, when developing the material on methods of regulation and governance commentaries on the uses, interactions, and complexities of various forms of regulation was demanded or dictated by the data collected in the interviews. Nevertheless, not all stories highlighted in the interviews would be repeated in the project’s final written dimension. For instance, although Manager ‘G’s (Major Round Interview) discussion of the role of Risk Matrix Analyses (a form of simulation used to test the capacity of the airport’s systems in emergency or crisis situations) could have been incorporated as an interesting example of techniques that strain towards ordering and reliability, this commentary was not used because supplementary accounts of the Risk Matrix Analysis tool were not found in either the other interview transcripts or the airport management texts.59

Moreover, not all the stories of airport operations told in this project originated from the interviews with the Heffernan International Airport. As indicated earlier, this project used airport management handbooks like those produced by de Neufville and Odoni (2003) and Dempsey (2000) and aviation publications such as Airport Magazine and Airport Report to build the most comprehensive picture possible of the operations of an international airport. As such, in combination with the collation and analysis of the interview transcripts, stories of airport operations were also taken from

59 That is not to say that the Risk Matrix Analysis is not a critical element to an airport’s operations, but rather, it would be simply very difficult to devote a detailed section on its role based on the single account found in Manager ‘G’s (Major Round Interview) comments.
airport management texts. For example, although no managers interviewed spoke of the importance of baggage handling systems, the prevalence of such commentaries within airport management handbooks (Ashford et al. 1997; de Neufville 1995; Dempsey et al. 1997; Dempsey 2000) indicated that a section discussing the role and complexities of baggage handling systems would be an important element in this project’s account. Likewise, although managers interviewed did not discuss passports, their role as instruments in the regulation of global movement as discussed in contemporary accounts of mobility (Torpey 2000; O’Byrne 2001) signalled the need for the inclusion of a section pertaining to travel documentation.

3G: Research Methods in Summary

This chapter has outlined the research methods and methodology employed in the project. As a project that adapts much of Law’s (1994) Organizing Modernity, the methodology employed strains to follow the principles of a ‘modest sociology’ detailed in Law’s (1994) text. In particular, by incorporating semi-structured interviews with an international airport management, coupled with accounts taken from airport management handbooks, this project achieves its objective of providing a depiction of the operations of an international airport that highlights the multiple and complex performances that strain to ‘order’ the institution allowing it to function and contribute to the increasingly global world.

The emphasis here in this chapter on ‘description’ as opposed to ‘critical analysis’ or ‘interrogation’ is critical. As this chapter has highlighted, the logic of the ‘modest sociology’ is to first describe and then provide comment (Kendall and Wickham 2001). Sharing these epistemological values, this project used interview questions
designed to allow the airport management to tell their stories of how the airport operates. Nevertheless, as the number of possible stories about an airport’s operations is almost limitless, this project incorporated a series of coding concepts to filter the descriptions garnered from interviews and handbooks to select what stories of ordering would be reiterated in this document. These six coding concepts, taken from the works of Law (1987; 1992; 1994) and Latour (1988; 1990; 1993) provided a sociological lens to the provided, highlighting components of the manager’s stories that were worth further commentary and analysis.

As in all social research projects, and as noted in this chapter, the research methods incorporated in this dissertation are a delicate balance between the desirable and the possible. Social research’s interactions with industry are often uneasy and these tensions tend to be exacerbated more when dealing with an entity like an international airport corporation whose relationship with the community is often one of mutual suspicion. Striking a balance between competing priorities leads to unavoidable compromises. As this chapter has highlighted, occasionally this need for compromise necessitated interesting questions, like of those of airport security to go unasked. Yet, the methodology described in this chapter and incorporated in this project has by in large achieved its goals of representing the airport as a complex socio-technical assemblage that requires multifaceted ordering performances to operate. Indeed, in the following chapter the story of these performances will commence with an account of the ordering performances enacted by the Heffernan International Airport that strain to govern the complex and potentially chaotic airport environment.
Chapter 4: Ordering

4A: A Story about Ordering

In sum, this project is concerned with ordering. It is concerned with the ordering processes and actions that otherwise tend to be labelled as management, administration, governance, or sometimes, control. The concept of ordering is taken directly from John Law's (1994) *Organizing Modernity*, and his text serves as one part blue-print and one part inspiration for this work. In Law's (1994) text the concept of ordering is used to explore the operations of a research facility, the Daresbury Laboratory. Law (1994), often through small and personalised stories, investigates how the management of the laboratory administer the facility, how they balance the books, coordinate the facility’s activities, ensure that equipment is working properly, and generally conduct the business of scientific endeavour.

However, while Law's (1994: 1) analysis is centred on the Daresbury Laboratory, his ambitions to provide a wider conceptual framework are never hidden, as he writes:

> This is a book about organising and ordering in the modern world. It is about ordering in formal organizations. It is a book about the social technologies of controlling. It is a book about the materials of the social, about what I call relational materialism.

This project shares an interest in the management and organisation of systems. Both this text and Law's (1994) are interested in the way that organisations function, the way that decisions are made and communicated, how efficiency is maintained, and how mistakes are avoided. In short, both this text and Law's (1994) work are interested in the ways that a contemporary organisation is ordered.
However, the idea of ordering is not typical sociological fare. Ordering practices are usually, but not always, constituted by the ‘little things’. By ‘little things’ this project means the mundane; the everyday; the routine; the normal; and the largely forgotten and neglected practices that occur continually which help enable systems to run more smoothly. They are the ways to disseminate information; modes of representation; instructions; and commands such as telephone conversations and meetings; timetables; and graphs. They are forms of maintenance and systems checks; they are the micro-systems that allow an office to function; that dictate the actions of a sales-clerk; or that manages the movement of traffic on roads and pump clean, fresh water into our cities. Law (1994: 176) calls these elements the ‘back-stage’ of an enterprise. They are the activities and work that allow a system to possess the appearance of order, stability, and easy efficiency. Broadly defined ‘ordering’ can be thought of as the processes of management, administration, organisation, and governance. As Law (1994: 77) explains in regards to one type of ordering discussed in his text:

[It] tells of and generates the perfectly well-regulated organisation. It tells of people, files, and (to go beyond) Weber machines which play allotted roles; it tells of hierarchical structures of offices with defined procedures for organizing exchanges between those offices... and it tells of management as the art of planning, implementing, maintaining and policing that structure.

Law’s (1994: 176) use of the term back-stage borrows heavily from the Canadian social thinker Erving Goffman (1959; 1963; 1972). Goffman (1959; 1963; 1972) who was instrumental in the development of symbolic interactionalism argued that individuals were social chameleons, capable of changing their social appearance depending on context. In the front-stage, viewable to the ‘audience’ of society, individuals were more conscious of their behaviour, wary of the perils of social stigma. In the back-stage, individuals were freer from social constraints. In an organisational context, Goffman’s (1959; 1963; 1972) idea of back-stage was adapted by Law (1994: 176) to refer to those processes and performances that go unseen by the wider public ‘audience’ but are critical to the operation of the show.
Or, in other words, as Malpas and Wickham (1995: 47 cited in Kendall and Wickham 2001: 40) see it, ordering can simply be defined as “practices concerned with the control and management of things.”

Yet, these stories of ordering systems are not to be confused with stories of perfect systems. As Law (1994: 5) emphasises the process of ordering is perpetually incomplete. Pure order is an impossibility. Some level of failure is always to be expected and stories of governance (Malpas and Wickham 1995: 40 - 41) and ordering (Law 1994) are also stories about the incompleteness of such systems. As Law (1994: 5) describes:

Pools of order are illusory, but even such illusions are the exception. They do not last for long. They are pretty limited. And they are the product, the outcome, or the effect, of a lot of work – work that may occasionally be more or less successfully hidden behind an appearance of ordered simplicity.

Likewise, the stories of the Heffernan Airport Corporation’s orderings are stories of attempted governance, of attempted control, of orderings that ‘strain towards’ (Law 1994: 26) but can never achieve perfection. So while this project may be littered with stories of the ‘successes’ of the Heffernan Airport Corporation in managing the complexity of the global air-travel systems, there is also a recognition of the inherent deficiencies and incompleteness of any ordering work. For example, although manipulations of terminal design (Major Round Interview G; J) manage most passengers effectively, drawing them through the airport without undue delay, these
measures are only ever partially successful, some percentage of passengers always become disorientated, lost, or delayed otherwise in transition\textsuperscript{61}.

Yet, despite this project’s recognition of the limitations of ordering its goal remains to understand how the ordering systems allow an airport to work. The phrase, ‘how systems work’ may seem puzzling and odd but it emphasises that explorations of governance should be concerned with failures rather than the successes of systems. Indeed, this project views the functioning of an organisation as a \textit{combination of successes and inevitable failures} that taken together construct certain social realities.

As constituted by the mundane, everyday, routine ‘little things’ the ordering practices that form the locus of this project are rarely noticed by sociologists and system users alike. While passengers tend to take for granted the complexities that enable them to be globally mobile, like a duck swimming across a pond, largely hidden but intricate, powerful, and multifaceted systems are constantly in operation ordering the materially heterogeneous networks of the airport and the global air-travel system. In other words, this chapter will examine some of the systems and strategies that enable an international airport facility to function effectively, that in turn, allow networks of mobility and travel to operate globally.

In some ways then, this project mimics the ‘How do things work’ style books for children\textsuperscript{62}, which through cross-section illustrations depict the operational components of a machine or building that otherwise would go unseen. More specifically, this chapter will investigate some of the techniques of ordering used by

\textsuperscript{61} Similarly, although techniques of air traffic control, aircraft maintenance, and pilot training attempt to strain towards safest possible flying experience, these attempts at ordering are never perfect and aircraft failures and collisions remain an unlikely but still occasional event (Lasfargues 2003).

\textsuperscript{62} See for example Platt and Biesty (1992).
the airports management that attempt to regulate the chaotic and complex assembles (Latour 1993) of the air-travel system. The term ‘some’ when describing this chapter’s (and overall project’s) scope is intentional because as Law (1994: 5 - 14) explains, the sociological tasks of recording, describing, and analysing are in themselves ordering practices and thus suffer the identical fallibilities of incompleteness. No study can hope to achieve the pure order of perfect representation (Kendall and Wickham 2001: 37; Law 1994: 8, 14 - 15). Instead, this project seeks to embrace what (Law 1994: 2) refers to as a ‘modest sociology’ by providing accounts and stories (albeit imperfect) of the airport’s ordering practices.

The contents of this chapter can be broken down into four distinct stories. First, this chapter contains a story about regulation. International regulation is told as an ordering device that strains to dictate and govern behaviour through routine and repetition. Second, this chapter contains a story about forecasting. Here, forecasting is portrayed as an initiative that attempts to perform rather than simply predict futures. Third, this chapter tells stories of busy hour measures. In this section, the attempts to monitor organisation through data are examined. Finally, this chapter tells stories about the varied initiatives enacted to order flows within the terminal. Queues and other architectural manipulations are portrayed as devices that attempt to create ‘ordered’, disciplined, and regulated bodies.

4B: Regulation on a Global Scale

A general looks over a battlefield; a manager sits in their office reviewing reports; a king, in the capital, worries about the provinces. All ask: ‘How do I ensure that my orders are carried out accurately and efficiently’? ‘How do I make sure that those
entrusted to do my bidding will meet my expectations?’ ‘If I am not present how do I know that the tasks I set will be done as I asked?’ Theirs is a concern for ordering, for governing at a distance (Kendall 1997), or for exercising long distance control (Law 1986; Law 1994). Each actor strives for homogeneity; consistency; reliability; standardisation; routine; and predicability. Yet the desire for long distance control is not only held by generals and kings, it is a necessary element in almost all systems, and particularly, in systems of scale.

Evidently, the networks of global mobility, of which Heffernan Airport is a part, constitute such a system of scale. According to the International Air Transportation Association (2004), one of the three global governors of the air-transportation system, 1.6 billion passengers are transported by the world’s 270 plus airlines. This is an astonishing figure, the numbers so large that they are difficult to conceptualise and almost seem mythic. Yet for the massive and complex global air-travel system to operate the figure of 1.6 billion must, to some extent, be managed, governed, or ‘ordered’. A global system of standardisation is required to govern at a distance the countless actors made up of airports, airlines, and regional governing bodies. This is one story about the ‘ordering’ of airports. It will examine the process of acting at a distance through the application and maintenance of international systems of standards. On the periphery this story contains an interest in power (in the form of influence), which Law (1991: 165) labels “Surely one of the most contentious and slippery concepts in sociology.” Yet, at its heart this story is an exploration of the mechanisms and processes that permit complex systems to operate (relatively) effectively.

63 The other bodies in the triumvirate are the International Civil Aviation Organisation and the World Tourism Organisation. Other influential bodies include the United States Federal Aviation Authority and the Airports Council International.
Historically, the recognition of the need for global aviation standards to govern practices internationally is almost as old as aviation itself. In their earliest incarnations, however, agreements such as the Paris Convention (1919) and the Havana Conference (1928) dealt primarily with issues concerning the sovereignty of air-space rather than the introduction of standards and regulation (De Remer and McLean 1993: 3 - 5). Interestingly though, in these foundational agreements a directive intrinsically linking aviation with nation-state was established that would have on-going consequences for performances of globalisation, imposing symbolic as well as legislative limitations on the ability for networks of air-travel to act as a catalyst for deterritorialisation. As air-travel, not only of passengers but especially of goods, became more prevalent so did the accompanying regulation. For example, the 1929 Warsaw Convention famously proclaimed that airlines were liable for the death, destruction, damage, or delay of their cargo, including human passengers.

While these foundational agreements provided an initial (and occasionally ongoing) framework, as Manager ‘I’ (Major Round Interview) highlighted, with the advent of jet-propelled aircraft the need for comprehensive international regulation of practices, or in other words, for an international ‘ordering’ of the systems of air-travel became evident. Consequently, in December 1944 representatives of 52 nations assembled for

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64 For an analysis of the consequences of early aviation for social systems see Hugill (1993: 249 - 304).
65 For instance, the 1919 Paris Convention mandated the linking between nation-states and airlines effectively introducing the concept of a ‘national carrier’:

> Every aircraft must possess the nationality of the contracting state only and that every aircraft must be entered upon the register of the contracting state whose nationality it possesses. (De Remer and McLean 1993: 4)

As King and Kendall (2004: 171 - 172) demonstrate the introduction of global regulation may in fact “indicate a continuing role for the nation state.”

66 In 1971 the Guatemala City Convention capped the amount payable for damages at $100,000 (US) per person, a decision that later would have ramifications following the terrorist attacks of Lockerbie and September 11th.
the *Convention on International Civil Aviation*, the proceedings of which became summarised in the document simply known as the Chicago Convention (1944). There, while reiterating the principles laid out in previous conferences, the first systematic attempt to standardise international aviation procedures would be initialised. As De Remer and McLean (1993: 6) explain: “the contracting states were required to undertake… the highest degree of uniformity in complying with international standards and practices.” For instance, the Chicago Convention (1944) sought uniformity in areas as divergent as communication systems and navigational aids (Article 28, 37); the design of airports (Article 69); air traffic control (Article 25, 37), and customs and immigrations processes (Article 10, 24, 37). Even more importantly, however, the Chicago (Convention 1944) would establish a body that would subsequently serve as the on-going regulator of global aviation, the International Civil Aviation Organisation (ICAO). ICAO, like the general commanding their distant army or the manager directing their employees, would be given the task of governing at a distance, ordering the regimenting, regulating performances that would lead (hopefully) to efficiency, predictability, and routine.

Ultimately established in 1947 as a special wing of the United Nations, ICAO’s Eighteen *Annexes of the Chicago Convention* (2003) determine the standards and regulations for the aviation industries of 188 member states. Not only concerned with the operations of airports (or, aerodromes, as they are officially known in their publications) ICAO monitors the operations of the entire global air-transportation system by setting the standards for areas as diverse as *Rules of the Air* (Annex 2), the *Airworthiness of Aircraft* (Annex 8), *Search and Rescue* procedures (Annex 12), and passports and other travel documentation (Annex 9 *Facilitation*). Governing and
ordering of the system is achieved (to the level that it can be achieved) through uniformity, as ICAO (2004) explains\footnote{This quotation is repeated from page 1.}:

Twenty four hours a day, 365 days of the year, an aeroplane takes off or lands every few seconds somewhere on the face of the earth. Every one of these flights is handled in the same, uniform manner, whether by air traffic control, airport authorities or pilots at the controls of their aircraft.

Here, parallels can be drawn with the techniques of long-distance control highlighted by Law (1986; Law and Hetherington 2000). In *On the Method of Long Distance Control*, Law (1986) explores the techniques used by the 16\textsuperscript{th}-century Portuguese Naval Empire to control their fleet on the (then) important route between Lisbon and Calicut\footnote{For an in depth discussion of Law’s (1986) analysis please see pages 286 - 296.}. For Law (1986), the Portuguese were able to achieve success by ‘guaranteeing’\footnote{The term guaranteed is used advisedly here. Evidently, the incompleteness of any ordering system prevents it from ‘guaranteeing’ an outcome.} the fidelity\footnote{The term ‘fidelity’ when discussing Law’s (1986) findings is taken from Kendall (1997).} of their fleet through materially heterogeneous systems that regulated and standardised the performance of the crew, vessels, and other equipment. Equipment such as navigational aids were standardised while the activities and actions of the crew were regimented, ordered, or ‘drilled’ (Law 1986: 254) to achieve maximum efficiency and predictability and routine. As Law (1986: 256) explains:

The drill broke actions down and then reassembled them into a prescribed, regular and observable structure. Previously unreliable actions were converted into ranks of dependable gestures.
Similarly, ICAO’s (2003) Annexes seek to ‘drill’ the aviation industry by striving for reliability through the regulation of even the most mundane of the industry’s activities. Through a network of directives, officially known as SARPs, or Standards and Recommended Practices, ICAO governs the global air-travel network at a distance. As ICAO (2004) explains:

[C]lock-work precision in procedures and systems is made possible by the existence of universally accepted standards known as Standards and Recommended Practices, or SARPs. SARPs cover all technical and operational aspects of international civil aviation, such as safety, personal licensing, operation of aircraft, aerodromes, air traffic services, accident investigation and the environment. Without SARPs, our aviation system would be at best chaotic and at worst unsafe.

Technically, ICAO’s Standards and Recommended Practices differ in emphasis. Indeed, ICAO’s Standards (as in the S in SARPs) are obligatory requirements for all members, whereas, and as the name implies, the Recommended Practices are those procedures that member states only need to, “endeavour to comply,” with (International Civil Aviation Organization 2004: 3). In either case, SARPs are extremely comprehensive covering: “Any specification for physical characteristics, configuration, material, performance, personnel or procedure.” (International Civil Aviation Organization 2004: 3)

In discussions held with the Heffernan Airport Corporation the influence of ICAO standards as a powerful governing apparatus could be seen. For managers (Major Round Interview C; E; I) conforming to ICAO standards was critical to the stability of the air-travel system. As Manager ‘C’ (Major Round Interview) highlighted:
An international pilot coming from overseas country being his first, or one of his many trips to Australia, he’s not going to see anything different to what he’d see anywhere else internationally. That's the aim of ICAO… recommendations which we adopt as regulations… All the markings are on the ground, all the lighting, you know, the nose-in guiding systems, all that sort of thing, meet international standards so that they’re [Pilots] not coming across something they’ve never seen before…

In other words, through ICAO’s globally standard procedures, fidelity via regulation and routine ensures that aviation systems are identical regardless of their position in the world. Thus, ICAO regulations have made the complex, materially heterogeneous networks of the aviation industry, in Latour's (1990) language, ‘Immutably Mobile’\(^71\). Like the crew of the Portuguese Carrack\(^72\) (Law 1986), users of the global aviation system (inclusive of passengers as well as airline staff) can be confident that systems, actions, and equipment will remain stable and unchanging through their transition through space. As Manager ‘I’ (Major Round Interview) explains in the context of airports:

So from an operational point of view, from a passengers perspective, if you’re in London, if you’re in New York, if you’re in [Heffernan], you will notice certain similarities, people wearing identification, similar operation, activities on the apron and because aviation is very much an international thing, it would be pointless to have one set of equipment that loads an aeroplane in Australia and not be able to unload it in Russia or something like that. So you will see very similar design equipment all round the world.

Yet, like any ordering system, ICAO attempts to standardise the networks of global air-travel fall incomplete. This incompleteness, it should be noted, is not a failure in

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\(^71\) For a detailed discussion of Latour's (1990) concept of immutable mobiles see pages 246 – 252 and 278 - 286.

\(^72\) The Carrack as an immutable mobile is explored in greater depth on pages 278 - 286.
the most demonstrative connotations of the word but rather an inevitable consequence of the multiplicity and complexity of the performance of systems. While elements concerning the flight of aircraft are relatively immutable, variation between airports in terms of the layout, planning, ownership, and in some areas, management, of airports can be pronounced (de Neufville and Odoni 2003: 30 - 31). Such differences can extend, for instance, to design of check-in counters (in the United States airline check-in staff often stand as opposed to their frequently seated European counterparts), or in the varied length of air-bridges that link the terminal to the boarding or disembarking aircraft (de Neufville and Odoni 2003: 32 - 38).

Indeed, the incompleteness of ICAO’s standards was also reflected in the comments of Heffernan Airport managers (Major Round Interview B; G; D). While these managers recognised that ICAO standards existed, a theme repeated was that convention rather than dogmatic dedication to ICAO’s regulations dictated the performance of certain managerial roles within the airport. In this respect Manager ‘D’s (Major Round Interview) comments were indicative:

No, in the 7 months I’ve been here… I wouldn’t say that I’m regularly going to international guidelines in terms of how airports are designed and planned… There’s certainly the ICAO standards which certainly are relevant to us in terms of actually planning out our new aeronautical infrastructure, so that’s the runways, the parallel taxi ways systems, the link to taxiways, are all… governed by a lot of those international standards so when we look at, within our envelope locating the runway, locating the taxi ways, locating the apron areas, there are design limitations in terms of areas needed…. But other than that, I think it’s more a case of us observing how airports both within Australia and overseas have gone about the design…talking to
people, finding out what... they have found has been the positives out of how their airports have been designed and what are the negatives.

Yet, even in this case, it would be imprudent to say that the ICAO (2003) standards have failed. Manager ‘D’ (Major Round Interview) is hardly a renegade administrator defying convention. Instead, as Manager ‘D’ (Major Round Interview) notes himself73 he follows international and national standards and principles of best practice by convention. Manager ‘D’ (Major Round Interview) and his colleagues (Major Round Interview B; G)74 have been successfully ‘drilled’ (Law 1986), albeit, indirectly.

4C: Regulations, Standards, and Manuals as Ordering Devices

At least part of the casual treatment of ICAO standards demonstrated by some Heffernan Airport managers (Major Round Interview B; D; G) interviewed can be attributed to the hierarchy of standardising regimes in Australia. In the Australian context, ICAO’s (2003) regulations only indirectly establish the ground-rules. As a signatory to the Chicago Convention (1944), the Australian Federal Government is entrusted with the responsibility of maintaining standards and good practices in the aviation industry within its national borders. In turn, the Federal Government passes the responsibility to another administrator, the Civil Aviation Safety Authority, or, CASA. It is the CASA who finally and primarily oversees aviation law and regulation within Australia’s states and territories.

73 Like the remainder of managers interviewed in this study Manager ‘D’ is male.
74 Manager ‘B’ (Major Round Interview), for instance, asserted the following in regards to ICAO standards: No, no, there are certain, I guess, conventions that the international civil aviation organization...says you’ve got to have... Basically [the ICAO standards specify] how long to process a passenger, minimise walking distances, all those sorts of things. But there’s no sort of set rules.
Arrangements whereby the responsibility to govern aviation standards is transferred to a national body are common. For instance, in Great Britain control of the seven major British airports is the responsibility of the privatised British Airports Authority (Dempsey 2000: 191), while in the United States, the aviation industry (including airports) is supervised by the massive Federal Aviation Administration. As de Neufville and Odoni (2003: 30) note, the FAA rivals ICAO in the development of new procedures and is considered by some quarters of the aviation industry to be the world’s leading regulatory body:

In parallel, [with ICAO] the FAA also sets standards and often establishes the norms that ICAO later follows… The FAA has a dominant role because the United States constitutes the largest single market for aviation, and has devoted the most money and research to establishing standards. Moreover since essentially all aircraft manufacturers want to sell into the big North American market they make sure their aircraft meet the FAA standards.

That said, returning to the Australian context, it is ICAO via CASA that provides the regulatory and statutory directives for the Australia’s airport and airlines. When variations between domestic and international standards occur, it is the responsibility of CASA to notify ICAO of these irregularities to ICAO. As one manager (Major Round Interview ‘I’) explained:

Australia, like a whole host of other countries is a signatory to ICAO… ICAO sort of has standards for safety and security as a large global umbrella [organisation]… Through… CASA and through the Department of Transport and Regional Services, we then pick up the recommendations of ICAO and turn their approach into

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75 In 1987 the British Airport Authority or BAA became one of the first in a global wave of corporate airport enterprises (Dempsey 2000: 191).
regulations here, we do vary slightly from some ICAO requirements, and you are allowed to do that, as long as you note [the differences] in your Aviations Information Publications.

The Civil Aviation Safety Authority's (2003) main regulatory instrument for complying with Annex 14 of the International Civil Aviation Organization (2003) standards, which covers the design and administration of airport and heliport facilities, is the Manual of Standards Part 139 – Aerodromes. From runway lighting (CASA 2003, 9.10.1), the size and colour of tarmac markings (8.3.1), the minimum distance allowed between aprons (6.5.2), slope of runways (6.2.6), to the specifications of wind direction indicators (8.7.1) the Manual of Standards acts as a type of guidebook for building an airport.

In a sociological context, however, the Civil Aviation Safety Authority's (2003) manual can be interpreted as an example of a performance of administrative discourse that institutes long distance control (Law 1994, 104)\(^76\). Here, the Manual of Standards can be viewed as a representational ordering device that maintains optical consistency and immutable mobility (Latour 1990: 26 - 29) through the application of simple directives. Organisations big and small are littered with these representational ordering devices that transmit knowledge in a simple, administrative manner. These performances that permit long distance control (Law 1994: 103 - 104) are, as we shall see multiple times in this project\(^77\), fundamental to the operation of an airport.

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\(^76\) For a discussion of administrative discourse see pages 182-190.

\(^77\) For instance, see the chapter ‘Communication’ (182 - 190) for a discussion of NOTAMS; the chapter ‘Materials’ (246 - 253) for an analysis of scale drawing and specifications as representations and the chapter ‘Space’ (278 - 295) for a exploration of passports as ordering device.
For instance, the *Manual of Standards* is an ordering device by virtue of its ability to
easily yet exactly and comprehensively detail many of the essential elements of the
construction and management of an airport facility. Written in an extremely technical
and legalistic discourse CASA’s *Manual of Standards* addresses point-by-point
critical aspects of an airport’s successful and safe operation. In order to maximise the
readability of what could otherwise be a potentially inaccessible document each entry
or directive in the manual is short and succinct, compacting large amounts or complex
technical data and instructions into a few small sentences. Take for example an
excerpt from Section 10.14 of the Manual (CASA 2003, Chapter 10: 57) regarding
bird\(^78\) and animal hazard management:

10.14.1.2 Where regular monitoring confirms existence of a bird or animal
hazard to aircraft operations, or when CASA so directs, the
aerodrome operator must produce a bird or animal hazard
management plan, which would be included as part of the aerodrome
manual.

10.14.1.3 The management plan must be prepared by a suitably qualified
person such as an ornithologist or biologist, etc.

10.14.1.4 The management plan must address:

(a) hazard assessment, including monitoring action and analysis;

(b) pilot notification;

(c) liaison and working relationships with land use planning
    authorities;

(d) on-airport bird and animal attractor which provide food, water, or
    shelter;

\(^78\) Examples concerning birds will be repeated several times over the course of this text
(Communication: 182 - 190; Space: 296 – 301). This repetition is not intended to appeal to
bird-fanciers, but is more the product of the aviation industry’s on-going concern regarding birds. It
could be suspected that this avian obsession is derived from the aerial coexistence that birds and the
aviation industry share.
(e) suitable harassment methods;

(f) an ongoing strategy for bird and animal hazard reduction, including provision or appropriate fencing…

10.14.1.5 The bird and animal hazard plan management plan must be reviewed for effectiveness, on a regular basis, at least as part of each technical inspection.

In less than one hundred and fifty words the manual clearly and coherently spells out almost all of the procedures for creating a bird and animal hazard management plan. Although constructing a comprehensive strategy for dealing with the potential hazard of animal and bird populations congregating at airports could be extremely complex and convoluted, the procedures laid out in the manual simplify the process into a series of smaller and rudimentary elements. This simplification of complex systems through a transformation into short manageable commands is the essence of ordering practices (Law 1986: 248 - 249). The potentially unmanageable problem of bird and animal hazard control is rectified through a series of simple steps.

Like a recipe, instructions to assemble cheap furniture, or directions on the use of navigational equipment (Law 1986) the regulations established in the manual order the procedure by directing the recipient through each stage of the process. Instead of a series of convoluted commands, managers of airports are simply instructed to create a plan, monitored according to a specific timeframe (as carried out as part of the scheduled technical inspection) that addresses prescribed criteria using the expertise of trained outsiders. This straightforward and uncomplicated listing of required actions ensures that practices are understood and become routine and standardised across the continent.
Furthermore, efforts to achieve simplicity in standardising regimes also occur in pictorial as well as textural forms. Here, the work that strains towards ‘optical consistency’ (Latour 1990: 27) is particularly evident. Diagrams and scaled drawings work towards perfect representations that no leave no space or opportunity for misinterpretation. Representations of wind-socks and runway lights (CASA 2003, Chapter 8: 78, 63), for instance, are depicted with such exacting detail that their three-dimensions are seemingly transferred directly to the page like a pressed flower. There, they are at once mobile and immutable (Latour 1990: 27 - 28), easily distributed, copied, read, and understood without diminishing the integrity or accuracy of the depiction. Through standardising regimes all airports in Australia ‘work off the same page’. The hallmarks of long distance control routine, predictability, and regulation become far more achievable as the ‘drilled’ (Law 1986) airport administrators adhere to protocols dictated in material form by the Civil Aviation Safety Authority (2003) manual.

4D: Forecasting: Magic Balls and Ordering Practices

Yet, as complex and difficult as the on-going task of ordering the present is, airport managers must also concern themselves with the task of ordering the future. The ability to accurately predict future events is extremely useful. To know what will likely happen tomorrow, next month, next year, or in the next decade takes all the risk out of planning. By knowing the future the unexpected can be effectively removed from decision-making processes. Growths and losses, new technologies, markets and threats can all be managed easily and predictably. Precautions can be taken long before the outbreaks of SARS and Avian Influenza, the Asian Financial Crisis, horrendous natural disasters, or the acts of extremists.
Unfortunately, however, a magic crystal ball that can tell the future is yet to be invented\textsuperscript{79}. Businesses, like any other institution, organisation, or individual for that matter, cannot be certain of the future. Still, such are the benefits of knowing what tomorrow will bring that the art of forecasting, a task that most commonly involves an examining of the past to determine future trends, is a major element within what Giddens (1998: 23 cited in Brown and Michael 2003: 4) sees as an increasingly intensely future-orientated society. Such an orientation can especially be seen in the casino-like world of finance orientated business (Strange 1986). In this new world, dedicated 24-hour satellite television networks such as Bloomberg and CNBC Asia act as soothsayers projecting and speculating on market developments in financial, industrial, and commercial sectors while business analysts warn investors of potential ‘Ides of March’ framed in a context of ‘rising oil prices’, ‘decreasing consumer demand’, and ‘meetings of the United States Federal Reserve’. Moreover, these ready-made prescriptions are accompanied by an abundance of ‘do-it-yourself’ managerial texts, such as Baldock (1999); Barker (1993); Firth (1977); Minkin (1995); and Wilson and Keating (1990) to list only a handful, which contain various debates on the best methods and procedures for good forecasting.

Forecasting is especially important, and complex, for an organisation based in the infrastructure intensive but equally unpredictable aviation industry like the Heffernan Airport Corporation. In the seemingly perpetually volatile world of aviation, measures and predictors are extremely important in removing (or at least improving)

\textsuperscript{79} A recent IBM advertising campaign played off this idea with a corporate board excited at the unfulfillable prospect of planning with the assistance of a magic eight-ball.
much of the guess-work involved in the design and organisation of an airport space. Consequently, the planning and development of airport facilities are linked to various forms of forecasting, modelling, and trend calculation. Such is their significance to airports that discussions of forecasting methods and subsequent airport planning form an essential and repeated theme in airport management texts (Blow 1996: 26 - 29; de Neufville and Odoni 2003: 765 - 777; Hart 1985: 52 - 79; Dempsey 2000: 203 - 233; Kazda and Caves 2000: 349 - 371; Horonjeff and McKelvey 1994: 215 - 247; Wells 1994: 261 - 288). From the perspective of airport management discourse, the decisions of airport administrators should always be informed and educated by the outcomes of predictive research (Wells 1994: 262; Horonjeff and McKelvey 1994: 216). In this way forms of strategic planning and forecasting can be viewed as important ordering practices as they shape the daily operations of the airport.

Although the precise forms of forecasting techniques employed by airports worldwide vary to some degree80, methods of prediction do possess many common elements. From a management standpoint forecasting is principally an exercise in mathematics. More specially, forecasting involves the predicting of a variable, for example, the quantity of aircraft movements, through an equation that estimates how that variable may change over time based on previous experiences and the influence of known factors (de Neufville and Odoni 2003: 765 - 769; Horonjeff and McKelvey 1994: 220 - 221; Kazda and Caves 2000: 352 - 353; Wells 1994: 267 - 270). In other words, most forecasting within the context of the airport industry is an exercise in ‘trend extrapolation’ (Kazda and Caves 2000: 352; Wells 1994: 267).

Yet, from the outset the limitations of the logic of this type of forecasting are apparent to airport writers, as Horonjeff and McKelvey (1994: 220) explain:

Extrapolation is based upon an examination of the historical pattern of activity and assumes that those factors which determine the variation of traffic in the past will continue to exhibit similar relationships in the future.

For instance, in the case of predicting the number of aircraft movements expected at an airport in a given future year, a wide range of variables must be considered and analysed for an accurate assessment to occur. A non-exhaustive list of such variables (which are themselves created through other variables) might include the types of aircraft using the facility, the growth or decline in the number of airlines or the number of services incorporated by each airline. Once these variables have been identified, the amount of air-traffic over a specific span can be estimated. Coupled with the analysis of the influencing variables an examination of past trends should, in theory, provide a picture of future outcomes.

For the greater part, the task of forecasting growth at the Heffernan Airport is outsourced to the statistics firm ‘Tourism Futures International’ (Heffernan Airport Corporation 2003: 43). According to the Airport’s 2003 Master Plan by 2008 the quantity of international passengers using the terminal’s facilities is expected to increase to around 3.8 million travellers (Heffernan Airport Corporation 2003: 50). This figure is the product of an analysis that examined passenger turnover at Heffernan Airport from a twenty-five year span from 1977/1978 to 2002/2003 covering the most extraordinary period in Australian aviation’s relatively short
history, punctuated by dramatic events such as economic recession in Australia during the early 1980s, the Asian financial meltdown in 1997, the privatisation of major airports in Australia, the collapse of the airlines Compass and later Ansett, two major Wars in the Northern Persian Gulf, and of course, the infamous highjackings of United Airlines aircraft in September 2001\textsuperscript{81}.

While this type of forecasting can, on one level, be viewed cynically as a mere ‘sell’ of the airport within the competitive corporate world of the aviation industry, there is no doubt that such predictive studies do educate and instruct the development of the airport’s facilities and the activities and duties of management and staff on a daily basis. Consistently in discussions with the management of the Heffernan Airport Corporation techniques of strategic planning and forecasting were highlighted as critical tools to deal with change. As one manager (Major Round Interview A) explained:

There are a couple of ways [to forecast demand] there is passenger throughputs… We employ what’s known as tourism forecasting indexes. They predict passenger growth… We then also employ a terminal information management system which tracks passenger numbers coming through which allows us to forecast, along with the tourism forecasting indexes, where is the passenger growth is going. Another one employed is passenger spend rates, as well for duty free. So that gives us a good indication of where the industry is going. If, for instance, we do get a strong growth

\textsuperscript{81} Yet this forecast also reflects an optimism derived from the recent growth in flights from Asian, and especially, the emerging market of China, as one manager (Major Round Interview F) explained:

The markets that we currently serve is South East Asia and the Pacific… We are currently finalising negotiations with Emirates who are ‘hubbed’ out at Dubai, to bring daily services in which is going to add something like 5, 300 seats a week… the other area that we’re particularly interested in for expansion would be mainland China.
and that strong growth is predicted to carry on then we know we have to do something with the facility to be able cope with the additional throughput.

These types of forecasting techniques are central to the ‘business’ of an airport facility. Air travel movements are fickle and the importance of information relating to passenger flows was often reiterated in interviews:

We are continually assessing the markets… on the data base we’re assessing the passenger numbers through the terminal, where the markets are, which markets are down and up, working with the tourism bodies to try and promote through those areas that are down, [and] also working with the airlines because, as I mentioned, we’re [using] a [method of] passenger based charging now, so, like SARS, we lost Cathay and it seemed we lost a lot of passengers. We ultimately lose the money as well so [we] work with them to see how we can help them. [We] basically try and keep intelligence and what’s happening in the industry. (Major Round Interview J)

Market data on areas such as passengers through or spend rates or the feasibility of existing or new airline routes have an enormous impact on the planning of an airport’s future construction. Forecasted growth determines the lifespan of airport facilities and is the major force driving expansion planning. In the case of Heffernan Airport, this relationship between forecasts and subsequent planning and development is documented in the Airport’s Master Plan (Heffernan Airport Corporation 2003).

According to figures produced by market forecasting firm Tourism Futures International, despite the aviation industry’s recent woes, which saw a considerable decline in aircraft movements, air-traffic at Heffernan Airport is predicted to experience a steady but significant growth leading to a doubling of movements by the year 2020 (Heffernan Airport Corporation 2003: 102 fig. 9.7). This predicted growth factored with the unavailability of the smaller support runway known as 14/32 due to construction work has led to the conclusion that a new parallel runway is required to
meet additional demand at Heffernan Airport by 2012 (Heffernan Airport Corporation 2003: 102 - 103).

4E: Performing Futures: Ordering the Future

While there is a danger in entrusting the need for the construction of such a monumental, expensive, and publicly feared development like a new runway to a process akin to what most airport management texts believe to be at best, ‘an educated estimation’ (Hart 1985: 52 - 79; Dempsey 2000: 203 - 233; Kazda and Caves 2000: 349 - 371; Horonjeff and McKelvey 1994: 215 - 247; Wells 1994: 261 - 288), the problem for airport managers is a lack of alternative means. On the ‘airside’ a runway is the largest and most important structure at an airport and the construction of a new parallel facility at Heffernan is predicted to take around 8 to 9 years (Heffernan Airport Corporation 2003: 103). Thus, as the Master Plan (Heffernan Airport Corporation 2003: 102) highlights, waiting to see whether a forecast is entirely accurate is not an option:

Delaying delivery of the parallel runway system until 100% of forecast capacity is reached would result in unacceptable frequency of occurrence and duration of delays to airline operations, and due to the long delivery timeframe associated with a new runway system, an inability to cope with any demand surge.
Unfortunately, to complicate management’s task further, forecasting is imprecise\textsuperscript{82}, or as de Neufville and Odoni (2003: 70) rather glumly conclude “the forecast is always wrong.” De Neufville and Odoni’s (2003) assessment is particularly true in the contemporary globalising world where changes in international capital have lead to an increase in market fluctuations regardless of local conditions, and paradoxically, where previously localised threats such as communicable disease and acts of political and religious extremism are transported globally through increased interconnections. In this world, even the most rigorous forecasting technique is likely to experience large discrepancies. For airport management writers such as de Neufville and Odoni (2003: 81 - 89) the best solution to the challenge of invariably inaccurate and imprecise forecasting is \textit{flexible} airport planning procedures. As de Neufville and Odoni (2003: 81) argue:

\begin{quote}
\[ \text{[F]lexibility is essential. It is impossible to build now the facilities that will meet all eventualities. For example, facilities cannot both be large enough to satisfy the highest level of traffic anticipated, yet be small enough to avoid unnecessary expenses if traffic remains steady or drops to a low level. Planners need to establish some middle course, from which they can either grow the facilities as needed, or change them if some newer or lower level of traffic arise.} \]
\end{quote}

\textsuperscript{82} De Neufville and Odoni (2003: 74) estimate that medium-range forecasts of passenger movement, which span a period of 5 to 10 years, usually differ from the actual amount by around 20\%. In justifying this extraordinary figure de Neufville and Odoni (2003: 75) point to United States Federal Aviation Administration (FAA) reports that have catalogued predicted and actual figures of passenger movements for the last 40 years. In the United States forecasts of international flights for the years 1996 through to 1999 conducted in the late 1980s demonstrate the inaccuracy in forecasting (de Neufville and Odoni 2003: 76). For example, when predicting international passenger movement in the United States for the year 1996 aviation experts working in 1984 underestimated by 16.5\%. Similarly, and equally staggering, Japanese forecasters working in 1980 to establish likely international passenger number for the year 1990 missed the mark by some 27\%. Amazingly, this level of inaccuracy was a major improvement on previous performances as they had underestimated international passenger numbers in previous years by the tune of 53\% (1985 forecast carried out in 1975) and 65\% (1980 forecast carried out in 1970) respectively (de Neufville and Odoni 2003: 76).
De Neufville and Odoni's (2003) comments are particularly interesting, however, because they reflect a growing interest in the way that futures are not only predicted but also performed. This new orientation towards the examination of futures and forecasting as (material) performances of the present can especially be seen in the works of authors such as De Laat (2000), Michael (2000), Brown and Michael (2003), and Brown et al. (2000). For these writers, the ways that forecasting methods, foresight, and planning shape (and perhaps ultimately construct) the future is more intriguing and analytically important than the predictions themselves, as Brown et al. (2000: 4 emphasis in original) explains:

> The intension here is to turn the analytical gaze towards the phenomenon of future orientation itself. The purpose of this analysis is not the future *per se*, but the ‘real time’ activities of actors utilising a range of differing resources with which to create ‘direction’ or convince others of ‘what the future will bring’. As such, our purpose is to shift the discussion from *looking into* the future to *looking at* how the future as a temporal abstraction is constructed and managed.

In other words, theorists like De Laat (2000: 185 - 193), Michael (2000: 22 - 23), and Brown et al. (2000: 4) assert that methods of predicting the future may in themselves *order or direct future outcomes*. As Michael (2000: 23) tells us forecasts are not simple, static representations of the future that exist only on paper or float ethereally. Instead, Michael (2000: 23) and De Laat (2000: 188 ) argue forecasts and other visions of the future exist simultaneously in material and social forms and likewise have socio-technical consequences that drive the processes of change, influencing the decision-making that determines what options are selected or favoured and which are subsequently rejected. Thus, they contend, the performance of specific futures through forecasting is not solely a product of chance or the accuracy or precision of
the forecast but is instead achieved through socio-technical orderings that strive for a specific type of future. As De Laat (2000: 185 emphasis in original) explains:

> It is not so relevant to know how well these [forecasting] methods do or do not predict future developments. The important thing to realise is that they are (or might be) performative… Their results do not come true, but are eventually made true.

De Laat (2000: 192) illustrates how the results of prediction are ‘made true’ with examples taken from the field of scientific innovation. As De Laat (2000: 192) argues, researchers model their forecasts of the future with a specific vision in mind that favours certain socio-technical outcomes over others, as:

> [T]hey [scientists] make the hypothesis that a future, corresponding to ‘their’ trajectory, can be realised on the futures which might/should be created – and exclude others from their field of action.

From De Laat (2000), Michael (2000), Brown et al. (2000), and Brown and Michael's (2003) a new perspective of forecasting is told where forecasting is considered to be a performative, active ordering strategy that seeks to intimate specific patterns or a path of change rather than engaging in haphazard guesswork or speculation.\(^{83}\)

Indeed, returning to the context of Heffernan Airport, there are strong similarities between De Laat (2000), Michael (2000), Brown et al. (2000), and Brown and Michael's (2003) perception of forecasting as a performative strategy and de Neufville and Odoni's (2003: 81) perspectives on the purposes and techniques of forecasting at airports. Like De Laat (2000), Michael (2000), Brown et al. (2000), and Brown and

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\(^{83}\) The concept of speculation and in particular the purposes of speculative discourse in enterprises is explored on pages 253 - 258.
Michael (2003), de Neufville and Odoni (2003: 81) see forecasting as an instigator of change rather than simply a reactionary apparatus. Airport administrators, de Neufville and Odoni (2003: 81) argue, must be ‘proactive’, seeking to influence the direction of the airport through strategic planning. They must like De Laat's (2000: 192) scientists, seek to influence and instigate future trajectories through representational and material performances. Here, strategic planning and forecasting extends beyond its initial discursive forms, moving past its existence as managerial discourse, informal discussions, ideas, emails, and master plans (Heffernan Airport Corporation 2003) into the more explicitly socio-technical as trajectories are made concrete in the movement of earth that heralds the construction of new facilities. Or, as Michael (2000: 34) puts it “the representation[s] of the future, conceptualised as a performative materialised artefact shapes the ‘present’ in which it performs.” Or, in other words, through forecasting as an ordering of the future the ethereal and largely symbolic discourse (Michael 2000: 23) of Heffernan Airport as a burgeoning multi-purpose ‘airport city’ is embodied and enacted materially in the erection of retail centres, terminal improvements, new hangers and maintenance facilities, and runway complexes.

However, while forecasts may provide direction, they cannot provide certainty. The specific future that ordering performances strain towards is not guaranteed. At some point, often in the transition from representation to material form, the choices and trajectory of a future become irreversible (De Laat 2000: 189). At best as De Laat

84 For an elaborated discussion of the consequences of the shift in spatial thinking and performances of space at Heffernan Airport in the context of the vision of an airport city see pages 317 - 328.
85 In his work De Laat (2000: 188 - 189) highlights the irreversibility of future performances with the example of the QWERTY keyboard. Introduced in the late 19th century the QWERTY style keyboard was one of many styles trialled at the time. While the QWERTY keyboard was not the most
(2000: 189) explains, these orderings are “focusing devices which serve to create expectations that may bit by bit gain credibility.” In other words, the Heffernan airport’s management chooses a direction or future trajectory embodied and enacted in material performances such as the construction of a new parallel runway system or retail development but this trajectory may prove, in time, to be an incorrect one. Ultimately, the aviation industry may suffer a decline as fuel prices force air-fares to rise, or the global economy slides into recession. Or, alternatively, new markets may cause exponential growth outstripping predicted demand further testing the airport’s facilities. Any of these scenarios is possible but, as de Neufville and Odoni (2003: 81) highlighted earlier, not all can be catered for.

To describe this process in a more mundane context consider the conundrums faced by consumers when purchasing entertainment technology. Like the airport’s management, a consumer choosing between different technologies must perform a future that quickly becomes irreversible. In hindsight, the contests between VHS and BETAMAX video recorders86, digital and analogue mobile phones, or more recently, the now-defunct ‘Dreamcast’ games system and ‘Playstation 2’ had clear winners but for the (often ridiculed) consumers at the time who selected the ‘losing’ technology a specific vision of an alternative future was just as likely. They, like the airport’s management, had performed a version of the future based on forecasting.

86 For an intriguing commentary on the history of VHS vs. BETA see Schofield (2003).
Nevertheless, the consumer metaphor is only useful to a certain extent. While consumers are fairly powerless to alter market trends of the electronics industry, the airport is, in contrast, large enough to not only choose a future trajectory but to also initiate, drive, and generally influence that trajectory. In this regard, and to paraphrase De Laat (2000: 185) the airport’s management is far more equipped to make their forecasted results ‘true’. Performances such as building a new runway system or constructing other new facilities may help increase the airport’s overall usage thus making the original forecasts located in the Master Plan correct. Put a different way, the airport management’s forecast drives the airport’s development and growth, and simultaneously, this growth and development permits or even facilitates the originally forecast increased in airport usage. Viewed as an ordering performance, the most effective forecasting, is forecasting that mimics a ‘self-fulfilling prophecy’ by successfully straining towards the realisation of the selected specific future trajectory.

4F: ‘Busy Hours’: Acquiring Knowledge, Monitoring, and Ordering

So far in this chapter methods of ordering through standardisation and techniques of ordering the future have been explored. Yet, for the successful manager such strategies represent only a portion of their compliment of ordering techniques. To act at a distance the successful manager (or governor, general, or king) must also transform themselves into a knowing-subject\(^{87}\) (Law and Hetherington 2000: 36 - 37;

\(^{87}\) The idea of a ‘knowing-subject’ is also explored in the chapter ‘Space’ (286 - 296) where the role of passports as an ordering device that permits surveillance is explored.
Law 1994: 176 - 177). They must be able to accumulate data and monitor performance. They, in short, require apparatuses that order through measurement.

The term ‘apparatuses’ is critical here because it reinforces the notion that power is a relational effect of material heterogeneity (Law 1994; Law and Hetherington 2000). This is a key idea within Law's (1986; 1994) and Callon and Latour's (1981) understandings of organisation and power and influence, and one that we will return to throughout this project. The King of Portugal (Law 1986), Andrew, the manager of Daresbury Laboratory (Law 1994), or the management of the Heffernan Airport are not influential in their own right. They enact their power through performances dependent on a combination of materials and social structures (Latour 1986; Law and Hetherington 2000; Law 2003). As Law (1994: 142 - 143) points out in his discussions of the operations of Daresbury Laboratory, Andrew is not blessed with the deity-like virtues of omnipotence. He is not all-seeing, but instead relies on devices, principally material but also human, which monitor, survey, and relay information to him (Law 1997a). As Law and Hetherington (2000: 37) describe:

We might number: his computer; its software; the figures typed into the spreadsheet; the process of collating those figures carried out by people in the finance department… For, yes, the point of this STS analysis is that the relations that produce knowing locations, information, are endless.

88 For instance see pages 286 – 296.
89 See also Law and Hetherington (2000: 36 – 37).
90 Such as secretaries, clerks, and administration staff (Law 1997b: 3).
91 In another related quote Law (1997a: 2) proclaims:
Andrew sits in his office. Look at that office! Look at the carpets! Look at the conference table. The easy chairs, the coffee table. The magazines. The oiled teak desk. The fancy chair. The personal computer. The telephone. The papers. The intercom. The secretary. The electronic mail. The fax machine. The airline tickets… We are watching the appurtenances of power.
Measuring and thus monitoring performance of the systems managers oversee is critical to ensure that systems are working close to capacity but not in excess of capacity. Exceeding the threshold of a system, like an airport, can at best cause irritation and inconvenience, but at worst, compromise the system’s integrity and the safety of its users.

One especially important form of information used by the airport’s management and highlighted in interviews was the ‘busy hour’ (Preliminary Round Interview 1; Major Round Interview A). Otherwise known in the aviation industry as a ‘Design Peak-Hour’ (de Neufville and Odoni 2003: 851), this monitoring device records passenger throughputs and thus classifies and designates the capacity of an airport, and in particular, the airport terminal’s facilities. While, as the name ‘busy hour’ implies, passenger throughput is calculated over a sixty-minute period, several differing international methods and standards for calculating this hourly turnover exist. Regardless of the precise method used, busy hours are critical to an airport’s management because, like Andrew’s computer spreadsheets (Law 1994; 1997a; Law and Hetherington 2000), they acquire data that transforms the airport’s management into a ‘knowing-subject’. From the figures acquired through the various ‘peak hour’

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92 Firstly, according to United States Federal Aviation Authority regulations, an airport’s busy hour should be calculated by measuring the busiest hour of the average day of the airport’s busiest calendar month (Ashford et al. 1997: 35; de Neufville and Odoni 2003: 853). The FAA’s recommended system, referred to by Ashford et al. (1997: 35) as the ‘Peak Profile Hour’ method, is one of the most undemanding busy hour rate calculations. Secondly, very similar to the system employed by the FAA, ICAO’s busy hour rate exists an augmented version of the ‘Peak Profile Hour’ system although in ICAO system the average day of an airport’s two rather than single busiest months are used (de Neufville and Odoni 2003: 853). Thirdly, the standard practice for airports in much of Europe, including Great Britain, is to take the 30th busiest day over a calendar year as the ‘busy hour’ (Ashford et al. 1997: 32; de Neufville and Odoni 2003: 853). However, such is the diversity in types of busy hour calculation methods that these three systems only represent a portion of the accepted methods of busy hour calculation techniques used by airports worldwide. Heffernan Airport is among these airports that incorporate busy hour calculation systems outside the standards set by ICAO, FAA, and the British Airport’s Authority. Instead, Heffernan managers use an alternative, but still widely accepted model that computes the airport’s busy hour by recording the busiest hour of the 95th percentage peak day of the year (Preliminary Interview 1; Major Round Interview A). According to de Neufville and (Odoni 2003: 853) the 95th percentage peak day is most commonly the 18th busiest day overall.
systems the airport management is able to monitor the airport’s performance and
determine whether the airport is exceeding or meeting its loading capacities.

Yet the strength of the busy hour as a monitoring and ordering device is derived from
its ability to simplify and reduce the material it surveys. The ‘busy hour’ captures the
complexities of the airport and transforms and re-represents them into statistical and
tabular forms. For Law (1997a; Law and Hetherington 2000: 42) the process of
knowing at a distance is dependent on simplifications and reductions. The
complexities and intricacies of the airport (or the Portuguese Empire or Andrew’s
Laboratory) must be condensed into ‘manageable’ forms that can be considered more
easily. Or, as Law and Hetherington (2000: 42) explain:

   Everything – or representatives of everything – are being brought into one place, all
   at one time. That which was big is thereby being rendered small. And, as it is being
   rendered small, it generates a capacity to see far for the privileged centre.

Nevertheless, the busy hour can only operate effectively if the data it relays maintains
its integrity and accuracy as it is reduced and simplified. In other words, the ‘busy
hour’ must be able to maintain an ‘optical consistency’ (Latour 1990, 28)93. Optical
consistency is the achievement of the successful cartographer as they capture the
minutiae of a landscape on a map but it is also the task of the manager (or at least the
manager’s delegates) as they strive to accurately represent the complexities of an
organisation in a numerical, tabular abbreviated form94.

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93 The concept of optical consistency is explored in greater detail in pages 246 - 253.
94 Optical consistency is also the goal of the scientist and engineer (Latour 1990) and surely it is also
the goal of the social scientist who like the scientist strives to portray the world in the representational
form of text. Yet one can also think of sporting statistics as an example of a reduction that strains for
accuracy. Like the airport’s ‘busy hour’ or Andrew’s spreadsheet (Law 1997a: 4), statistics like a
baseball pitcher’s ERA, an NFL quarterback rating, a strike-rate for a bowler in cricket, provides a
snapshot of a performance that will only reflect part of the complete story. Even the concept of a
When successful, the representational reductions achieved by monitoring devices permit managers to make judgements about an organisation’s performance, and in the specific case of busy hours and the airport, determine whether capacity can be increased within the current available facilities. According to ICAO service delivery standards the majority (95%) of arriving airline passengers should be processed (from stepping off the plane to stepping on the curb) within forty-five minutes (Preliminary Round Interview 1). At present the busy hour rating for arriving passengers at the International Terminal of Heffernan Airport is around 1,500 passengers (Preliminary Round Interview 1; Major Round Interview A). Yet to expand intake effectively and responsibly airport management must ensure that levels of service delivery remain at acceptable levels. As one manager (Major Round Interview A) explained the busy hour provides airport governors with an important tool that ‘ensures’ that growth will be manageable:

What we need to do then [in order to increase the busy rate] is look at the functional areas, look at the performance criteria… what they’re actually doing at the moment, compare it back, so you undertake what is known as a terminal simulation which gives you the deficiencies, then you improve those deficiencies in line with IATA level C\textsuperscript{95} so you always keeps the services up in line with passenger growth.

Thus, like the forecasting techniques described earlier, the busy hour acts as a measure that permits the ordering of operations of the airport. How processes should occur, staffing levels, the introduction of new routes or even air-carriers, and the design and development of the terminal space are all educated by performance criteria

\*score\* is an example of representational reduction and as sporting fans will attest rarely is an accurate or precise reflection of on-field events.

\textsuperscript{95} IATA, the International Air Travel Authority, sets service standards ranked from A to F. The ranking C is classified as ‘good’ (de Neufville and Odoni 2003: 676).
established by the airport and ICAO as governed by the busy hour system. However, the main point here is that these managerial performances are educated through knowledge and data acquired at a distance via representations like the busy hour. To reiterate a point made earlier, without their monitoring devices the influence of the manager is severely diminished. Indeed, as Law (1997a: 2) postulates, without his tools of surveillance:

Andrew, the all-powerful manager cannot calculate any more. He no longer knows anything about the finances of his laboratory. Are they making money? He has no idea. Perhaps the creditors are knocking on the door.

In contrast, when supplied with accurate reductional representations the administrator becomes powerful and can influence the organisation from afar.

Data, like the busy hour that may at first appear to the outsider to be almost trivial take on an unexpected importance, influencing and shaping a multitude of the airport’s operational elements. For instance, while Heffernan’s international aircraft movements are relatively small, as both domestic and international carriers use the same runway system the busy hour rate is critical in the calculation and designation of airport runway slots (Ashford et al. 1997: 43). This regulation of runway timetabling is overseen at Heffernan Airport by the CASA who work alongside the Heffernan Airport’s management and the airlines to ensure that runway and apron allocations are not dangerously congested (Major Round Interview A). Likewise, busy hour rates dictate the capacity of the terminal’s various departments, known as functional areas (Major Round Interview A), such as Customs, Immigration, and

96 As Ashford (et al. 1997: 43) elaborates in respect to runway slots: Capacity is due to safety margins required in the separation of arriving and departing aircraft. Many airports near their slot capacity are coordinated. This means that a regulatory authority, such as the FAA or the CAA, has to check and to allocate a number of slots as being available.
Quarantine processing zones for both outbound and inbound passengers, baggage collection points, check-in facilities, and retail spaces. By educating the decisions of the airport’s management, the role of the busy hour expands from a device that permits monitoring and surveillance to a device that permits ordering. Here, the busy hour can be seen as an apparatus that enables ‘acting at a distance’ (Law 1986) as well as ‘knowing at a distance’ (Law 1997a; Law and Hetherington 2000).

4G: Ordering Flow: Transition in the Airport

If ordering techniques such as standardising regimes, forecasting methods, and busy hours provide airport managers with the ability to ‘act or govern at a distance’ the question might be posed: what precisely are these managers governing? The immediate answer might be that the airport’s managers are governing people, principally passengers, as well as materials, systems, and the environment more generally. This answer would certainly be correct but more specifically this project would assert that, in many cases within the airport, the techniques of ordering used by the airport’s management seeks to govern flows. That is not to say that the airport’s orderings focus only on flows but rather that the management of transition whether of passengers, cargo, or materials (like aircraft) is especially important to an airport and thus deserves particular attention.

In this section, and later\textsuperscript{97} in the chapters ‘Materials’ (227 - 234) and ‘Space’ (270 - 295), this project will explore the mechanisms, performances, and ordering practices that govern ‘flows’ within the airport. Indeed, it is worth noting that in recent years, the concept of flows has become a popular metaphor within contemporary sociology.

\textsuperscript{97} In particular for an investigation of the orderings of flows see pages 227 – 234 and 270 - 295.
Authors such as Urry (2002; 2000a; 2000b), Castells (1996; 2000a; 2000d), and Deleuze and Guattari (1986; 1988) have employed the idea of ‘flows’ literally and allegorically in their accounts of contemporary society particularly in relation to the continued rise of global interconnectedness and the perception that global networks in areas such as finance, production, and mobility are the leading ‘drivers’ of the contemporary world (Beaverstock et al. 2002; Shin and Timberlake 2000; Shields 1997; Smith and Timberlake 1995; 1998; 2001; Song 2000; Townsend 2001; Taylor 2000; 2001). Yet, unlike the works of these authors, the attention in this paper is not concentrated on the types or levels of flows transferred. Instead, this project is interested in exploring the ways that these flows are ordered and governed. In other words, this project seeks to understand the ordering apparatuses, devices, systems, processes, and techniques that permit transfers (in the airport’s case principally passengers but also baggage and other goods) across materially heterogeneous networks.

The administration and governance of flow can be considered to be the quintessential challenge and task for an airport. Indeed, much of an airport’s success and failure is determined by its ability to transfer objects (both human and non-human) from the ‘curb’ to the aircraft and vice versa as quickly and efficiently as possible. Airports have long been viewed understandably as spaces of transition (Brambilla 1999; Augé 1995; Fuller 2003; Fuller and Harley 2004; 2005; Gottdiener 2001) where people and other ‘cargo’ is processed and transported through the capillary-like fingers (Rosler

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98 It is worth noting that the term ‘network’ as used by Castells (1996; 2000a; 2000b; 2000c; 2000d) and similarly by Beaverstock et al. (2002), Shin and Timberlake (2000), Shields (1997), Smith and Timberlake (1995; 1998; 2001), Song (2000), Townsend (2001), Taylor (2000; 2001) is very different from the concept of networks contained in Actor Network Theory and Science and Technology Studies literature that provides the principal methodological and theoretical underpinnings for this project. For a commentary on the differences between the interpretations and understandings of the term network found in Castells (1996) and ANT / STS literature see Latour (1997) and Law and Hetherington (2000).
1998) to and from aircraft. Indeed, interwoven as airports are within the global frameworks of mobility and interconnectedness the concept of ‘flow’ and its sister, ‘transition’ become consequential beyond the confines of the airport space. If systems within the terminal fail, the flow on effects on the remaining system can be felt across the system as a whole (Sealy 1976: 16). Delays at an Asian hub airport, for instance, can have major implications for flight schedules at other airports across the globe as the complex and intricate network of curfews, connections, staffing levels, and transfers is jeopardised.

Although unavoidable delays caused by weather (particularly in the wintry Northern Hemisphere) or mechanical difficulties are an irritating but unescapable reality for both airline passengers and the aviation industry, within the more readably controllable and orderable environment of the airport terminal techniques and procedures to maximise efficiency are incorporated in an attempt to coordinate the manageable aspects of an industry that is so often renowned for its unpredictability and chaos. As later sections will elaborate, airport managers use manipulations of spatial performance (140 - 151) to draw (and govern) passengers through the terminal while terminal signage (Materials: 227 - 230) provides further direction via an unmistakable code of international semiotics. Yet, as highlighted in interviews conducted with the management of the Heffernan Airport Corporation many other devices, technologies, systems, practices are also employed to manage the transition of passengers and other ‘freight’.

The successful and prudent design and layout of an airport terminal is perhaps the simplest but most effective way of managing passenger transitions and is a first
crucial step in ensuring the efficient running of an airport. Through the careful and deliberate use of architecture and spatial design, the deployment of lighting and signage, and implementation of ‘people-management’ techniques airport terminals become strategically managed arenas. These types of ordering techniques are often only noticed in their absence when systems fail and the confines of the airport terminal become incapable of dealing with passenger numbers. While the overall design of terminals and particularly the macro and external factors are usually the responsibility (with input from administrators) of the architectural elite (Jahn 1991; Images Australia 1999) within the terminal the role of an airport’s administration is far more pronounced. Passenger movements within a terminal can be divided into two categories, firstly, those that are linear, and secondly, those that are more unscripted, random, or haphazard99. Where possible, airport designers, regulators, and administrators create spaces designed to emphasise the former over the latter. Indeed, when considered, the movements and processes involved in boarding or departing an aircraft are, for the most part, quite linear and inflexible. The processing of departing passengers follows an easily predictable routine consisting of arrival; check-in (including seat allocation and baggage deposit); security checks; immigration processing and finally, a waiting period at the departure lounge until the

99 Not all movements within an airport terminal are so predictable. Airports do not function as simple transition points for passengers. Increasingly, airports are becoming microcosms, mini-cities with extensive leisure and especially retail facilities. Likewise passengers, who previously may have only purchased a carton of discounted cigarettes or a bottle of spirits at the small duty free store, have embraced the new ethos of consumerism. The changing face of airports it seems may have changed the face of travellers who are more comfortable now taking on a consuming identity. No longer just nomads keen to progress to the next stop on their itinerary as soon as possible airports are becoming progressively more the home of the flaneur (Benjamin 1989; 1992; 1999), the window-shopper, the lifestyle consumer, and the retail therapist. This new type of consuming traveller does not follow the stringent path as predictably as other travellers. They spend time at the bookshops, the fashion outlets, the restaurants, the cosmetics or electronics store, or at gigantic airports, like Singapore’s Changi, the movie theatre. Yet far from being discouraged these new consuming travellers are the preferred patrons of airports. Consumer-orientated travellers are spenders and the revenue garnered from sources outside the limited scope of air-side is extremely valuable. The challenge then for airport managers is to create and order a space that both retains its more easily regulated, linear, and progressive model as well as enabling passengers the freedom to wander the recreational components of the facility.
flight is ready to board (Wells and Young 2000: 190 fig 6-6; Dempsey 2000: 320 – 321 fig 8.1, 8.2). A similar, albeit reversed, process occurs for arriving passengers.

Speed is paramount but the desired type of speed is not unbridled or uncontrolled. Instead, airport managers seek to create an ‘ordered’ quickness, a tempered but rapid flow of passengers through the airport’s ‘functional areas’ (Major Round Interview A). While many passengers would ideally like to board (or disembark) aircraft as quickly as possible such haste causes chaos and confusion. As Eriksen (2001: 64 - 68) points out in his commentary on speed and the acceleration of daily life, our desire for quickness and instantaneous gratification can lead to ‘a loss of precision’. Whilst Eriksen's (2001: 64 - 68) comments are for the most part directed particularly at academic endeavours, personal correspondence, and mass media the point that speed and haste do equal precision, supported by ancient maxims, is well made.

Instead of ‘speed’, managers of the airport seek to govern flow through routine. Routine is one of the key ordering techniques of the administrative ‘backstage’ highlighted in Law's (1994) *Organizing Modernity*. As Law (1994: 136) following Woolgar (1990) explains, establishing a routine configures the user as much as the system. Mundane, routine activities like boarding an aircraft based on seat allocation ‘order’ and manage passengers. Indeed, when interpreted as regimes of ordering or governance the mechanisms of managing flow used by airport’s administration may have parallels with Foucault's (1977: 149) work on the disciplining of subjects. As Foucault (1977: 137) explains the creation of docile, disciplined, and efficient subjects:
Implies an uninterrupted, constant coercion, supervising the processes of the activity rather than the result and it is exercised according to a codification that partitions as closely as possible time, space and movement. These methods, which made possible the meticulous control of the operations of the body, which assured the constant subjection of its forces and imposed upon them a relation of docility-utility, might be called ‘disciplines.’

In making such a comparison, however, it must be emphasised that Foucault (1977) is viewed in this project as a theorist interested in governing and ordering rather than ‘control’ and ‘domination’. Too often, as Kendall and Wickham (1999; 2001: 17 - 18) point out, Foucault (1977) is read as a dark and dystopic malcontent who highlighted the ever presence of dominating and controlling regimes of the state, bureaucracy, and medical professions. Indeed, the airport does not dominate passengers or insidiously control their minds and bodies but rather shapes their actions through manipulations of the physical environment that often rely on governance through compliance to social norms combined with mechanisms designed to alter the mood of the airport’s temporary inhabitants. As Law (2003: 3) describes:

[D]iscipline is… about bodies. It is about architectures. It is about time. It is about texts. It is about sight. It is about furniture.

So, in other words, to understand mechanisms of ordering and governance its material performances must be exposed.

Ordering practices work quietly and efficiently ‘behind the scenes’ managing the potential chaos of thousands of passengers and various agents through the clever combination of simple techniques of instruction, direction, and information exchange. Or, to frame this point differently, ordering practices simplify otherwise complex
systems. The chaos of an airport, with its daunting and alien environment of passages, pathways, signs, lights, machines, and colour becomes simplified as a clear flow from functional area to functional area is established and the path from landside to airside is reduced to a few simple steps and tasks.

Equally important though, are the ordering practices that govern passengers through the management of areas known as ‘hot spots’ or ‘milling spaces’. ‘Hotspots’ are areas within an airport terminal where passengers tend to congregate thus reducing flow (de Neufville and Odoni 2003: 660). Hotspots typically occur at the junctions between service areas but as de Neufville and Odoni (2003: 660) point out, their potential existence may not be immediately apparent in a terminal’s design:

[I]ronically, the critical bottlenecks typically are most evident when designers have provided enough space overall for some activity. The hot spots arise subtly. They do no result from gross errors in sizing spaces. They usually stem from some seemingly minor architectural detail of lack of understanding of routine operational procedures in the airport building.

Here, de Neufville and Odoni (2003) unknowingly reiterate the logic of ordering. To avoid hotspots, de Neufville and Odoni (2003: 660 emphasis added) tell us airport designers must be aware of “minor architectural detail(s)” and the “routine operational procedures in the airport building.” In other words, to manage passenger flows and create disciplined, predictable, and efficient passengers airport administrators must manage the routine and mundane activities conducted in the airport.

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100 Appendix 1 (355) depicts a potential hot spot in the main concourse of the Dubai International Airport. Passenger progress can be interfered with by the placement of retail locations in the central pathway.
Such management often entails manipulating a terminal’s layout as the ‘natural’ or instinctive location for service and functional areas may actually increase the likelihood of hot spot occurrence. As de Neufville and Odoni (2003: 663) comment:

Designers should be careful where they place flight information displays, information booths, and telephones. The intuitive impulse is often to place them where these services are visible to the most people. Unfortunately, the effect may be to create blockages just where traffic is most crowded.

Again, by asserting that the “intuitive impulse(s),” of designers may lead to inefficiency, de Neufville and Odoni (2003: 663) are unknowingly supporting the point that the techniques of ordering are not simply ‘commonsense’ or obvious to all but rather form a considered logic based on specific and varied strategies and techniques. In the particular case of hot spot reduction, the techniques of ordering are educated through multiple factors including the busy hour capacity of each functional area, the likely behaviour of passengers in a crowded environment, and architectural theories related to flows of people through space (de Neufville and Odoni 2003: 660 - 670).

Further insights in the modes of governing passengers were provided by the Heffernan Airport’s management. As one manager commented (Major Round Interview G), techniques and strategies increase efficiency through the governing of passengers stress was critical throughout the processes of terminal design and construction:

What, we did when we designed that particular terminal… we had a number of studies and things we looked at, the first thing is what stresses passengers, and what are the stress points… as they’re going through the international terminal. And our
studies showed [that] it’s before check-in, they worry if they’ll get a seat or not, if 
they’ll be knocked off the aeroplane, the next was going through the customs lot or 
immigration line, that the back of their passport wasn’t going to bounce or whatever,
and the third one was… the security, that they’ll get thrown out… They’re the three 
stress points and so we spent a lot of time on the design trying to minimise the stress.

By noting the stress levels experienced by passengers at the various functional areas 
the airport’s management was in fact initiating the first step of the ordering the 
terminal space. Stressed passengers are inefficient passengers. They are prone to 
dawdle and to congregate around hotspots; they tend to get lost easier; unsure of their 
environment they may double-back on the journey through the terminal; or even 
inadvertently wander into prohibited areas. Ordering passengers by establishing 
procedures and design features to alleviate stress and unfamiliarity is a simple but 
nonetheless extremely effective way of increasingly the efficient flow of passengers 
through the terminal. As Manager ‘G’ (Major Round Interview) explained, the 
airport’s studies of passenger stress and behaviour were used by the airport’s 
governing body to create a more ‘passenger-friendly’ environment through the use of 
simple design features and procedures that can upon review be viewed as ingenious 
ordering practices. As the manager (Major Round Interview G) described, passenger 
stress was alleviated using:

[S]imple things like the height of the check in counters… most airline check-in 
counters are up there and you’ve got to try and manage a bag and get passports and 
tickets out so we have long, flat, low counters so you can open your bag on top of it, 
you can see the weight of your bag on the scale… all those types of things. A lot of 
resistance, initially from the people who sit behind the counters, they like it to be up 
so we… and have a big open area, good lighting, good natural lighting, so people can 
look through, they can look right through to the main departure board, from when
they arrive at the front door, there’s trees and things in the way, but basically you can see through, they’re not panicking that the plane’s gone… they can then… look into the departure’s lounge [and] see that the plane hasn’t gone and that things are happening down there… so all those things should relax people.

Moreover, Manager ‘G’ (Major Round Interview) adds:

[I]n the primary line where the immigration is, we’ve got a water feature in, the sound of water is supposed to be soothing… but those sorts of activities to try and make it… easier finding your way through the terminals, and making big, open plans so you can see where you’re going, and you’re not going down corridors. We also tried to get away from the (wailing) wall. You know, most airports, as you go through customs/immigrations, like going through a crematorium, the door opens and they disappear and it closes. So I mean, downstairs, with the water feature, and went through, rather then having… the doors that release a lot of stress.

These ordering practices seek to govern passengers by making subtle adjustments to the environment altering their mood and the atmosphere of space. The water feature soothes passengers, calming them and transforming them into disciplined and orderable subjects.

Indeed, Heffernan International is not alone in its introduction of calming features. Air terminals across the globe have embraced ‘greening’ measures designed to alleviate passenger stress and the dreaded ‘air-rage’.101 As Gordon (2004: 259) explains, airports have gone to great lengths, introducing a wide assortment of strategies to reduce passenger discomfort:

101 Gordon (2004: 259) further elaborates:
Some airports have added health spas and massage parlours to calm the nerves of stressed-out travellers… Pittsburgh International [for example] built a thousand-square-foot meditation room, with images of puffy clouds and soft trance music… Ironically, this transitory realm has to be marketed as a place of ‘downtime’. Terminals shaped for speed now attempt to evoke the quality of slowness.
Kuala Lumpur has a tropical rainforest inside the airport’s central atrium. Sendai airport in Japan echoes the local landscape, complete with terraced plantings and cascading streams. Denver has a cactus garden, and a new terminal for Cologne-Bonn Airport was designed to sustain an entire ecosystem of healing plant life beneath a bubble.

Nevertheless, caution must be exercised in proclaiming the extent that the airports techniques might successfully order the airport’s passengers. In the opening section of this chapter (115 - 119), Law's (1994: 5, 26) warning that ordering projects are invariably incomplete and the concept of total order (as hideous as Law (1994) suggests it is) is an impossibility was repeated. So also are the orderings within the Heffernan Airport. Despite the airport administration’s ordering, their manipulations of light and terminal layout; their micro-management of the height of counter-tops; and employment of devices and practices to calm hurried passengers the successful flow and smooth reliable transition of passengers cannot be guaranteed. As the BBC television series Airport testifies, regardless of the airport’s orderings a percentage of passengers will dawdle; become disorientated and lost; fail to heed repeated boarding calls; will become stuck in queues; or generally fail to progress steadily through the airport. Indeed, indivisible as the airport is from the materially heterogeneous networks of the social, ordering mechanisms may fail because supporting materials are not sufficiently durable. Even the most successful ordering techniques used to govern passengers are powerless to prevent delays and hindrances posed by mechanical faults in aircraft or bad weather. In this case the ‘fidelity’ of the airport’s agents too might be tested (Law 1986). Baggage systems, for example, like those at

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102 The durability of materials within networks of the social is explored in pages 213 - 219 of the chapter ‘Materials’.
Denver International Airport (de Neufville 1994), might fail, delaying the departure of aircraft or comically (if not for the unfortunate passengers) send luggage to different destinations\textsuperscript{103}. Likewise, delays in the processing of airline tickets and travel documentation or even worse industrial action by employees at the airport, as occurred in respect to the Australian Customs Service (Robinson 2004), can render other attempts to order flow void. To paraphrase Law and Hetherington (2000: 41), these actors have not remained reliable, or held together but instead have turned traitor, turned turtle, or gone native. Thus following Law (1994: 5) the stories of the airport told in this project are stories of techniques straining towards ordering rather than stories of order attained.

4H: Ordering in Summary

This chapter has told selected stories of the performances initiated by an airport management that strain towards ordering. To simplify, these ordering performances have been defined as initiatives or activities that aim at governance or control but are inevitably incomplete or imperfect. Nevertheless, despite their limitations, this chapter has asserted that these ordering performances are essential to the operations of an international airport as they provide an airport management with tools to govern, albeit imperfectly, flows within the airport environment. These ordering performances are complex and multiple, varying in scope, origin, and intent. Some like the forms of international regulation that work towards the homogenisation of the airport space and operations have the appearance of scale. Other ordering performances, like efforts to soothe frazzled passengers with water features appear far more localised and narrower in intent.

\textsuperscript{103} For a detailed discussion of baggage handling see pages 220 - 227.
Nevertheless, although this chapter tells specific stories of particular orderings that are seen as interesting, important, or otherwise notable, the defining message of this chapter is that ordering performances are ubiquitous and rather ethereal. Ordering, to reiterate Kendall and Wickham (2001: 25) is everywhere. Everything an airport management does can be considered ordering. Indeed, the actions of any actor at the airport can be thought of as attempts that strain towards ordering. Often, however, the ordering performances of an airport management are more effectual as their performances are more interconnected and thus can garner more resources such as information and labour (Latour 1986; Law 1997a).

Ordering enacts the airport. As this chapter has demonstrated, an airport management employs ordering performances to regulate and control minute parts of its operations in an attempt to ensure that every activity and even design characteristics are made routine, uniform, and predictable. Indeed, predictability is such a precious and desirable outcome for the airport’s management that ordering performances are used to enact future outcomes in an attempt to beat the need for speculative forecasting. As this chapter has shown, ordering performances are used to shape the airport’s future direction, straining towards a particular reality. In more conventional terms too, ordering strains towards the predictable by providing the airport management tools for information acquisition. As Law (1997a) notes information is tied to influence, and the airport’s management strains to be influential by obtaining knowledge through ordering devices such as busy hour measures.
Evidently, even more stories of ordering could be told and given the ubiquity of ordering performances and their centrality to organisations it is not surprisingly that the stories of ordering do not end with the culmination of this chapter. Indeed, in the following chapter the specific role played by communication as an ordering performance is explored. Communication and information exchange are described an essential ordering performances. Although, like all ordering performances, communication and information exchanges as a special kind of ordering are inherently imperfect and vary substantially in form, origin, and intent.
Chapter 5: Communication

5A: Communication as Ordering

Communication is a concept whose scale and importance within the social sciences is virtually unsurpassed. As Kaufer and Carely (1993: 1) explain “Communication is a single word but not a single idea.” Communication can be thought of as the mechanism by which we interact with the world. Indeed, this interaction occurs not only in the confines of what sociologists traditionally refer to as the social world but also the socio-technical world explored by theorists working within the parameters of the Actor Network Theory and Science and Technology Studies\textsuperscript{104}. Humans ‘talk’ to machines\textsuperscript{105} and machines ‘talk’ back. Latour (1992: 225 - 227), for instance, recounts the story of his experiences ‘talking’ to his car when he attempted to drive without first securing his seatbelt\textsuperscript{106}.

Yet, even without the expansions into the realm of the socio-technical, the complexity of communication in the ‘imaginary vacuum’ of the social world is such that whole disciplines have been established in attempts to map communication’s subtleties. Linguistics, semiotics, literature studies, discourse analysis, and specialised branches of anthropology, philosophy, psychology, cultural studies, sociology, ethnography, and ethnomethodology all attempt to describe the processes, techniques, difficulties, and impacts of communication. Their interest in communication is well-founded. All


\textsuperscript{105} Not just machines but also animals and objects.

\textsuperscript{106} Moreover, at present the researcher is communicating with a computer and its word processing program. If commanded the program will close, but first it will ‘talk back’ to warn that the text has not been saved.
interaction, all relations, be they social, mechanical, or mixed involves
communication. Indeed, it could be argued that communication permits society.
Paired together they are dependent on one another. The social (or more accurately the
socio-technical) cannot exist without communication and likewise communication
cannot exist without a viable container.

On one level, communication is such an integral component of society because it is
instructive. Communication acts as an instructive, educational, and informative
mechanism. A child crying; a billboard advertising shoes; a memorandum on a post-it
note; commands from a military leader; a recipe; the tone that warns of an incorrect
key-stroke on a computer; the purring of a cat are all examples of the instructive
powers of communications (there are infinite others). In all these cases a message has
been sent; ‘I am unhappy – feed me’; ‘buy Nike shoes’; ‘call Jim
as-soon-as-possible’; ‘attack that enemy position’; ‘add sugar, water and then stir,’
‘that keystroke is inappropriate in this situation’; ‘please keep patting me’.
Communication directs subjects of required or desired actions. Indeed,
communication as an instructive mechanism informs subjects of what actions should
occur; when they should occur; what order they should conducted; and who they
should occur to (again this list is endless). Communication is thus a critical device in
management, or in the language of this project, ‘ordering’.

To repeat the previous examples, the baby orders; the advertisers who designed the
billboards orders; the post-it note orders; the commander orders; the recipe orders; the
commuter orders; and the cat orders, all through communication. Certainly also, the
managers of the Heffernan Airport order when they communicate. Communication
between the different agencies and organisations that operate within the Heffernan International Airport facility is critical to the success of the airport and is vital to the maintaining of safety, security, and efficiency standards. Indeed, as an institution that contains a great diversity of parties, all with often-varying goals, responsibilities, and attitudes, communication as an ordering device is an airport’s first and best technique of avoiding and managing conflict between agencies.

How the airport’s management communicates, how they instruct, inform, and direct subjects will be analysed in this chapter. Indeed, this chapter will explore the various communicative mechanisms employed by the airport’s management and investigate how certain types of communication strain towards different types of ordering. To this end, Law (1994) will again be a useful guide. As we shall see, communication is a theme that regularly appears regularly in Law’s various examinations of organisation. Communication, for (Law 1986; 1994) is viewed as key component of organisation. It is viewed, for example, as a key mechanism in instigating long distance control (Law 1986: 241). However, Law (1994; 1997; Law and Mol 1995) understands that there are multiple forms of communications (or communication mechanisms) that strive to perform organisation in different ways. In other words, Law (1994) recognises for an organisation, like the Heffernan Airport, to achieve (or at least work towards) success, efficiency, and productivity from its complex and materially heterogeneous components it must employ multiple forms of communication, which in turn, permit various types of ordering.

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The contents of this chapter can be divided into five distinct sections. First, this chapter will examine the performances of meetings. While often lampooned, meetings are employed regularly in management as essential communication performances. Second, this chapter will examine the role of informal communication. In the section, the role of ‘walking and talking’ as a communication performance will be examined. Third, this chapter will tell stories about formal communication. Formal communication performances are integral to the smooth, efficient, and reliable operation of the airport space. Fourth, this chapter will explore the materially heterogeneous performances of mundane communication. In this component, the performances and logic of essential yet mundane forms of information exchange at the airport are examined. Finally, this chapter examines the paradoxes of information exchange and trust within the context of the airports industry. While airports are partners, they are simultaneously competitors, and this section explores the balancing act of exchanging information without letting secrets be exposed.

5B: Meetings: In Defence Of and Against Committees

In interviews conducted with the management of the Heffernan Corporation an array of various communication mechanisms were highlighted as methods designed to disseminate information, direct agents of required actions, stay informed of developments, and generally, administer the operations of the airport facility. Yet, when asked about the techniques used to communicate managers (Major Round Interview A; C; G; I; J; Preliminary Round Interview 4) frequently highlighted meetings and committees as an integral, and occasionally principal, communications methods used to distribute information and interact with other agents at the airport. As one long-serving manager (Major Round Interview G) described:
We’ve got facilitation committees, the airline operators committees, we’ve got tenants environment committee, we’ve got a number of sort of sub-committees, baggage handling committees, flight place and display committees… a whole range of (meetings)…

The reliance on committees as an essential communication tool was reiterated throughout the interviews held with the Heffernan Airport Corporation. Airside Safety Meetings (Major Round Interview C; Major Round Interview I; Preliminary Round Interview 4), meetings with Statutory and Regulatory Bodies (Major Round Interview A), Customs, Immigration, and Quarantine Services (Major Round Interview J), airlines (Major Round Interview A; Major Round Interview I), as well as dialogues with Environmental Organisations (Preliminary Round Interview 4), were all highlighted in discussions with the airport’s management.

The use of committees by the airports management, however, should not come as a surprise. Despite their derided status, meetings and committees have seemingly become the default tool in enterprise for exchanging information and determining outcomes. Indeed, enterprise is not alone in its infatuation with ‘minutes’ and ‘round tables’. Committees have long been the accepted mechanism in other arenas such as enterprise-like environments like the university and clubs while parallels between meetings and committees with forums like judiciaries, juries, cabinets, or tribal councils run deeper than just surface resemblances. Still, the prevalence of committees does not mean that we are entirely familiar with their subtleties, affects, or powers. While on one hand committees are often mocked (BBC News 2004), on the other they are employed to facilitate daily affairs. Clearly, there are complexities and paradoxes within the logic and purposes of committees that should be explored.
Questions, for example, can be asked of the purposes of committees as communications mechanisms and of the performances and orderings that they produce. Essentially, we might ask what types of orderings are performed by meetings and committees that make them such a maligned but employed communications mechanism.

For Law (1994: 58 – 59, 68 - 69) much of the lampooning of committees can be attributed to a preference for ‘heroic’ rather than ‘administrative’ managerial types\(^\text{108}\). ‘Hero’ managers, Law (1994: 57 - 59) asserts are viewed as active, energetic, creative, resourceful, ingenious, and independent. They favour action over consultation but as Law (1994: 65) explains, the hero-manager is also and fortunately blessed with good judgement:

\[
\text{[T]hey are effective because they have the knack, the luck or the capacity to make good decisions – decisions that will attract resources and keep the show on the road.}
\]

In contrast, ‘administrative’ or ‘civil servant’ type-managers are viewed with disdain. Where hero-managers are viewed as go-getters, the ‘civil servant’ is tied to bureaucracy; they are slaves to structure; reduced to the status of sedentary paper-pushers (Law 1994: 58 – 59, 64 - 65).

\(^{108}\) Law (1994: 52 - 82) dedicates a great deal of his analysis of Daresbury Laboratory to examining various managerial types. Law (1994: 73 - 82) contends that managers can be located on a theoretical four-way spectrum, juxtaposed first between the extremes of hero (cowboy) and administrator (civil servant) and second positioned on a scale based on the desirable characteristics of vision (charisma) and vocation (skill). At the same time, however, Law (1994: 74) cautions against the over-emphasis of the term ‘types’. Instead, Law (1994: 76) suggests rather than being taken as literal personality types the managerial descriptors used in *Organizing Modernity* like ‘heroes’ and ‘civil servants’ are more like metaphors for describing particular modes of ordering (managing). Law (1994: 74) explains:

\[
\text{As I write, I realize that I am making the mistake of personalizing... So let me insist that I am not in the business of postulating a series of personality types. I’m not saying that there are cowboys, and that there are civil servants. Rather, I am saying that its possible to impute several modes of ordering to the talk and the actions of managers [emphasis in original].}
\]
Likewise, the communicative mechanism of the ‘civil servant’ type-manager, the committee meeting is similarly maligned (Law 1994: 58 - 59). Accordingly, committees are presented as inefficient and passive, their decisions (if and when decisions are reached) produced through diluted consensus that removes originality and spontaneity. As Law (1994: 58) summarises further:

In heroic stories… committees are said to be a doubtful asset. They meet infrequently. They are paralysed by inadequate information and an avalanche of paperwork. Usually, or so it is said, only the chairperson really understands what is going on. Furthermore, they are hamstrung by the need to strike political bargains….

So the heroic diagnosis is this: rule by committee… is a recipe for disaster.

Law’s (1994: 58) words depict committees as ineffectual or worse counter productive and, while he subsequently weakens his attack¹⁰⁹ the perspective that committees and meetings are a waste of time is, anecdotally, widely held (BBC News 2004).

Nevertheless, other sociologists of organisation are less critical of the role of these bureaucratic performances. For example, du Gay (1994; 2000; 2004) mounts a powerful defence of bureaucracy in the face of contemporary political and managerial movements towards enterprise. As du Gay (1994: 671) explains:

While it would be ridiculous to suggest that bureaucracy is an unambiguous achievement the wholesale and largely unreflexive denigration of bureaucratic culture currently taking place should be cause of immense concern.

¹⁰⁹Law (1994: 58 - 59) later, briefly cautions against deriding committees excessively, stating: I am tempted to say that committees are not all bad. We tend to want sharp divisions. And we tend to want the security of knowing that they are set in concrete. Supine committees, or inert machines, are opposed to creative, language-using people! But the divisions are neither so sharp, nor so stable.
According to du Gay (1994; 2000; 2004), the near-universal embracing of enterprise, seen especially in attempts to reinvent the public service, ignores the benefits of bureaucratic performances. Rereading Weber, du Gay (1994; 2000; 2004) asserts that bureaucratic performances possess an important ethic of formal rationality that draws boundaries for the actions of actors. In other words, although the “bureaucratic commitment to the norms of impersonality [and] strict adherence to procedure,” (du Gay 1994: 660) may be seen as the antonym of successful enterprise, bureaucratic acts, like committees and meeting, can produce effective and efficient performances that rival those of enterprise (du Gay 1994; 2000; 2000).

Indeed, at least in ‘public face’ presented in interviews, the management of the Heffernan Airport told of the benefits of meetings and committees as useful apparatuses. Managers (Major Round Interview A; C; I; J) spoke of the use of regular, and often formalised, meetings with the major organisations associated with the airport, which enabled the identification of current and potential problems as well as a tool to discuss ways of approaching issues from the various perspectives of the organisations involved. Manager ‘J’ (Major Round Interview), for instance, depicted meetings and committees as an ideal forum for the airport’s agents to bring issues to attention:

We have certain meetings and processes that we go through, we have an airline operations meeting where they [the airlines] have their chance to bring up issues that they may have and we bring up issues that we may have with the airlines. Also [we] have a similar forum with Customs and Quarantine and more of a, I suppose, a Customs one…every fortnight. Have a coffee, and that’s a casual way to do it, but
we get the business done… I suppose the company philosophy is let’s win-win and work and see what their problems are and how we can both get the same goal.

Airport managers (Major Round Interview A; C; I; J) viewed meetings as an opposition to singular, autocratic decision making processes. In this far more positive vision of the role of meetings, committees were seen as a mechanism where collective solutions to collective problems could be achieved. Indeed, the idea that meetings were a device that could potentially facilitate win-win situations for the airport’s various agents was repeated by manager ‘A’ (Major Round Interview):

We sit down we look at what’s happening at the airport, we discuss various issues that the airlines have and we try to reach a win-win situation. [Although] We can’t physically do everything that the airlines want, if it’s an improvement or if it is likely to bring in additional business then, naturally, it is in our best interest to do it.

Meetings were seen by the airport’s management as a formal method of exchanging information. They can be viewed as a way of determining viewpoints, clarifying opinions, disseminating data, and generally coordinating and managing, or ordering, the activities of the assortment of government agencies, statutory bodies, and corporate entities that reside within the airport facility.

From this alternative interpretation the ‘heroic’ criticisms of meetings (at least in this specific context) appears to be poorly directed. While meetings and committees are not dynamic, independent, quick, or perhaps even, creative (in short, they are not an apparatus of the ‘hero’ manager), when viewed less ambitiously as instead a formal mechanism of information exchange, committees can be seen as serving an entirely different purpose and instigating very different but still useful communication. In
other words, the charge the committees are ineffectual at decision-making seems unjustified because (in regards to the specific instances of the Heffernan Airport Corporation) they do not serve that purpose. Instead, meetings perform the far less glamorous civil service or administrative (Law 1994: 58 – 59: 77 - 79) role of keeping the airport’s agents informed. Again the comments of Manager ‘C’ (Major Round Interview) reiterated this role:

We have regular meetings with airside people, if they have any problems they come up and they contact us and we see what we can do about remedying it for them.

These types of administrative duties are maligned Law (1994: 78) explains because they are forgotten in favour of more impressive orderings:

Perhaps the issue has to do with the size of the dragons that are to be slain, and the extent they are visible… Remember Mr Pooter110 … Wasn’t the mockery possible because his dragons were small and everyday?

The lesson presented in this section is that while the administrative-type communication produced by meetings is not celebrated its performances are essential to the operations of the organisation. Committees are not by default ineffectual, it is rather that their impacts are not as easily apparent or visible as other managerial tools. The administrative duties of disseminating information, keeping track of events and projects, and discussing or alerting agents of problems or threats performed by meetings and committees are easily forgotten (even by participants) as they are labelled ‘a waste of time’. The powerful administrative communicative performances achieved by meetings have simply ‘gone under the radar’. As the airport’s managers (Major Round Interview A; C; I; J) highlighted, meetings are an apparatus to connect

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110 Mr Pooter was a fictional character in the magazine Punch who maintained a diary of mundane activities.
the airport’s various agents such as airlines, other airport-based businesses, customs, quarantine, and air-services with the airport’s administration. Without the communicative performances of meetings other mechanisms for linking these agents would be required.

Nevertheless, this project also argues that given certain circumstance it is also possible for meetings and committees to be dynamic. To show how this is possible we must return again to Daresbury Laboratory. There Law (1994: 145 - 151) describes the meetings he attended (as an ethnographer) of the Daresbury Management Board. Law (1994: 149) considered the DMB meetings to occur in a special, privileged place. In the closed, private backstage of the DMB, rankings and hierarchies were performed; certain parties were present while other absent parties were silent (Law 1994: 146)\textsuperscript{111}. Extending Law's (1994) argument, however we can see that hierarchies and rankings are performed within the boardroom even between those included\textsuperscript{112}. Even within meetings certain parties speak while others remain silent. Certain parties within meetings, whether via rank, charisma, or knowledge can

\textsuperscript{111} In the controversial world of airports a point here could be made regarding who is present at the meetings of the Heffneran Airport Corporation. Community involvement in decision making processes at the airport is a contentious issue. It might be also pointed out that during this study several local councillors and a state parliament member were approached for comment on community involvement in airport developments. All, some after contacting their ‘media advisor’, unequivocally refused. Documents such as the \textit{Master Plan} (Heffneran Airport Corporation 2003) attempt to involve the community but, as one manager (Preliminary Round Interview 4) described, probably referring to the Heffneran Airport Corporation’s (2003) statement on \textit{Noise Management Strategies}, its impact is questionable:

\begin{quote}
We put out a 104 page document out to the public for 90 days. We got seven responses. Despite going out and talking at public meetings and putting it in libraries and advertising… seven responses!
\end{quote}

However, while such debates are interesting and important they fall outside the parameters of this study. For a short commentary on community involvement and airports see de Neufville and Odoni (2003: 190 - 191).

\textsuperscript{112} Law (1994: 147 - 150) makes a similar argument when discussing the role of the silent, passive ethnographer present in the ‘special’, hierarchical place of Andrew’s office. However, only briefly does he (Law 1994: 147) pause to consider the dynamics of the hierarchical performances for the meeting’s participants. There Law (1994: 147) asserts that varied hierarchical roles can be observed in the differences between individual work, group meetings, and the meeting of equals. The interaction, however, between parties of different ranks within a meeting is not explored.
dominate a meeting’s proceedings directing the agenda, perhaps influencing the tone or even the types of decisions made.

In Law's (1994: 62 - 70) terminology these active agents might be labelled ‘heroes’ or alternatively ‘cowboys’ but they are ‘heroes’ performing in the very unheroic arena of the committee meeting. These types of managers, like Daresbury’s chief Andrew, take on the duel roles of the hero/civil servant Law (1994: 62, 69, 73 - 74). As hero/civil servants these agents use meetings to enable their ordering projects. For these dual agents meetings and committees are seen as mechanism of change and progress rather than an obstacle. As Law (1994: 69 emphasis in original) explains, the ‘hero’ manager that derides bureaucracy argues that creativity:

\[S\]hould be separated from committees and their mundane wheeling and dealing; but Andrew [who plays the role of the hero/civil servant] is telling us that it depends upon the mundane.

So, as a dynamic agent, the hero/civil servant manager can transform the performances of a committee from the purely administrative tasks of information exchange discussed in the previous section to encompass heroic, decisive, decision-orientated performances. Returning to the airport, we might ask do hero/civil servants, capable of using hierarchy, rank, or charisma to lead meetings and transform their previously administrative performances to the realms of the active, decisive, and heroic, exist in the ranks of Heffernan Airport Corporation? Certainly, this is an interesting question but one that can only have a speculative answer. Unlike Law's (1994) study of Daresbury this project was not presented the opportunity to act as a ‘fly on the wall’ during meetings.

\[113\] Nor at the time was the need to seek an opportunity to sit in on meetings seen.
Yet, in the accounts and descriptions of the format of meetings provided by the airport’s management in interviews there are hints that such heroic/civil servant performances in meetings do occur. Such hints are particularly apparent in the comments of managers (Major Round Interview) ‘A’, ‘C’, and ‘J’. In their accounts, meetings are viewed as a forum where agents can express grievances with the airport’s administration. In this version, meetings are established by the Heffernan Airport Corporation to not only communication information but to hear complaints issues and, most importantly, *make decisions* on their concerns. As Manager ‘C’ (Major Round Interview) explains\[^{114}\]:

> [I]f they have any problems they come up and they contact us and we see what we can do about remedying it for them.

Here, in this interpretation, the manager is viewed in a far more ‘heroic’ light. The Heffernan Airport Corporation’s management becomes an arbiter, agent or facilitator of change, and likewise, the committee becomes a forum where decisive communication performances can take place in, albeit, the formal and administrative apparatus of the ‘round table’. However, it should be added that most of the airport’s management (Major Round Interview A; B; C; D; E; F; G) did not view the Heffernan Airport Corporation’s meetings in this light. Indeed, many (Major Round Interview

\[^{114}\] It seems unnecessary to repeat three quotations within the text but likewise the quotations by Managers ‘A’ and ‘J’, cited previously on page 171, suggest a similar format for meetings. As Manager ‘A’ (Major Round Interview) describes:

> We sit down we look at what happening at the airport, we discuss various issues that the airlines have and we try to reach a win-win situation. [Although] We can’t physically do everything that the airlines want, if it’s an improvement or if it is likely to bring in additional business then, naturally, it is in our best interest to do it.

Again, this point is reiterated by Manager ‘J’ (Major Round Interview):

> We have certain meetings and processes that we go through, we have an airline operations meeting where they [the airlines] have their chance to bring up issues that they may have and we bring up issues that we may have with the airlines… I suppose the company philosophy is let’s win-win and work and see what their problems are and how we can both get the same goal.
A; B; D; F) explicitly distanced themselves from the metaphor of a ‘landlord’ who presided over meetings, making decisions that the airport’s agents were required to tolerate. In contrast, these managers stressed partnership and the treatment of parties at the table as equals. It would seem then, at least from the standpoint of the Heffernan Airport Corporation, meetings and committees are not a heroic change apparatus but are rather principally an administrative, communication mechanism for information exchange.

5C Information Exchange via Informal Means

As a communications mechanism, committee meetings are highly formalised. Committees have names, a designated field of interest, members, and frequently contain an inbuilt hierarchy often based on an executive of chair, secretary, and financial controller. They are the antithesis of spontaneity. Committees meet in a specific location and at a specific time based on preordained instructions that were most likely determined at the meeting’s previous juncture. Agendas are circulated prior to the meeting’s commencement; an order of business established; minutes are kept; and member’s appearance or lack thereof noted. Indeed, it is also worth reflecting on the way that the performances of committees meetings are materially produced. The material production of committees is observable in reproduction of agendas and minutes but also in the forum that they take place in. Following Law

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115 The landlord metaphor was originally proposed by Manager ‘1’ (Preliminary Round Interview). Subsequently, the following question was offered to managers in the major round:
In preliminary discussions with your colleagues the metaphor of the Heffernan Airport Corporation as a ‘landlord’ of the airport space was occasionally invoked. How do you in your role as a manager of the airport liaise with the various organisations, agencies, and companies that operate within the airport space? Is this one of the major challenges faced by organisations at the airport?

116 Full consensus against the metaphor of the landlord however was not achieved. Three managers (Major Round Interview H; I; J) agreed with the Heffernan Airport Corporation as ‘landlord’ metaphor.

117 For more discussion of the material performance of communication see pages 190 - 195.
Committee meetings, however, are only one mechanism of information exchange. As interviews with the Heffernan Airport Corporation highlighted (Major Round Interview G; I) there are less formal ways of disseminating information and determining the concerns of agents and potential threats. These communication techniques are not contained in the formal, administrative performances of minutes and ‘orders of business’ but are in contrast, informal, spontaneous, and unscheduled. For Managers ‘G’ and ‘I’ (Major Round Interview) informal communication, or more specifically, the act of ‘walking and talking’ with the airport’s many agents was portrayed as a superior method of staying in touch with important events and ensuring that required actions were being conducted. As Manager ‘G’ (Major Round Interview) explained:

[W]e have a number of forums, but the best way of doing it is by walking around and talking. And in my previous role I did it every day, I’d walk around and talk to the airlines, talk to customs, talk to … and manage it by walking around. In my mind [informal communication] is the prime method, because you’re there and things are immediately happening… That has always been my primary way of doing it.

Recalling the managerial typologies of modes of ordering described by Law (1994) the informal communication alluded to by Managers ‘G’ and ‘I’ (Major Round Interview) differs from committee meeting in the sense that it is active rather than
passive, spontaneous rather than routine, and ‘heroic’ rather than ‘administrative’. As Law (1994: 177 emphasis in original) explains:

[I]ntelligence-gathering is told as participative and interactive. It involves talking with people. It’s to do with finding out about and putting oneself on the map. It’s about learning, and creating a good impression. Its about building and manipulating networks. But there’s another feature of this exchange: the idiom of intelligence-gathering and impression-management is said to be personal and unroutinized.

Law (1994: 176 - 177) supports his argument with examples from Daresbury’s management. For instance, in one committee meeting, managers at Daresbury were urged to use informal, verbal communication to establish links with legislators in Brussels (Law 1994: 177). They were, in the words of one of Daresbury managers cited in Law (1994: 177), to engage in a: “pressing [of] the flesh.” In order to know what was going on, but also to be known, to be influential and effectual managers were asked to engage in informal communications, to in practical terms get out and talk to others, listen to the ‘grapevine’, and establish unofficial networks or associations. Or again Law (1994: 178) skilfully summarises:

Andrew Goldthorpe, Giovanni Alberti and Adrian Smith are pressing the importance of informal exchanges with key outside players. They’re saying that intelligence is gleaned in the course of personal exchanges. They’re saying that, sometimes at least, paperwork plays second fiddle to informal talk over a glass of straight malt whisky.

Indeed, while Heffernan Airport Corporation Managers most likely did not use the catalyst of straight malt whisky they too saw the benefits of regularly engaging in
informal communication performances to gather data and foster networks and partnerships. As Manager ‘I’ (Major Round Interview) explained:

I also go out personally, that’s where I’ve been this morning, once a week after our staff, senior staff meeting in our department, I then go for a tour around the airfield and have a look to see if there was anything that people haven’t reported to me.

Here, Manager ‘I’ (Major Round Interview) stresses the importance of going outside conventional channels to meet and discuss issues with other parties in the airport complex. Leaving the confines of his desk and office he seeks potential difficulties and threats rather than passively waiting for them to be reported to him.

Although simple in its implementation such managerial performances (or in other words, modes of ordering) are critical to the organisation of an airport. Only through the cooperation of its various components can the complex network known as the airport operate effectively. The simple ordering performances of walking and talking, of engaging informally with parties, conducted by members of the airport’s management breaks down the barriers of space and time that can slow the transfer of information. Unlike slower forms of administrative communication, informal communication enables immediacy and presence (Major Round Interview G) . Moving outside the office and committee meeting rooms extends the managerial gaze increasing the opportunity of being ‘where the action is’.

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118 Once again, it is worth noting that all the managers available for interview were men.
119 For a detailed examination of time and spatial performance see pages 301 - 310.
120 See especially Manager ‘G’s (Major Round Interview) comment, cited earlier, that the benefit of informal communication was that “you’re there and things are immediately happening.”
121 Also see pages 144 - 150 for a commentary on management and surveillance.
Moreover, for Manager ‘I’ (Major Round Interview) the benefits of informal communication could be seen in additional forms:

   [In relation to infringement notices] I make the offer to people I’m doing [business] with, ‘Do you want to come down and talk it out’. It’s much easier to talk it out face to face… rather than trying to do it over the phone.

Manager ‘I’ (Major Round Interview) comments offer some insights into the multiple performances possible through informal communication. Not only are informal communications useful for garnering information but they can be used to distribute information that could easily be misinterpreted. In particular, Manager ‘I’ (Major Round Interview) highlights the benefits of informal communication when delivering complex information, in this specific case, infringement notices\textsuperscript{122}. Certain communications such as criticism, or indeed defending oneself from criticism, can be difficult in the confines of formal arrangements and especially in formal, representational arrangements such as letters and emails. Tone and clarity can easily be lost where complexity, both in content and in the reading and relating to individuals, is required. Anecdotally, the difficulties of manipulating the subtleties of tone in forums such as email are well known. Or to use Goffman's (1959; 1972) terminology, informal communication enables the use of the full resources of talk, particularly the messages conveyed by non-verbal ‘face-work’ (Collins 1988). At least from the standpoint of Manager ‘I’ (Major Round Interview) then, in certain circumstances, it would seem that informal communication can do a better job conveying the entirety (content and context) of a given message.

\textsuperscript{122} Infringement Notices are given to employees working at the airport (including those not working for the Heffernan Airport Corporation like Customs or Airlines employees) for violating procedures like vehicle speed on an apron.
5D: Formal Communication, Administration, and Reliability

If there are times at an airport when informal communication can be beneficial there are also, to be sure, contexts when informal communication is at best inappropriate and at worst potentially disastrous. For example, the act of taking-off and landing aircraft, large and small, at a busy airport is a precision task requiring careful coordination of agents both in the aircraft and on the ground. When this careful coordination fails the consequences can be catastrophic.

Such was the case in March 1977 at the Los Rodeos airport in the Canary Islands where errors in communication between Air Traffic Control and the pilots of two Boeing 747s led to an accident still regarded as the worst airline crash in civil aviation history. In this well-documented incident, KLM and PAN America Airlines ‘jumbos’ collided on the runway after the KLM captain failed to heed Air Traffic Control instructions to hold position and attempted take-off despite the presence of an unseen United Airlines 747 taxiing on the same runway (Aviation Safety Network 2004a; Kilroy 2004; Tajima 2004: 459 - 461; Weick 1990). This totally avoidable accident was principally caused by a breakdown in communication between the Dutch KLM pilot and the Spanish Air Traffic Controller (Cushing 1994; Tajima 2004: 459 - 461). As Voice Recorder Transcripts (Aviation Safety Network 2004b; Tajima 2004: 460) show, the series of events that contributed to the accident gathered momentum.

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123 Evidently, while the infamous hijacking and subsequent destruction of American and United Airlines aircraft on September the 11th 2001 lead to shocking and unprecedented destruction ‘on the ground’ the total number of on-board fatalities was less than the 583 killed in the Los Rodeos disaster.

124 While the official investigation concluded that the KLM captain was solely responsible, multiple factors permitted (if not caused) the accident to take place. For instance, both planes had only been diverted to the small Los Rodeos airport after a bomb had caused the closure of the intended destination earlier that day. Moreover, fog had covered the airport reducing visibility which prevented the two planes from seeing each other until the accident was totally unavoidable.
when the KLM aircraft was given post-takeoff instructions by the Air Traffic Controllers prior to the official takeoff clearance:

(1) KLM: The KLM four eight zero five is now ready for take-off and we're waiting for our ATC clearance.

(2) ATC: KLM four eight seven zero five you are cleared to the Papa Beacon climb to and maintain flight level nine zero right turn after take-off proceed with heading zero four zero until intercepting the three two five radial from Las Palmas.

Wrongly believing that they had been given official clearance the KLM crew proceeded to make their fateful takeoff attempt:

(3) KLM: Ah roger, sir, we're cleared to the Papa Beacon flight level nine zero, right turn out zero four zero until intercepting the three two five and we're now at take-off (Aviation Safety Network 2004b; Tajima 2004: 460).

Indeed, the KLM crew’s mistake may yet have been averted if the meaning of the cryptic phrase “we're now at take-off,” had been comprehended by the Air Traffic Controllers. As Tajima (2004: 460) notes, the KLM crew’s non-standard aeronautic statement was interpreted as ‘We’re now at take-off [position waiting for instructions],’ whereas in fact the KLM crew were actually saying ‘We’re now [in the process of] take-off’.

While Tajima (2004: 460 - 461) and Cushing (1994) conclude that that the Tenerife Disaster was caused by the failings of ‘International English’¹²⁵ in the aviation industry, more generally the tragedy can be viewed an example of a failure in communication. The Tenerife Disaster provides a ‘worst case scenario’ example of the inaccuracy of communication and demonstrates both the benefits of formal,

¹²⁵ Alternatively, for an illuminating discussion of the Tenerife Disaster as an example of mistakes due to stressful environments see Weick (1990).
regulated communications and also its inherent flaws. While the language used by the
pilots and air-traffic controllers may have been technical and imbedded in the
professional discourse of the aviation industry it was not formal or particularly
regulated. In contrast, the communications between the pilots and air traffic
controllers were confused, unclear, and seemingly haphazard. Directions were
provided out of sequence and confirmation of these directions was not sought. While
the puzzlingly and incongruous statement: “We are now at take-off,” made by the
KLM pilot belied the seriousness and complexity of the task that the parties involved
were partaking in. Unusually for the aviation industry, and especially the interactions
between air traffic controllers and pilots\textsuperscript{126}, the communications between parties in the
moments prior to the collision were \textit{informal rather than formal}.

The informality in interaction, this project wishes to argue, did not cause the accident
but it did permit the continuity of the errors that subsequently resulted in the collision.
The errors in language, the confusion in expression, and the use of terms with unclear
or multiple meanings enabled the horrific scenario whereby two Boeing 747s, one
taxiing, one taking-off, would be placed fatefully facing one another at opposing ends
of the runway. With each jumbled message the likelihood of the collision increased
as concurrently the chances of avoiding an accident diminished.

The idea that the Tenerife Disaster can be understood as a preventable event in which
unclear and informal communication to contributed rather than halted errors has

\textsuperscript{126} For a technical description of the activities of air traffic controllers see Nolan (1999), Horonjeff and
McKelvey (1994: 143 - 178), and Donohue and Zellweger (2001). Analyses of the complexities of
communication between air traffic controllers and pilots are also provided by authors such as Gras et
al. (1994); Harper and Hughes (1993); Sanne (1999); Suchman (1993); Hopkin (1995); Cushing
parallels with Reason's (1990; 1997) well-known work on organisational safety.

Reason's (1990; 1997) best known contribution is his use of the simple but successful ‘Swiss Cheese’ metaphor which he introduced as a model for describing the possibilities and prevention of accidents. For Reason (1990; 1997) every activity or process has the potential for problems. Machinery can breakdown, humans can make various errors, and environmental factors such as weather can play havoc with well laid plans. However, most complex systems, Reason (1990; 1997) adds, contained defence mechanisms to deal with these potential problems. Maintenance checks, for instance, provided an insurance against potential failures. Nevertheless, if these defence mechanisms failed, for instance if a maintenance check failed to rectify a mechanical fault, then the system would be one step closer to a disaster. In explaining this model Reason (1990; 1997) embraced the metaphor of ‘Swiss Cheese’. Framed rather pessimistically, the imaginary block of Swiss Cheese represented a journey to potential disaster. In this model, the Cheese’s ‘holes’ were potential problems that, while not necessarily evident, could be averted if certain actions were conducted. Progress through the imaginary block could be halted if these problems were rectified. However, if unattended, the progress through the Cheese would continue leading to potential total system failure. In the case of the Tenerife disaster, opportunity to halt progression occurred regularly. At each juncture the informal, unclear communication prevented the pilots and air traffic controllers from realising the scenario that was being created. With the benefits of hindsight it is apparent that the disaster could easily have been averted if the protocols for formal regulated communication that governs exchanges between pilots and air traffic controllers (Cushing 1994) had been more stringently adhered to. In other words, it can be

127 For an illuminating discussion of Reason's (1990; 1997) model as applied to the aviation industry see the documentary Why Planes Fall (Lasfargues 2003). This French production explores safety mechanisms used by airlines and includes interviews with the English academic.
argued that precise, formal, and regulated communication exists as an ordering
process that provides a method of halting progress through Reason's (1990; 1997)
‘Swiss Cheese’.

Yet, caution must also be exercised to avoid overestimating the powers of formal
communication. It is not that formal communication prevents mistakes. Formal
communication, like any ordering (Law 1994: 5, 188), is imperfect and incomplete.
Simply put, formal communication can provide no guarantees. However, used
effectively formal communication can alleviate many errors before they occur and
rectify other errors before they impact a system to their fullest extent. Airports, and
the aviation industry, utilise various forms of formal communication.

As was reported in the previous chapter ‘Ordering’ (127 - 123) manuals like those
produced by the Civil Aviation Safety Authority (2003), use formal, technical scripts
to convey complex instructions simply. Moreover, the reliance on formal
communication in successful air traffic control is well known to theorists working
with the parameters of Science and Technology Studies (Gras et al. 1994; Harper and
Hughes 1993; Hopkin 1995; Sanne 1999; Suchman 1993; Cushing 1994).

Nevertheless, perhaps most interesting for this project, are the formal and regulated
communications produced directly by the airport’s administration. Notices to Airmen
(sic)128, or NOTAMs as they are more commonly known, are drafted by a designated

128 Once again the patriarchal overtones of the aviation industry are demonstrated.
manager in the airport’s administration (Major Round Interview B) known as a Reporting Officer to supply important (although often mundane) information to pilots and air-services staff regarding alterations to conditions at a designated airport (Civil Aviation Safety Authority 2003, Chapter 10: 33). As the (Australian) Civil Aviation Safety Authority (2003, Chapter 10: 7) states:

A NOTAM is used to inform pilots and aircraft operators of significant changes to the aerodrome that may impact on aircraft operations.

Examples of information contained in a NOTAM might include potential hazards or works that are being conducted near or on runways, variations in weather and environmental conditions, alterations to lighting, or notifications of possible delays. For instance, this NOTAM, issued by the Heffernan Airport Corporation in January 2004, notifies pilots of a potential hazard posed by a seasonal increase in the number of birds roosting within the airport’s vicinity:

N0083/04 - ADDITIONAL SIGNIFICANT BIRD HAZARD (CORMORANTS) EXISTS LARGE NUMBERS CROSSING WEST TO EAST AROUND SUNRISE (MAINLY NORTHERN PART OF AD129) AND CROSSING EAST TO WEST AROUND SUNSET (MAINLY SOUTHERN PART OF AD 09 JAN 02:06 UNTIL 09 APR 02:00 ESTIMATED). (Global Operations Flight Information Resource 2004)

Transmitted across the world to airlines, airports, military organisations, and statutory bodies via facsimile, or increasingly via email and other Internet resources (Major Round Interview B), NOTAMS simply, clearly, and accurately state the nature of the hazard or risk. As outlined in Aviation Manuals (Civil Aviation Safety Authority 2003, Chapter 10: 11 - 16), NOTAMs, regardless of point of origin, are issued in a simple, repeated memorandum-style format conducted in international standardised

129 Here, AD stands for Aerodrome.
English in an attempt to minimise error and confusion. Brevity too is sought through the regular use of abbreviations and industry-specific terminology. The Civil Aviation Safety Authority's (2003, Chapter 10: 16 - 32) *Manual of Standards* alone contains nearly 500 accepted abbreviations and acronyms for NOTAM usage including several like ‘Dust’ (DU), ‘Fog’ (FG), ‘No’ (NEG), and ‘Sand’ (SA) that normally would not receive such a shortened treatment.

While the aviation industry’s infatuation with acronyms and abbreviations may appear to border on the obsessive they nonetheless aid in producing formal but simple and routine directions that attempt to supersede the impositions of time and space. As one manager (Major Round Interview B) explained, clarity and accuracy were pursued through repetition:

> I draft the NOTAMs that way. I’m refining and cutting down things all the time, my favourite piece of equipment is cut and paste [tool in the word processing program]. It really is, because, it avoids errors. What I do gets me very careful with your [sic] English and with your figures, and you don’t make a mistake because if the NOTAM gets issued, everybody in the world gets that thing… 5 seconds after they’re issued. [they] appear in areas such as the Department of Defence of the United States, and you know, if there’s a slight error there, or if major airline picks it up in Hong Kong or in London we get a phone call [and they will say], ‘Listen, you’ve made a little mistake.’ So [it is important to be] very careful. That’s why cut and paste is very good.

In sum, the manager’s (Major Round Interview B) comments highlight the administrative and ordering logic of NOTAMs as a formal and regulated communication-type. As reminiscent of the manuals and regulatory devices highlighted previously (Ordering: 119 - 131), NOTAMs strain towards the impossible
goal of perfectly safe and efficient airport through the employment of communications that are more or less ‘durable’. While, the term ‘durable’ may not be an adjective that is usually applied to communications, the ability to be durable, or in other words, the ability to remain stable, cohesive, and resilient are key properties for an ordering device that seeks to disseminate information accurately (or in the language of Law (1986) ‘govern at distance’\textsuperscript{130}). Indeed, as Law (1986: 241) explains, for formal, administrative communication to instigate long distance control:

\begin{quote}
[T]here [must] be no degeneration in communication between centre and periphery. No noise must be introduced into the circuit. Periphery must respond, as it were mechanically, to the behest of centre.
\end{quote}

In contrast, informal communications, like those between air traffic controllers and pilots in the moments before the Tenerife Disaster, are prone to be fragile or brittle. Like the proverbial ‘Chinese Whispers’ the meaning of the message is lost in the transfer. Simple details like the position of the ‘3rd taxiway’\textsuperscript{131}, whether an aircraft has been cleared for takeoff, or whether that same aircraft is in the process of taking-off become lost amidst the confusion of miscommunication\textsuperscript{132}. Nevertheless, although the Tenerife Disaster may spectacularly and horrifically highlight the imperfections and limits of communications as ordering, the hundreds of thousands of successful flights that land at airports across the globe daily without incident highlight

\textsuperscript{130} They might also be thought of as immutable mobiles (Latour 1990: 27 - 28). For a wider discussion on the concept of immutable mobiles see pages 246 - 253 and 278 - 286.
\textsuperscript{131} Air Traffic Control instructed the fated Pan American aircraft to exit the runway using the 3\textsuperscript{rd} taxiway. Due to unclear pronunciation the crew were confused whether the instructed to take the 1\textsuperscript{st} or 3\textsuperscript{rd} taxiway (Aviation Safety Network 2004b). This simple confusion contributed to the accident by temporarily preoccupying the air traffic controllers and pilots during an important stage in the process of moving the two planes to a safe position.
\textsuperscript{132} Yet we should not be surprised by their errors. Such is the regularity of fragile, informal communication that we ourselves often apologise for, ‘not hearing correctly’ or blame our follies on confusion and misunderstandings derived from mistakes in communication. However, fortunately in comparison, unlike the events at Tenerife, our communication errors are more often harmless and trivial.
their achievements. Regardless of the collective paranoia concerning aviation accidents (spawned perhaps by popular documentary series such as *Air Crash Investigation*) formal, administrative communication observable in the airport in forms such as Air Traffic Control and NOTAMs are remarkably effective at disseminating information effectively and efficiently and engaging in ‘long distance control’ (Law 1986). Indeed, while apparatuses like NOTAMs are largely unknown outside the aviation industry they are an essential ordering and managing device and a critical first instrument in accident prevention.

5E: Mundane Communication, Administration, and Material Performances

Although communications such as the dialogues between Air Traffic Controllers and Pilots or the issuing of NOTAMs may be two of the more dramatic forms of information exchange at an airport countless more mundane but nonetheless essential communications occur simultaneously in an attempt to coordinate the activities of the entities that allow an airport to operate effectively. Distinct from the discussions held in meetings and committees or the informal wanderings of the ‘hero manager’ (Law 1994)¹³³ these ‘mundane communications’ are so routine that they are easily forgotten. In Law's (1994: 77 - 79) terminology these communications can be described as administrative modes of ordering and they can equally be formal or informal. They are the ‘civil service’ duties common to seemingly any organisation. They are the phones calls, emails, notices on ‘post-it’ notes, memorandums, and conversations in the hallways or the offices. They are the instructions from a

¹³³ For a discussion of meetings see pages 167 - 177 and informal communications pages 177 – 182.
superior, manager, supervisor, or regulatory body or the notification that an error or
problem has, or, is likely to occur.

Yet our familiarity with these administrative or mundane communications belies their
importance. If an airport can be imagined as a complex machine then these mundane
communications might be the bolts and rivets that link the assemblage of different
components.

In addition to meetings and informal communications discussed earlier (177 - 182)
email (Major Round Interview I), mobile telephone technology and facsimile (Major
Round Interview B), and Internet resources (Major Round Interview C) were cited by
management as techniques for distributing information. Or, in the words of Manager
‘I’ (Major Round Interview), the airport’s management, “probably use every means of
communication that we can lay our hands on.” On one level the comments of the
airport’s management seem unsurprising. Email, telephone, facsimile, and the
board-room meeting are the instruments of all organisations and ubiquitous as these
communication tools are, their existence might seem unworthy of any more than a
passing attention. Yet on another level, the use of communication tools such as email,
‘fax’, telephones, commuters, and even whiteboards, pens, and paper tells much about
the ways that the process of management and of ordering an organisation is performed
materially. In short, communication is an effect permitted or ‘performed’ through
materials (Law 1992; 1994; 1997). Technologies like email, the telephone, and
‘post-it’ note enable communication, or as Law (1992: 3) asserts:

It is also that almost all of our interactions with other people are mediated through
objects of one kind or another. For instance, I speak to you through a text, even
though we will probably never meet. And to do that I am tapping away at a computer keyboard. At any rate, our communication with one another is mediated by a network of objects – the computer, the paper, the printing press.

Without the technologies of the computer, the book, and the printer, Law (1992: 1 - 4) explains, he would be unable to communicate with his readers. Stripped of his technologies Law's (1992) ideas would only travel as far as his voice could project them and exist only while they remained in people’s memories. Likewise, Law (1997: 2 - 3) applies his communication-sans-materials imaginings to the realms of the manager when he writes:

His [Andrew’s] ability to shift his words beyond the office. Gone – the email! How will he talk with his managers, his friends, his contacts around the world? No fax? How will the plans and pictures move around the globe?... For he is disconnected, an autistic subject, a manager with neither ears nor voice.

So reliant are we on the communications performances permitted only by materials that we shudder at the idea of providing a presentation without accompanying slideshow, curse our mobile phone when it lacks sufficient ‘bars’, and disparage our computer when a server-failure prevents us from accessing our email. Stripped of our technologies, and the material performances they permit, we become naked, solitary, and remarkably powerless.

Conversely however, when these technologies are returned the abilities to disseminate information, gather knowledge\textsuperscript{134}, and engage in the process of ordering are restored. Mediated by technology, communications can become more durable, reliable, and increase in scope and volume. Equipped with a computer, mobile phone, or

\textsuperscript{134} For more on techniques of information gathering see pages 144 - 150 and 253 - 259.
newspaper, ‘ordinary agents’ can become more articulate and aware\textsuperscript{135} than ancient kings or generals, exercising control over distance (Law 1986), greatly enhancing the scope of influence that had previously been limited to the performances of the body.

Yet, caution should also be exercised. The process of long distance control is complex and multifaceted\textsuperscript{136}. Certainly, the ability to manipulate actions over spatial boundaries is not instantaneously conveyed upon an actor who possesses a mobile phone or computer like a magic ring in Tolkien’s epic tales. This argument is not one of technological determinism. For it is not that the material performances of communications technology determine behaviour but rather permit, or perhaps enable, certain behaviour in certain limited circumstances. Nevertheless, when equipped with ‘loyal and durable agents’ (Law 1986: 251 - 255), communication technologies permit an actor, like a manager, to make communications performances of considerable scale. The confines of the office are circumvented as commands and instructions are issued on paper, electronically, and digitally. Presence, which had previously been intrinsically linked to command, becomes far less important.

Indeed, while Makimoto and Manners’ (1997) vision of ‘officeless’ nomadic managers commanding their empires via wireless laptops from beaches on South

\textsuperscript{135} Awareness is an interesting idea when considered in the context of the material performances possible by communication technology. Outside the usual parameters of Science and Technology Studies, Anderson (1991) famously contended that technologies like the printing press were critical to the formation of the ‘modern’ nation-state because they permitted an awareness of events beyond the borders of the resident’s town or village (Poster 1999: 237 - 238; Eriksen 2001: 44 - 45). In other words, the mechanisms of ‘print-capitalism’, Anderson (1991) argued, extended the scope of the ‘imaginary community’ of care and concern. Newspapers enabled people in distant regions to feel symbolic and emotional bonds as they became an Imaginary Community (Eriksen 2001: 44 - 45). As Poster (1999) elaborates:

For him [Anderson] the unity of the nation could not be constituted in a time/space continuum of full presence but only through the mediation of print technology.

\textsuperscript{136} For a discussion of long distance control see Law (1986; Law and Hetherington 2000: 38 - 47) and Kendall (1997) as well as the chapter ‘Ordering’ (144 - 150) and the chapter ‘Space’ (286 - 296).
Pacific islands seems far fetched, the importance of proximity for managers at the Heffernan Airport at least has been reduced to the extent that most of the managerial team work in a small, unimpressive collection of single-story modular buildings almost hidden in bushland some distance from the International and Domestic Terminals (Heffernan Airport Corporation 2003). As Manager ‘5’ (Unrecorded conversation prior to Preliminary Interview) noted the decision to house the airport’s management in small constructions barely visible from the road was an exercise principally in cost cutting. Through email, phone, and walkie-talkie Heffernan Airport administrators could manage most activities inside the airport’s terminal without venturing into them.

Moreover, the material performances enacted by communications technology permit not only control at a distance but also control over periods of time\textsuperscript{137}. Forms of governance that can avoid the barriers imposed by time are especially useful in organisations like the Heffernan Airport that operates ‘around the clock’ where the regular cycling of staff can interfere with continuity of an organisation. As Manager ‘I’ (Major Round Interview) explains, while he cannot always be present, the connection between him and his staff is maintained through material performances:

\begin{quote}
I rely on my supervisory staff that work for me to look after things on a moment to moment basis, but they send me e-mails because obviously they’re here the times that I’m not, and advise me of incidents that have taken place, they write infringement notices, they’ll leave a copy with me, I then follow that up.
\end{quote}

Instructions, directions, and news are delivered to and from staff by the representational forms of emails and notices.

\textsuperscript{137} The concept of time as a performance is explored in greater detail in pages 301 - 310.
Indeed, adapting Giddens (1984; 1990) it might arguable that the communications technologies used by the airport have the effect of enacting a ‘time-space distanciation’ whereby the material performances made possible by email and telephones extend the manager’s influence beyond the traditional boundaries imposed by space and time (Friedland and Boden 1994: 28)\textsuperscript{138}. In sum, while the administrative act of using a telephone to request maintenance in a distant part of an airport terminal may seem mundane (and rightly so) such a communication is only possible because a ‘materially heterogeneous network’ (Law 1992; 1994; 1997; Law and Hetherington 2000) permits such ordering work.

\textbf{5F: Informal Communication, Enterprise, and Trust}

So far this chapter has concerned itself with interactions between parties at the airport but what of the communications between airports? As fuel prices increase and the deregulation of airline ownership internationally further spawns numerous ‘low-frills’ airlines the aviation industry and its related businesses have become ultra-competitive. Indeed, with privatisation, the competition between airports, to secure contracts with airlines and acquire the ever-valuable retail-spending passenger traffic who account for most of an airport’s revenue (Major Round Interview B; G)\textsuperscript{139} is intense. If the old adage that ‘loose lips sink ships’ is accurate then it might be anticipated that the airport’s management would be unlikely to communicate with other airport administrations lest they divulge commercially sensitive information.

\textsuperscript{138} Alternatively, using Harvey’s (1989) converse terminology in a similar way, it could be asserted that the communications technologies enact a form of ‘time-space compression’.

\textsuperscript{139} It is a misconception that airports make most of their revenue from charging aircraft ‘landing slots’. Competitiveness between airports has reduced the landing costs to the extent that retail interests, parking, and commercial leasing had become the principal income sources for the Heffernan Airport (Major Round Interview G). Similarly, Manager ‘B’ (Major Round Interview) commented: We don’t make any money out of that [Landing aircraft]. We make all the money out of concessions. We make all the money out of parking and all that sort of thing.
Yet, airports are not competitors in the same sense as other corporate entities like car manufactures, retail chains, or electronics makers. Unlike companies like Panasonic or Sony, airports are a component of a mutually dependent network. Their fate is intimately and intrinsically tied to the larger success or failures of the aviation industry. In a worst case scenario, an interstate airline crash would send waves across the network impacting airlines, airports, and the tourism industry more generally.\textsuperscript{140}

In some contexts then, airports in Australia are as much partners as competitors. The paradox of the competitor/partner relationship informs and educates the communication performances between the administrators of different airports. Indeed, while all managers (Major Round Interview B; C; E; G; H; Preliminary Interview Round 3; 4; 5) asked, asserted that they communicated with the administrations of other airports (some both interstate and internationally) the forms or ‘modes’ that these communication performances took varied markedly.

Here, a difference can be observed in the various accounts of communications performances between competitors/partners provided by the Heffernan Airport’s managers and the performances described by Law (1994: 176 - 183). In the context of the Daresbury Laboratory, Law (1994: 176 - 183) suggests that interactions between competitors/partners were principally the domain of the ‘heroic’ manager and that communications were most often informal rather than formal. Law (1994: 179 – 181) argued the ‘elite’ could engage in informal discussion, secure in the knowledge that the other parties were also the ‘heroic elite’ and that their

\textsuperscript{140} That said, although the profit margins experienced by international and domestic airlines are in business terms fairly slim the aviation industry is more robust than it is often supposed. As the World Tourism Organization’s (2003) figures demonstrate even after the events of 2001, global tourism figures still increased in 2002.
conversations would not be repeated, nor taken advantage of once the parties left the allegorical ‘smoke-filled rooms’. As Law (1994: 181) explained:

So I’m telling that enterprise (and its opportunism) generates pressures towards informality and personal contact at all, but possibly, in particular, at elite levels…If you interact with stars from the same kind of organizational context… then perhaps everyone can subscribe to a currency of unrecorded wheeling, dealing, and political bargaining.

In contrast, the interactions between administrators of different airports were depicted by Heffernan Airport’s Management as more complex and multiple. As well performances that could be termed ‘heroic’ and ‘informal’, managers (Major Round Interview C; G; Preliminary Round Interview 3; 5) told of regular reports, conversations, committees, and conferences that, in Law’s (1994) terminology, appeared to be more ‘formal’ and ‘administrative’. As Manager ‘G’ explained, organisations like the Australian Airport Association provided a formal opportunity for managers to coordinate strategies to deal with common threats:

We’ve got an association called the Australian Airport Association, which most of the Australian airports belong to… We have an annual forum or conference and we share a lot of information.

As a formal and administrative mechanism the Airport Association’s conference was seen as a useful tool for ensuring that airport practices remained uniform:

We have an annual conference… and we get a lot of people together, you go through issues. It’s important, I think, that we do, because in the past, once again, Australia was in regions [that managed airports very different from region to region]… and now it’s tended to be more of a constant… I think it’s a good way of standardising [airports’ operations nationally]. (Major Round Interview C)
In this formal setting, competitive differences could be more easily set aside as the airport managers use meetings and committees (and the ‘administrative’ ordering performances they permit)\textsuperscript{141} to disseminate information and seek collaborative solutions to mutual, regulatory challenges. Again the comments of a Heffernan Airport Manager (Preliminary Round Interview C) prove insightful:

> When you’re faced with issues of aviation standards…. Factors that are affecting the industry as a whole, there is a sharing of… collaborative responses to those issues to a degree. To get the best result for the whole… international airport system.

Nevertheless, it is also likely that the mechanisms like the Airport Association themselves permit multiple communication performances. For every formal administrative committee there are also opportunities for the heroic, informal, face-to-face interactions that Law (1994: 177 - 181) highlighted in Organizing \textit{Modernity}. Here, contact is far more personal as confidence and trust is fashioned through long standing relationships:

> [T]here was a lot of exchange of ideas… and there is an airport lighting group that even now, [after] all the airports are privatised… get together every year and sort of, discuss new innovations, and what’s on the horizon for their particular equipment that they look after. There is still a bit of an ‘old boys’ network where, you know, the people from the different airports from left over from the old VCA days… (Major Round Interview E)

Manager ‘E’ (Major Round Interview) can be confident as the ‘old boys’ network knows the rules of etiquette of the game being played. As seasoned performers, the heroic elite understand that in this environment, the competitiveness seen in the front-stage performances of brochures, corporate press releases, and share-holder

\textsuperscript{141} For an elaborated discussion on the role of meetings and committees as formal, administrative modes of ordering see pages 167 - 177.
reports can temporarily be put aside and a different communication performance embraced (Law 1994: 179). In the backrooms the eternal optimism of the front-stage is eschewed so that mutual challenges may be faced without hesitation. Solutions, remedies, and tactics can be discussed more freely with the knowledge that the challenges that one airport faced, for instance, complying with a new regulation or dealing with a new technology, is not their challenge alone. In other words, without the front-stage ‘baggage’, collective solutions to collective problems can be obtained.

As Law (1994: 179 emphasis in original) elaborates:

[What I think goes on is a kind of horse-trading informed by an acknowledgment, perhaps more or less tacit, of realpolitik. Everyone is in the same boat. And that is the basis of a kind of trust… The stars are off the record. So they may speak (not write, but speak) to one another in the different backstage idiom of enterprise.]

Yet, this ‘backstage idiom of enterprise’, is probably more multiple than Law (1994: 179 – 181) gives credit. Indeed, while Law's (1994: 179 - 181) vivid description of ‘smoky backrooms’ is probably more metaphorical than literal, the impression that the ‘heroic’ performances between managers are confined to clandestine attempts to gain insights on ‘inside information’ is probably misleading. Again, the performances told by the Heffnerman Airport managers went beyond those found in Law's (1994: 177 - 181) examples from Daresbury. For instance, some managers (Major Round Interview E; Preliminary Round Interview 4) took communication with other airports another step further by seeking to support the administrations of smaller, developing airports in the region with technical advice and expertise. One manager (Preliminary Round Interview 4), in particular, told of interactions with airport administrators from Fiji:
I share information with other people… Because we do things to suit ourselves, they do things to suit themselves… they adapt and adopt things, we adapt and adopt things, and who knows… we might be able to give them a clue. As a matter of fact, one of my staff was showing a couple of gentlemen from Fiji around today…

Unlike the performances depicted by Law (1994: 177 – 181), the airport’s exchanges with the representatives from Fiji seemed far more uni-directional. The airport’s management actions seemed to mirror those of a benevolent ‘teacher’. As Manager ‘4’ (Preliminary Interview Round) elaborates:

We show them [the Fiji representatives] around, give them the benefit of our experience. They’re not our competitors, [so] if we can pass on a little bit of knowledge that will make their system work better and safer, that gives me a warm cuddly, fuzzy feeling. I give people the benefit of my experiences and they give me the benefit of theirs, [it] makes my airport safer, I’m happy.

Nevertheless, while such paternal exchanges improved the overall safety and performance of the aviation network they seem to run against the doctrine of competition present within the capitalist-inspired logic of enterprise. Here, the paradox of the competitor/partner again returns with vigour. Are airports friends or foes? Do the communications between them jeopardise their profitability? By improving the operations of another are managers in fact nurturing the enemy? Manager ‘4’ (Preliminary Interview Round), for one, favours the partner side of the equation. Breaking the typical managerial mould, which is eternally optimistic about the competitive advantages of their particular enterprise (Law 1994: 178)\textsuperscript{142}, Manager ‘4’ (Preliminary Round Interview), contended that competition between airports was

\textsuperscript{142} Here, there are also parallels with Law’s (1994: 63) discussion of managers where he asserts that good managers are not permitted to complain: “So manages do not whinge. To complain even if a complaint is justified is unproductive.”
overrated. Aviation markets, he reasoned (Preliminary Round Interview 4) were separate, as the overwhelming percentage of passengers had an unswayable ‘reason’ to fly to a particular destination:

Melbourne isn’t really a competitor to us… It would be nice to have their freight operations come up here. We would try and steal that, but their passenger traffic is not really, not really a competitor in the same way. We’re a tourist driven international passenger market… There is no way we will ever get Olympia airlines flying here because there isn’t a Greek community for [them] to fly thousands of Greeks here to meet. By the same token, Melbourne’s got such atrocious weather that the Japanese tourists won’t go there because they don’t want to freeze to death…

Nevertheless, when posed the question of information exchange, the fear of losing commercially sensitive information to competitors was never far from the thoughts of other respondents (Major Round Interview E; H; Preliminary Round Interview 3; 5). Their accounts told of decrease in communications following the deregulation and privatisation of Australian airports. Once privatised, the challenge to balance the paradox of competitor/partner veered quickly to the side of competitors as the logic of enterprise entered the vocabulary of logic of the managerial performances. As Manager ‘4’ (Preliminary Round Interview) explained, the old practices of information exchange were shelved (in some cases this shelving was only temporary) as the perceived role of administrators shifted:

Initially, there was [sic] only three airports that were privatised that’s Melbourne, Perth and us here at [Heffernan]. The guy that was my boss at the time said, ‘No you can’t talk to them, they’re the opposition’, because there was this mindset that went automatically… [from] public servant to an ultra bloody competitive… private company sort of mentality…
The competitive shift was also recognised by Manager ‘5’ (Preliminary Round Interview) who described a pre-privatisation environment where multiple communication performances were considered permissible:

   Before, when we were federal airports corporation, we were twenty five, twenty seven airports and we used to have, quite comprehensive and regular communication among the airports both formal and informal… There was a report that when round every month that compared the retail sales of the duty free in every shop across the network there was statistics shared about all sorts of stuff. But it was also hey, you ring up your colleges down the other airport and you talk about what ever issues. There was no competitiveness whatsoever.

Post-privatisation, however, the permissible communications performances changed. ‘Front-stage’ communications became formal and regulated\textsuperscript{143} as the administrators-turned-entrepreneurs attempted to avoid divulging secrets. Aside from occasional back-stage heroics, the logic of enterprise dictated that communication between airports would be carefully and consciously limited to areas of regulation compliance, safety, and security\textsuperscript{144}.

\textbf{5G: Communication in Summary}

Communication is a special type of ordering that is worthy of detailed consideration. As such, this chapter has examined some of the varied forms of communication that occur at an international airport. The chapter has argued that communication acts as

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\textsuperscript{143} As Manager ‘E’ (Major Round Interview) explained, after the privatisation initiatives of the 1990s, communications between airports are:

   Probably getting a bit more formal now with people, sort of write you a letter now and say, can we come up and see you there?

\textsuperscript{144} The comments of Manager ‘5’ (Preliminary Round Interview) again here are useful:

   Now [post privatisation] there is some level of competitiveness, not so much in the operations and safety type areas, because there’s a lot of commonality there and it’s non-commercially sensitive, it’s not competitive and they’re happy to talk. But now there is a perception that hey, if we get the Emirates [Airlines] here, it might be of expense to someone else, so we’re fighting for airlines, we’re fighting for property developments, we’re fighting for… retailers.
an ordering performance by either instructing or informing actors. In other words, communication and ordering are intrinsically linked because communications can act as ordering performances through their attempts to influence actors by instructing or directing them, or alternatively, can improve an actor’s ability to govern by providing them with information, improving an actor’s ability to manage at a distance (Law 1987; 1997a).

Like all ordering performances, communications take varied forms and in response this chapter has told stories of several different types of communications that serve different functions for actors at an airport. The first story told concerned one the more maligned forms of communication, the meeting or committee. It was argued that the meeting or committee as an ordering performance is lambasted because it is viewed as the antonym of the heroic, enterprising performances privileged by organisations. Yet, this chapter argued, while meetings are frequently derided they also serve an essential purpose for an organisation like an airport, by allowing information exchange to occur in a regulated environment. Nevertheless, at other times organisations employ informal exchanges to convey instructions. Unlike meetings, these informal exchanges are regarded by organisations as heroic and the product of good, charismatic, and active actors. Yet, at the same time, as this chapter has shown, there are clear benefits also in regulated communication, such as in Air Traffic Control, where conformity strains for accuracy over enterprise. Whether formal or informal, these communication performances cannot exist in isolation. Each requires elements from socio-technical assemblages in order to operate. Although they are often taken for granted in sociological analyses of ‘social’ interactions, organisations can not communicate without tools such as telephones, white boards, email, and
facsimiles. Finally, this chapter explored the complex relationship between airports as competitors and industry partners. Here, the interplay between the organisations and their use of informal communications in metaphorical front and back stages was examined. It was argued that managers in this environment must engage in a careful balance of friend and foe using a range of communication performances that do not spill their secrets but maximise required cooperation on areas of mutual interest.

So far this dissertation has described the operations of Heffernan International Airport through an exploration of the strategies of governance known as ordering used by the airport’s management and an analysis of the communications performances that occur at the airport. In the following chapter, the concept of socio-technical assemblage will be explored in greater detail. This chapter will tell selected stories about some of the materials that allow an airport to operate. In particular, this chapter will explore the interactions between humans and machines and examine how humans attempt to order machines and conversely how machines are used to order humans.
Chapter 6: Materials

6A: In Praise of the Inanimate Carbon Rod: A Story about Material Heterogeneity

At the beginning of an episode of the animated television series *The Simpsons*, Springfield’s Nuclear Power Plant announces its worker of the week (Mirkin 1994). The audience is told that ‘rule 26’ of the Plant’s Union agreement states that each employee must be given the award once, and that all of the Power Plant’s employees, with the exception of the series’ chief protagonist Homer have received the honour. But when the plant’s owner Montgomery Burns announces the winner Homer is not the recipient. Instead, the award goes to an employee to whom the plant “simply could not function without his tireless efforts.” (Mirkin 1994) Instead of Homer, the Springfield Power Plant worker of the week is awarded to an ‘Inanimate Carbon Rod.’ Montgomery Burns holds aloft a green carbon rod as the employees cheer.

In this example there are two jokes at play. The first joke is that Homer has been overlooked again. However, the second joke is more subtle. The plant’s employees do not think that it is strange to award an inanimate object with the prize of the worker of the week. In response, the audience laughs, believing that they know better than to award an object the ‘human’ prize of employee of the week. How could they award worker of the week to an inanimate carbon rod asks the audience as they chuckle. A carbon rod is after all only a thing, an object, a material. Yet, if viewed from a different perspective, the awarding of a carbon rod makes perfect sense. As the plant’s owner Mr Burns points out the rod is essential to the plant’s operations.
Moreover, as previous episodes of the series demonstrate the rod is a far more reliable contributor than Homer. Considered in equal terms the rod is a far superior employee than Homer.

The audience’s reaction is systematic of a wider apathy about the role of machines, technologies, and objects within society. The audience takes for granted, or is unaware, of the many gizmos, gadgets, and things that contribute to their existence. Many working within the social sciences have mirrored the naivety of the audience. The discipline of sociology has been viewed since its formation as the study of *human* interactions and institutions. The goal of sociology has been to understand, decode, interpret, analyse, and critique social, in other words human, relations. In short, sociologists have focused their attention on people.

However, in the 1980s, a movement led by authors like Latour (1987; 1988a; 1988b; 1990), Callon (1986a; 1986b; Callon and Latour 1981), and in the United Kingdom, Law (1986) attempted to counter the ‘human-bias’ within sociology by engaging in research that investigated society as a construct of complex interactions between various agents both human and nonhuman. For these authors society comprises many components, including humans, machines, technologies, animals, plants, elements, and minerals. As Law (2003b: 1) explains:

145 See for instance, {Law, 1995 #450;Law, 2000 #640;Law, 2003 #589;Law, 2002 #642;Law, 2000 #601;Moser, 1999 #441;Law, 2003 #590;Law, 2003 #588;Law, 2002 #639;Law, 2002 #597;Law, 2002 #558;Law, 2002 #559;Law, 2000 #641;Law, 2000 #438;Law, 1997 #458;Law, 1997 #506;Law, 1994 #452;Law, 1991 #759;Law, 1992 #436;Law, 1986 #447}.

146 Elsewhere (Law 1994: 139 emphasis in original), writes: I have tried to press the importance of materials, and the case for relational materialism. The argument is quite straightforward. It is that if you scratch the surface of what we tend to think of as the social, then we will find that this is materially heterogeneous. The argument is that the social is *almost never* purely social.
[T]he social is not simply social but rather a materially heterogeneous set of arrangements processes, implicated in and implicating people, to be sure, but also including and producing documents, codes, texts, architectures and physical devices…

According to authors like Law (1994: 15; 1992: 7), what we may have viewed traditionally as a stable and constant organisation, system, or network is better conceptualised as a performance or outcome of the complex, materially heterogeneous arrangements.

As we saw in the opening section of the chapter Ordering (115 - 119), while these materially heterogeneous arrangements are an effect or performance, they are not a perfect product. When systems, networks, and organisations run effectively and efficiently it is because these complex interactions have been *temporarily*, or at least *momentarily*, ‘ordered’, managed, or coordinated successfully (Law 1994: 15 1992: 7). So in Law's (1992: 15) terms:

> If there appear to be pools of order it [a modest sociology] will treat these as ordering accomplishments and illusions. It will try to think of them as effects that have for a moment concealed the processes through they were generated.

Best summarised, the Actor Network Theory\(^{147}\) perspective adopted to various extents by Law (1994), Latour (1996), and others\(^{148}\) seeks to end the privileging of humans in sociological writing. Their accounts, more or less, do not make distinctions based on the materiality of agents\(^{149}\). So seatbelts (Latour 1992: 225 - 227); sea-scallops

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\(^{147}\) Such is the problems with the term Actor Network Theory (discussed by Latour (1997) and in the articles contained in {Moser, 1999 #441}), that the term has been used with great reluctance.

\(^{148}\) This list could run deep but see for example (Akrich 1994; Akrich and Latour 1992; Dicken et al. 2001; Kendall 1997; Kendall and Wickham 2001; Malpas and Wickham 1995). Furthermore, an excellent bibliography is maintained by Lancaster University at [http://www.comp.lancs.ac.uk/sociology/css/antres/ant.htm#ear](http://www.comp.lancs.ac.uk/sociology/css/antres/ant.htm#ear)

\(^{149}\) We might also use the term actors or *actants*. 
(Callon 1986b); aircraft engines (Law 2002a); liver disease (Law and Singleton 2000); door-closers (Latour 1988a); naval instruments (Law 1986); office furniture (Law 1994: 142; Law 1997a); microbes (Latour 1988b); and electric cars (Callon 1986a) (to name but a few) are considered essential components in the networks of the socio-technical and thus very worthy of sociological interest.

Returning to the chapter’s opening fable, for the likes of Latour (1996) and Law (1994) the idea that an, ‘inanimate carbon rod’ might receive a worker of the week award from a Nuclear Power Plant is not as absurd as it might first seem. The rod is part of the (especially) complex materially heterogeneous assemblage known collectively and conventionally as a Nuclear Power Plant. Indeed, like any other agents in the system the rod has its roles and responsibilities. The rod must do its job effectively; it must be strong, durable, and reliable. In a sense then, while the term employee is inappropriate, the rod is a certainly a valuable component of the power plant’s operations. Only our human-centred reductionism prevents us (as sociologists) from recognising the rod’s contribution to the Plant as a socio-technical network. The rod remains in Latour's (1992) terminology one of the ‘missing masses’.

Nevertheless, caution must be exercised to avoid the perils of technological determinism. A modest, non-reductionist sociology is hopeless if it replaces one privileging with another. The rod is a component in a socio-technical system, nothing more, nothing less. Nevertheless, there are interesting questions that could be asked about it. Firstly, it might be interesting to explore the rod’s performances. For instance, what does the rod contribute to the plant? What performances or
possibilities does the rod enable or prevent. Secondly, it might also be worthwhile to explore the rod’s failings and limitations. What responsibilities is the rod entrusted with? What responsibilities have been ‘delegated’ (Law 2003b: 3 - 4; Latour 1988a: 300 - 304) to more reliable or durable agents? Thirdly, we might consider its interactions with other agents. How are these interactions enabled? What other agents does the rod rely upon?

In asking these questions, though, care is taken not to overemphasise the influence of technologies outside their performances. As Law and Hetherington (2000: 35 - 36) contend:

Sometimes the role of materials has been hyped up into some kind of drama in which we learn that technological changes determine how we live… This ‘technological determinism’ is too simple… So instead of saying that technologies determine social life we need to say something more complicated, like technologies-and-knowledge-about-technologies-and-a-good-deal-of-hard-work-and-capitalist-economic-relations together determine (parts of?) social life. Which catches fewer headlines, but is more realistic.

In other words, the concern for materials is derived not from a belief that materials are in any way ‘special’ but instead, a recognition that their performances, like the performances of any agent, generate the social world and its organisations, institutions, systems, networks etc (Law 1992: 2; Law 2002d: 92; Law 1991a: 1 - 23).

Thus, the performances of the navigational instruments, sails, cannons, seamen, hulls, and commanders ‘generated’ the possibility of a Portuguese Naval Empire (Law 1986); while the performances of technology, reports, scientists, administrators, and computers contributed to the enactment of the Daresbury Laboratory (Law 1994: 141). Likewise, describing an airport, it is important to recognise the multiple,
complex performances enacted by materials, humans, documents, spaces, architectures, information, and technologies.

This description is already underway. In the chapter ‘Ordering’, the performances of texts, especially manuals (127 - 132) as instruments of governance was explored; while later in the chapter, materials of surveillance (144 - 150) and the material performances that assist in the ordering of passengers (150 - 161) were also discussed. Moreover, the recognition of material performances continued in the chapter ‘Communication’. Here, the material assemblages such as telephones and email, but also meeting rooms, documents, and even coffee that enable the various and multiple communications (190 - 195) at the airport were exposed. Later, too, this recognition of the importance of material heterogeneity will continue with examinations of the spatial performances enacted by materials such as passports, timetables, and architecture (270 – 296, 301 – 310, 311 - 317). Like Law (1994: 85) this project strives to “redraw the conventional boundaries of relevance and irrelevance to include some matters that are normally excluded.” So in this account, the airport is not only seen as an organisation that possesses employees, managers, and passengers, but as a heterogeneous socio-technical assemblage that includes fairly obvious entities like queues (Ordering: 150 – 161), baggage (Materials: 220 - 227), air traffic control (Communication: 182 - 190), passports (Space: 278 - 286), and those largely unacknowledged, such as birds (Space: 296 - 301), NOTAMs (Communication: 182 - 190), grass (Space: 296 - 301), and walls and screens (Space: 270 - 278).
Evidently, such an account cannot help but be incomplete (Akrich 1994: 205). It would be simply impossible and quite pointless to index all the agents that form the entity known as an international airport facility. Like the fabled map described by Jorge Luis Borges evoked in Baudrillard’s (1983: 1) *Simulations*, that was of such a likeness to the original terrain that it occupied the same dimensions, cataloguing all the agents within an international airport would be like creating an airport on paper itself. Recognising the incompleteness or limitations of an account is critical in developing a modest sociology (Law 1994: 9, 14 – 18, 32). The process of writing and engaging in social inquiry are as Law (1994: 9, 31 - 33) asserts tasks in (incomplete) ordering. Like Law's (1994) text *Organizing Modernity*, the ‘exit strategy’ that this project adopts to free itself from the potential intellectual morass is to tell stories of the ordering performances (both human and nonhuman) and the ‘precarious’ products or effects that their assemblages construct.

This chapter will bring the material performances at the airport to the fore.

Nevertheless, by highlighting ‘the material’ care must be taken to avoid privileging

As Akrich (1994 : 205) explains in the context of an automobile:

Even study of the technical content of devices does not produce a focused picture because there is always a hazy context or background with fuzzy boundaries… Technical objects thus simultaneously embody and measure a set of relations between heterogeneous elements. However, the process of describing everything about a car in such terms would be a mammoth task. Furthermore, the end product might well be banal.

Later in a footnote Akrich (1994: 223 fn 1, also quoted on page 22 in this volume) adds:

Doubtless it would be satisfying to paint on a broad canvas, starting with nuts and bolts, pistons and cracks, cogs, and fan belt, and moving on to voting systems, the strategies of large industrial groups, the definition of the family, and the physics of solids. In the case of such an inquiry we would no doubt find a mass of guides (people, texts, objects) ready to suggest ways in which we could extend our network. But such suggestions would be endless. On what grounds the analyst stop – apart from the arbitrary one of lassitude? Quite apart from the indefinite amount of time such a study would take, there is also the question as to whether it would be interesting.

This point is also developed by Kendall and Wickham (2001: 37, 67 - 75) in their description of a Law and Latour inspired framework for cultural studies and sociology.

Remembering Law (1994: 9 also quoted on page 10 of this volume), the stories are incomplete: Not because they haven’t quite finished the business of sorting out the order of things, but rather because they know that it is necessarily that way: they will always be incomplete.
nonhumans over humans. Like the perils of technological determinism, replacing one reductionism with another defeats a modest sociology. As such, while this chapter stresses the performances of materials, it does so while acknowledging that their performance are inextricably tied or interconnected with those of human actors (such as administrators, passengers, and employees) as well as other nonhuman actors. In sum:

What appears to be social is partly technical. What we usually call technical is partly social. In practice nothing is purely technical. Neither is anything purely social.

(Law 1991a: 10)

So while this chapter may be titled ‘Materials’, it recognises also, that the airport as a materially heterogeneous organisation is a socio-technical assemblage. To better understand the airport’s operations stories of ordering can be told but these ordering stories are stories that strive to simultaneously tell of the performances of humans and nonhumans (machines, texts, technology, animals, etc) (Law 1994: 138 - 139).

The content of this chapter consists of four stories. The first examines the performances of runway tarmac that strain towards creating a durable and reliable surface for aircraft. Durability is presented as an outcome of performances rather than a characteristic inherently possessed. The second story explores the complexities of baggage handling. In this case, the concept of delegation is investigated. Baggage handling is used as example of performances that strain towards greater reliability and efficiency through the delegation of responsibilities and roles to different actors. The third story discusses airport terminal signage. Here, the complexities and paradoxes of ordering performances are highlighted. Airport terminal signage is described as an ordering performance that strains to govern the actions of passengers, yet terminal
signage itself is at once also the subject of ordering performances that govern its form and appearance. Finally, this chapter’s concluding story examines the A380 aircraft. The story of the A380 is employed to highlight the complexities and performances involved in integrating new materials within existing systems.

6B: Airport Runways: Tarmac and Gradients of Material

Durability

After a lengthy period aboard an airplane the sensation of the aircraft’s wheels finally connecting with the terra firma of the runway is for many one of travel’s finest experiences. For nervous flyers landing ends an anxiety. It ends the anxiety that can build through the many hours of a journey within the claustrophobic confines of an airplane cabin; that this flight will be one reported by news agencies across the globe that failed to reach its destination due to mechanical failure, human error, or act of political fanaticism. Although the physical sensation of landing is normally a rather unsettling jolt, the arrival of an aircraft heralds the completion of one journey and the commencement of something new\textsuperscript{153}. However, concentrating on this almost spiritual association with arrival can blur the real, physical importance of landing. Landing involves bringing an aircraft safely to ground that may have flown thousands of miles. It is a difficult task, and one which is considered to be the most dangerous in an aircraft’s journey (Cushing 1994).

\textsuperscript{153} Landing represents one of the first interactions with the new space of ‘the destination’, or on return journeys, a reintroduction to a familiar space, ‘home’. An act of significant symbolic and philosophical magnitude landing has been the subject of analysis in many great works of literature, art, film, and music.
Landing marks the moment when one of the forgotten heroes of an airport has its moment. It is the time when the runway becomes fundamental to the existence of the aircraft and the passengers on board. A failing in the runway surface could have drastic and dire consequences for an aircraft’s passengers and crew. For such a critical component, the runway is probably rarely given even a passing consideration by passengers, regardless of their level of anxiety. Assuming that there are no obstacles in the aircraft’s path, the runway is considered as something that is simple, dependable, and reliable by default.

However, a runway is not reliable by default. Durability is an effect, a precarious product, a performance of a network of actors (Law 1994: 102; Law 1986; Law and Mol 1995: 279 - 280). To understand how a runway permits the transition of an aircraft from and to the sky these network relationships must be unpacked. At the risk of oversimplifying matters, to understand the operations of a runway it is essential to look below the surface (but also above) to examine the multiple and heterogeneous material relations that enact a durable and reliable runway as a performance.

In Notes on Materiality and Sociality, Law and Mol (1995: 279 - 280) provide some useful provisional insights on what such a dissection of material relations might look like. There, Law and Mol (1995: 279) tell a story about a collection of armoured defences of the Nazis, which stand to this day in the fields and farmlands of the Netherlands. Despite half a century of rain and wind these concrete fortifications remain. In a conventional sense the Nazis’ concrete constructions could be said to be ‘durable’. However, Law and Mol (1995: 279) warn, it is unwise to think of the
concrete as an entity in itself. Instead, the concrete is in fact the performance of a set of network relations:

Relations (for instance) with the weather; the molecular forces that make it up; and the reinforcing rods that run through it. (Law and Mol 1995: 279)

The durability of the fortifications thus is a product of multiple material performances. The reinforcing rods and the concrete molecules generate a durability that resists the equally relational forces of the weather. As a performance, however, the durability of the fortifications will be maintained only so long as these network relations hold.

Alternatively, we might think of the ‘durable’ vessels of the early colonial Portuguese fleet (Law 1986: 238 - 239; 1987). The Carrack, (the mainstay of the Portuguese Navy at the time) is not a single entity but rather a network of elements and components (Law 2002d: 93). Sails, crew, navigational equipment, ropes, cannons, food, wind, to name only a few perform the vessel as a technology. As Law (2002d: 93) elaborates:

There are many objects here, but ANT [Actor Network Theory] suggests that an object (for instance a vessel) remains an object while everything stays in place and the relations between it and its neighbouring entities hold steady… The vessel is an effect of its relations with other entities.

Thus, durability was not an attribute of the vessel per se, but rather, a cumulative performance of multiple entities.

A similar story can be told about runways. For while the black asphalt or grey patchwork of concrete may be the face of an airport’s runway, it is the mostly hidden relational actors underneath, that in technical terms do the hard work of distributing load (Kazda and Caves 2000; Horonjeff and McKelvey 1994), or in socio-technical
terms, assist in the ‘generation’ of durable material performances (Law 1994: 103).

Even when restricted to asphalt surface runways\textsuperscript{154} by, “Scratching the surface,” (Law 1994: 139) the multiplicity of relational materialism that permits the appearance of stability and durability quickly becomes apparent.

Rather than a single layer of tar an asphalt runway is actually constructed like a multi-tiered cake\textsuperscript{155}. A typical asphalt runway is made up of four layers, the sub-grade, sub-base, and a dual layered ‘base’ (Kazda and Caves 2000; Horonjeff and McKelvey 1994). Like the material collaborations discussed by Law (1986; 1994; 2002d) and Law and Mol (1995), a runway is in fact an amalgamation of these various layers which each perform individual and related roles. Each network

\textsuperscript{154} Section 6.2.9.1 within CASA’s (2003, 6.2.9.1) Manual of Standards Part 139, which establishes the regulation of runway surfaces, states that a runway’s surface should be constructed from “[B]itumen seal, asphalt or concrete.” A clause in the description explains that information for small aerodromes using grass surfaces is contained in separate volume (Civil Aviation Safety Authority 2003 6.2.9.3). Each pavement type has its own relative strengths and weaknesses and some are more suitable for certain aircraft types and environmental conditions than others (Kazda and Caves 2000: 54). In order to withstand the weight and velocity of large aircraft, major aerodromes require runway surfaces to be constructed from ‘hard surface pavements’ which consist of either bituminous material, in the form of asphalt, or slabs of cement concrete. Asphalt surfaces which consist of a layer of bitumen laid on top of a series of gravel underlays are thus classified as flexible. While, on the other hand, runway surfaces made from cement-concrete positioned on a similar (but different) series of underlays are referred to as rigid (Horonjeff and McKelvey 1994). Concrete pavements are used frequently the United States, and in Australia, at military installations. Like asphalt runways, their concrete cousins can be thought of as an amalgam of network performances. To combat the distress to the runway system caused by the shifting and friction of the concrete plate and the sub-base below pavement engineers employ expansion and contraction joints (Kazda and Caves 2000: 60 - 62) while some airports also include steel reinforcements (Horonjeff and McKelvey 1994: 587 - 588). Another solution to the problem of pavement movement incorporated by airport engineers is the use of steel supports within the concrete surface (Horonjeff and McKelvey 1994: 587 - 588). As Horonjeff and McKelvey (1994: 588) note steel reinforcement does not in its own right prevent cracking but rather “holds the cracks closed after they have formed.” While quite expensive steel reinforcing can reduce the number of joints required; decrease the need to for the pumping of excess water; increase the life of runway; improve the bearing load transfer of the runway; and lessen pavement deflection (Horonjeff and McKelvey 1994:587). Regardless of the precise techniques used, the existence of such mechanisms demonstrates that durability is a performance of a complex materially heterogenous network.

\textsuperscript{155} The contents of this section discuss airport tarmac generally rather than the specific tarmac used at Heffernan International. With the exception of the use of steel reinforcement (Horonjeff and McKelvey 1994: 587 – 588), airport tarmac is fairly homogenous across airports internationally. Sourcing information about Heffernan’s tarmac proved difficult. Searches of industry publications failed to retrieve information of interest and when asked the relevant airport manager (Preliminary Round Interview 2) only commented that the runway was constructed from tarmac and required occasional resurfacing.
component is reliant on the other and a failure in one will eventually cause failure in the others.

In a sense, the details about runway tarmac are trivial, but a continuing theme in this project (and the works of the authors who have inspired it) has been that the ‘trivial’ details are in fact important because they are often neglected in other accounts\textsuperscript{156}. The first layer in the runway ‘cake’, the sub-grade, is made from a mixture of compacted soils either taken from the existing earth, or in the event that the existing soils are unsuitable, imported from other external locations (Kazda and Caves 2000: 57). To greater improve the stability and resistance to environmental changes airports often incorporate a synthetic lining over the finished sub-grade known as a ‘geotextile’.

The geotextile acts like a skin protecting the compacted sub-grade from excess water (Amoco Fabrics and Fibres Company 2002b), whilst also ensuring that a separation is maintained between the compacted sub-grade and the soils in the sub-base above\textsuperscript{157}. Without the geo-textile fabric the sub-grade is vulnerable. It is vulnerable from other elements in the network, but particularly water. However, the sub-grade is not alone; it is provided with network allies as well. Combined with its protective sheath the sub-grade\textsuperscript{158} is given durability and a capability to resist the bearing loads of the other layers.

\textsuperscript{156} Nevertheless, unlike the works of Kazda and Caves (2000) and Horonjeff and McKelvey (1994), this text is not a guide to airport engineering and thus the technical description will be limited with an eye on the way that each ‘layer’ performs the runway asphalt as a network.

\textsuperscript{157} As one of the leading manufacturers (Amoco Fabrics and Fibres Company 2002a) explained, failure to separate the two layers can lead to contamination of soils resulting in a degradation of the surface tarmac:

\begin{quote}
Over time, traffic loading and vibration punches pavement base aggregate into the soil and causes silt and clay to migrate upward. On wet sites, construction traffic causes pumping of the wet sub-grade soils into overlying aggregate… It is well established that roadway sub-grades can be effectively stabilized by using a combination of geotextiles and aggregate [base].
\end{quote}

\textsuperscript{158} The sub-grade is, initially, the most important runway layer as the bearing strength of the sub-grade determines the required depths for the remaining layers. As Kazda and Caves (2000: 57) explain:
Directly above the sub-grade is another support layer known as the sub-base\textsuperscript{159}, and above this tier is the dual layered base (Horonjeff and McKelvey 1994; Kazda and Caves 2000). Here, the intricacy, sophistication (words not normally associated with asphalt), and relational materialism can be observed. In simple terms, the runway base is made of two asphalt layers (Kazda and Caves 2000: 59). As Kazda and Caves (2000: 59) explain “[T]he upper part of the asphalt pavement is usually composed of two asphalt layers which have different functions.” The lower base layer forms a ‘supporting asphalt layer’. As the name suggests, the supporting asphalt layer is designed to transmit the stresses of aircraft weight evenly onto the sub-base and sub-grade layers beneath (Kazda and Caves 2000: 59)\textsuperscript{160}.

The second layer, in contrast, represents the visible runway surface. While we might generally think of a runway’s surface as ‘smooth’, this statement is not strictly true. In fact, the ‘upper wearing layer’ must have some level of roughness in order to maximise the grip achieved by the tread of an aircraft’s wheels when landing (Kazda and Caves 2000: 59). This roughness is especially important when water threatens to make the runway slippery and thus dangerous. Although they are difficult to discern with the naked eye, the ‘upper wearing layer’ of a runway contains tiny, sharp

\begin{flushleft}
In simple terms, the greater the bearing strength of the sub-grade, the relatively thinner and cheaper may be the entire construction of the pavement.
\end{flushleft}

\textsuperscript{159} Like the sub-grade, the sub-base provides a reliable, stable surface on which the final runway layers can be placed. Moreover, the sub-base provides added drainage and filtration. As Kazda and Caves (2000: 58) write:

\begin{quote}
It [the sub-base layer] drains the condensation created by temperature variations from the pavement construction and also catches any capillary water. This water is led away by means of catch-drains to collectors.
\end{quote}

\textsuperscript{160} How thick this supporting asphalt layer needs to be is dependent on the quality of sub-base and sub-grade and by the types of aircraft using the airport although Horonjeff and McKelvey (1994: 571), citing the findings of studies carried out by United States Army Engineers, assert that this layer needs to be at least 6 inches thick, while Kazda and Caves (2000: 59) are very broad in their assessment concluding that the layer can be anywhere from 10 to 40 cm deep depending of local variations. Regardless of the depth the supporting asphalt layer is made from coarse gravel (Kazda and Caves 2000: 59) and crushed stone (Horonjeff and McKelvey 1994: 571).
irregularities known as the ‘micro texture’. Through the minute pointed hills formed by the ‘micro texture’ dry contact between aircraft wheels and runway can be maintained in wet weather conditions\textsuperscript{161}. Thus, airport managers and engineers must ensure that runways remain free of excess rubber deposits that can interrupt the connection between the micro-texture and the aircraft wheels.

Finally, the upper wearing layer must provide a waterproof surface to protect the sub-grade, sub-base, and base from surface water caused either by rain, or as is the case in many cold climate airports, melting snow and ice. As Kazda and Caves (2000: 59) reiterate:

\begin{quote}
It [The upper wearing layer] must perfectly seal the entire construction of the pavement. If water penetrates into the subgrade, it would gradually erode, lose bearing strength, and subsequently lead to the rupture of the bearing course.
\end{quote}

The point here though is that the success (or failure) of the runway is dependent on a list of seemingly endless agents. As Law (1994: 103) advises:

\begin{quote}
For it is not that some materials are more durable than others. To say this is to fall back on nouns. Rather it is that some network configurations generate effects which, so long as everything else is equal, last longer than others.
\end{quote}

\textsuperscript{161} The micro texturing of runway pavements stands them apart from the familiar road surfaces that commuters use daily. On these ‘ordinary’ road pavements the smoothness of the surface requires vehicles to employ treads on their tires. In contrast, and quite incredibly, on airport runways the micro textures on runway’s surface enable slicks tires better grip in wet conditions than those with grooves (Kazda and Caves 2000: 79). The use of micro texturing is not however without its difficulties. When an airport runway is used consistently a build up of rubber can form over the irregularities of the micro texture (Kazda and Caves 2000: 78). This is the same process as the creation of a sticky racing line that forms as the participants perform laps on a Grand Prix circuit. On a Grand Prix circuit in dry conditions this racing line increases grip as the soft compound rubber tyres heated through constant use at velocity meet the tacky pavement. In wet conditions however on both a runway and a Grand Prix circuit water on a rubberised surface signals a significant loss of grip. Racing cars, of course, have the option to change to grooved tyres whereas aircraft do not.
In other words, durability, strength, or alternatively, power\textsuperscript{162} are derived from association (Latour 1986: 264 - 266). These associations and affiliations can be, to be sure, with human actors, staff, soldiers, subjects, and allies, but also consist of affiliations with nonhumans. So the runway’s durability is derived from the sum of its parts. These parts include the sub-grade, the sub-base, the supporting asphalt layer, the upper-wearing layer and its grip-inducing micro-topography, but also other elements in the network, the weather, the soil, the aircraft, the efforts of the maintenance crews. Success or stability is achieved through the precarious management, manipulation, or ordering of this complexity. Indeed, when successfully ordered the runway gives the appearance of a single entity. This simplicity, however, is mythic. The runway’s complexities, its affiliations and associations, are hidden from view (both physically and cognitively). Only in failure does the complexity become apparent.

6C: Baggage Handling: Delegating to Actors

While following Latour (1986) and Law and Mol (1995), it might be asserted that durability, strength, and influence are drawn from materially heterogenous networks, the existence of these networks alone does not provide a priori guarantee\textsuperscript{163} of virtuous performances. The sum of weak or unstable assemblages, regardless of their quantity, will be weak and unstable. A runway constructed of inferior sub-grade, sub-base, and base will not bear the required loads just as a vessel with a porous hull, incompetent sailors, and inaccurate equipment will not be able to return with bounties

\textsuperscript{162} Latour (1986: 265) explains:

The amount of power exercised varies not according to the power someone has, but to the number of other people who enter into the composition.

\textsuperscript{163} Even as much as a modest sociology can provide a guarantee.
for their king (Law 1986; 1987). For an organisation\textsuperscript{164} to operate effectively an
assemblage of materials capable of durable performances\textsuperscript{165} must be assembled, and if
capable materials are not available in the first instance, capable materials must be
substituted (Latour 1992: 229 - 233), or the properties of capable materials integrated
or synthesised (Law 1994: 139).

Delegation is a substitution or replacement of actors less capable of durable or
generally ‘good’ performances with those considered more capable of enacting
virtuous outcomes (Latour 1992: 229 - 231). For instance, in \textit{Where are the Missing
Masses?} Latour (1992: 228 - 234)\textsuperscript{166} famously explores the delegation of the duty and
responsibility of ‘door-closing’ to a nonhuman actor, an automated door closer. In
this deliberately mundane example Latour (1988a) demonstrates how agents are
replaced or substituted by organisations in the pursuit of more durable and reliable
performances. As Latour (1992: 231 emphasis in original) explains, the delegation of
the duties to an automated material actor is to “\textit{substitute} for the unreliable humans a
delegated nonhuman character} whose only function is to open and close the door.”

Whether called delegation or substitution, the process of replacing incapable actors
with those who may (working with other elements) be able to produce more reliable
and productive results is a common feature in all organisations. Examples of
delegation, both mundane and memorable, can easily be found in all sorts of
endeavours and fields. For instance a football manager might replace a midfield

\textsuperscript{164} The terms institution, system, or network might equally be substituted here.
\textsuperscript{165} Remembering Law (1994: 103 also quoted above), we must speak of performances as a verb:
For it is not that some materials are more durable than others. To say this is to fall back on
nouns. Rather it is that some network configurations generate effects which, so long as
everything else is equal, last longer than others.
\textsuperscript{166} A similar text written under the pseudonym, Jim Johnson was also published in the journal \textit{Social
Problems} (Latour 1988a).
player with a quick striker; an empire might introduce new techniques of navigation (Law 1986; 1987); a car manufacturer might devise a technology that forces passengers to fasten their seat belts (Latour 1992: 225 - 227); a mother might test the temperature of a bottle with her hand. In all of these examples, an actor has been replaced with one considered more capable. Indeed, in these examples the symmetry and non-reductionism (Law 1994: 9 - 18) embraced by ‘modest’ sociology can be observed. In these examples a delegation of human to human (midfielder to striker), nonhuman to nonhuman (old navigation techniques to new navigational techniques), human to nonhuman (passenger arbitrated safety to mechanically arbitrated safety), and nonhuman to human (thermomotor based judgement to mother based judgment) can all be seen. Delegations thus, are multiple rather than singular. Their movements may encompass shifts in the spectrum of materiality from human to nonhuman and vice-versa and beyond. As Latour (1992: 256 fn 6) elaborates:

This definition does not imply that the direction always goes from soft bodies to hard machines, but simply that it goes from a provisional, less reliable one to a longer-lasting, more faithful one… Specialists of robotics have abandoned the pipe dream of total automation; they learned the hard way that many skills are better delegated to humans than to nonhumans, whereas other may be taken away from incompetent humans.

Just as substitutions and delegations can observed on the football pitch or in the allocation of an automated door-closer (Latour 1992), the process of replacing one set of actors with another to obtain more durable, reliable, or efficient performances is such a common feature in organisations like an international airport that its prevalence goes almost unnoticed. The concept of delegating tasks from machines to nonhumans
is particularly viewable in the field of air traffic control\textsuperscript{167} (Gras et al. 1994), although similar reconfigurations can also be observed in the introduction of machine-readable passports\textsuperscript{168} (International Civil Aviation Organization 1994; 1999; 2002a; 2002b), and the on-going debates regarding the virtues of their expansions into bio-metric pages (Fuller 2003; Heim 2004; Simon 2004).

This project, however, wishes to focus on the delegations in the operations of baggage handling. In the example of baggage handling various delegations can be witnessed, including those of automation, whereby nonhumans replace human actors, and what might be termed de-automation, where conversely human actors are substituted in place of nonhumans.

First, while airport baggage systems have always contained some level of automation (Ashford et al. 1997: 185 - 187; de Neufville 1995), in recent years attempts have been made at major airports, including Frankfurt, Kansai, and Munich (Dempsey 2000: 330 - 331). Heffernan International Airport also has joined this race towards automation contracting the Singapore based corporation Inter-Roller to construct a more automated system (Centre for Asia Pacific Aviation 2002; DBS Vickers Securities 2004)\textsuperscript{169}. However, the most notable attempts at automation occurred in Denver (Dempsey et al. 1997; Dempsey 2000: 331; de Neufville 1994; 1995; Knill 1994). Denver’s efforts were particularly infamous because of the tremendous scale

\textsuperscript{167} Air Traffic Control is explored on pages 182 - 190.
\textsuperscript{168} For an in-depth discussion of passports see pages 278 - 296.
\textsuperscript{169} Like the previous discussion of tarmac, this section focuses on practices at airports other than Heffernan. Unfortunately, in interviews with the airport management baggage handling was not discussed. However, when selecting which stories to tell in this project, it was felt that the story of Denver’s experience with automation was worth including as its experience with the perils of material delegation clearly and resonantly demonstrated the difficulties in engaging in ordering performances at an international airport.
and ambition of the project, and because of the initial and quite monumental failure of the system. Denver’s (and to a lesser extent Frankfurt’s, Kansai’s, Munich’s and Heffernan’s) quests for automation was a quest for delegation and substitution. Unlike traditional systems that employed human agents to sort and load baggage from conveyer belts to carts (de Neufville 1995: 5; Ashford et al. 1997: 197 - 201)\footnote{For a comprehensive description of the various models for baggage handling, including useful diagrams see Ashford et al. (1997: 197 - 201)} automated systems replaced human ‘readers’ with mechanical versions that sorted baggage based on an electronic recognition. In this ‘materially delegated’ system, bags were to be scanned with a laser (in a process akin to scanning products at a shopping centre (Ashford et al. 1997: 199) and transported at great speed\footnote{Baggage at Denver International was due to reach speeds upwards of thirty eight kilometres per hour (de Neufville 1994).}. With automation, it was hoped that slow, inefficient humans would be substituted for faster and more efficient machines. Experiences, though, with electronic reading varied considerably (Dempsey et al. 1997; Dempsey 2000: 329 - 331; de Neufville 1994; de Neufville 1995). Initially, Denver and Frankfurt were plagued with problems\footnote{Although, conversely, Munich’s and Kansai’s less ambitious programs were far more successful (Dempsey 2000: 329 - 331).}.

For airport management experts like Dempsey et al. (1997) and de Neufville (1994) Denver’s malfunctions could be attributed to a chain of failures related to poor support systems. Yet, in the language of Latour (1992: 231 - 233) (taken from Akrich (1994) we might think of the problem also as failure to balance the process of delegation with twin performances of ‘discipline’ and ‘prescription’. Evidently, delegation as a process is not as simple as giving an entity tasks or roles. On one hand, as Latour (1988a; 1992) explores in the example of the door-closer, the entity
must be properly ‘disciplined’ to function\textsuperscript{173}. To return to the example of baggage handling, unlike Denver, Munich Airport used a year-long testing exercise to ‘iron out the kinks’ (Dempsey 2000: 330), or alternatively ‘discipline’ their newly automated (materially delegated) system. However, on the other hand, ‘disciplining’ a material network is not in itself sufficient. As Latour (1992: 232) explains, delegating or substituting an intimate object into a system preconditions users of that system to follow certain protocols. These protocols, or user-instructions or ‘role expectations’ (Latour 1992: 256 fn 8), are referred to by Latour (1992) and Akrich (1994) as ‘prescriptions’. As Latour (1992: 232) explains, again using the example of door-closers, prescriptions educate and inform users of a delegated system:

\begin{quote}
We have all experienced having a door with a powerful spring mechanism slam in our faces. For sure, springs do the job of replacing grooms, but they play the role of a very rude, uneducated, and dumb porter… They simply slam the door shut. The interesting thing with such impolite doors is this: if they slam shut so violently, it means that you, the visitor, have to be very quick in passing through… An unskilled nonhuman groom presupposes a skilled human user. It is always a trade-off.
\end{quote}

‘Prescriptions’ are part of all materially delegated systems. For example, we might think of traffic lights that rely on a driver’s and a pedestrian’s knowledge of the semiotics of green, amber, and red lights, or, alternately the example of ‘on-line banking’ systems that prescribes a certain knowledge of computers.

Furthermore, automated baggage systems also carry prescriptions for their users. In some systems, for instance, bags need to be placed by human actors at a specific angle so that the electronic reader can recognise the allocated code (Ashford et al. 1997:

\textsuperscript{173} We might equally think of the disciplined entities of the Portuguese Naval Empire (Law 1986; 1987).
Additionally, passengers and handlers need to ensure that all ‘left-over tags’ from previous flights, which could throw the system in chaos, have also been removed (de Neufville 1994: 11). Finally, the limitations of ‘automated’ systems dictate that priority baggage, that baggage on connecting flights with limited available time, need to be transported by traditional, ‘manual’ systems using ‘tugs and carts’ (de Neufville 1995: 5). As these examples testify, delegation to material or nonhuman entities is a performance that requires substantial and continued ordering.

Secondly, as Latour (1992: 256 fn 6) cautioned, the processes of delegation are not unidirectional, and likewise, efforts to increase baggage handling efficiency also saw moves in the airport industry towards de-automation, whereby human employees were delegated (or perhaps in some cases more accurately re-delegated) responsibility and roles previously ascribed to their non-human counterparts. As Dempsey (2000: 331) states:

> Denver International Airport (DIA) had grave difficulties getting its 26 mile, $218 million automated baggage system to work properly, and after several opening dates were missed, opted for a primitive [human sorted] tug-and-cart system as the primary system for two of its concourses, and a back-up system for its third.

Indeed, while automated systems receive a great deal of publicity within aviation press (Airports International 2004; Croft 2004; Jackson 1999; Famer 2004; Reynolds 2003) at least as late at 1997, Ashford et al. (1997: 198) reported that ‘manual’ baggage processing was used at airports in an overwhelming ninety-eight percent of cases. Yet even in the most manual, human orientated system, where humans have been delegated key responsibilities, the process of moving baggage to and from aircraft is a materially heterogeneous assemblage. Humans load bags (themselves a
material entity) to and from conveyer belts as well as tugs and cars. Indeed, while the humans act as readers, like their nonhuman counterparts, they still require ‘material’ tags to determine the luggage’s designation and destination.

In sum, as demonstrated previously in the example of runway surfaces, durability and reliability are a performance of material assemblages, yet further it might be added that these assemblages are also performances of delegations. Nevertheless, the act of delegation itself does not automatically equate to efficiency. Only with regimes of ordering, monitoring, and disciplining\textsuperscript{174}, and by following ‘prescriptions’ that ‘impose behaviour back onto users’ (Latour 1992: 232) will delegated material assemblages operate efficiently and reliably. Here, a paradox emerges that will be explored further in the following section. The components of organisation (the various material assemblages, strategies and tools of management) that strive for ordering performances (Law 1994), or in Akrich (1994) and Latour's (1992) terms issue, ‘prescriptions’ to users, that enable an organisation to operate, \textit{themselves are ordered or ‘managed’}.

6D ‘Interwoven Ordering’: Terminal Signage and the Ordering of Ordering Actors

As the title of this section suggests, the multiplicity of ordering within the material heterogenous networks that form organisations will be explored in the following three sections. In other words, this project will investigate the way in which ordering mechanisms, in this particular case airport terminal signage, on the one hand strive to

\textsuperscript{174} See pages 150 - 161 for an analysis of monitoring, ordering performances.
dictate behaviour and govern actors, but are, on the other hand, simultaneously the subject of ordering strategies.

*However, this section should not be read as an exploration of dualisms.* In contrast, this project, like Law's (1994) text *Organizing Modernity*, seeks to distance itself from reductionist accounts that see social processes dualistically. Instead, by exploring the ‘ordering of ordering actors’, this project advocates a position that celebrates the complexity and interconnectivity of the social world. Complexity is advocated in this project because ordering is everywhere. Indeed, while for example, Andrew of Daresbury may engage in ordering practices, he is simultaneously also ordered by countless other materially heterogeneous assemblages, including other managers; the constraints of his role; the parameters of the English language; union policies; the apertures of global clock-time\(^{175}\); the directions for making his cup-of-soup at lunch; and limitless others. Andrew’s performances are tied and interwoven to the performances of countless other networks, and in turn these networks and performances are tied to countless other networks, and so on infinitely. As Latour (1997: 2) described:

> [M]odern societies cannot be described without recognizing them as having a fibrous, thread-like, wiry, stringy, ropy, capillary character that is never captured by the notions of levels, layers, territories, spheres, categories, structure, systems… This is the most counter-intuitive aspect of AT\(^{176}\). Literally there is nothing but networks, there is nothing in between them, or to use a metaphor from the history of physics, there is no ether in which the networks should be immersed.

\(^{175}\) For a discussion of global clock-time see pages 301 - 310.

\(^{176}\) Latour (1997) it seems could not bring himself to use the descriptor ANT.
The acknowledgement of the complexity of ordering performances, much like the inclusion of nonhumans in social theory, is both confronting and challenging for sociology. Actor Network Theory\textsuperscript{177} takes sociology out of its comfort zone, removing many of its faithful servant concepts, and shaking its methodological foundations. There is more than a hint of sympathy when Law (1994: 15) protests of the complexity of the streams of thought\textsuperscript{178} that he has played such a role in creating:

This is terribly difficult. At least I find it so. It is difficult because it is like a Gestalt shift. Suddenly you see it – you see the faces instead of the vase. And then you lose it again – you are back to the vase. And it seems to me that the reason it is so difficult is because it is so radical.

In a sense by calling for an appreciation of complexity Actor Network Theory asks impossible tasks for those wishing to incorporate their theoretical and epistemological insights\textsuperscript{179}. Earlier (191), Borges’ map (cited in Baudrillard 1983) was highlighted as a metaphor for the difficult task of writing an Actor-Network account of the airport. This analogy seems apt, for while we might acknowledge the complexity, interconnectivity, and ubiquity of ordering performances and their companion networks, charting them accurately is an impossible and never-ending task. Likewise in exploring the ‘ordering of ordering devices’, following Law (1994: 9, 14 – 18, 32) and Akrich (1994: 215), this project can only acknowledge the unportrayable complexity and scale of the materially heterogeneous networks of the social, and proceed ‘modestly’ with small, incomplete depictions or snapshots. In a process akin to an astronomer who selects only a fraction of the sky to examine, while this project

\textsuperscript{177} Again the alternative descriptors Actant-Network Theory, Actor-Network Theory, or Science and Technology Studies could be substituted

\textsuperscript{178} The term ’streams of thought’ is used in preference of theory or methodology which both have been criticised see {Latour, 1997 #437; Moser, 1999 #441}.

\textsuperscript{179} ANT has been criticised too for not meeting its own standards of non-reductionism, symmetry, and modesty see Newton (1999; 2001: 479 - 481) and Collins and Yearley (1992).
wishes to say that everything\textsuperscript{180} is interwoven and is at once ordering and being ordered, this project is limited by scope to saying that airport terminal signage appears to follow this pattern.

Demonstrating that airport terminal signage is simultaneously engaging in ordering and being ordered is a two part process. As such this chapter will explore the multiplicity of ordering performances by first, describing the ordering performances instigated by airport terminal signage and second, analysing the simultaneous orderings of airport terminal signage.

6E ‘Prescription’ and the Ordering Performances of Airport Terminal Signage

The image of the airport departure board, or as it is known in the technical jargon of the aviation industry, a Flight Information Display System (FIDS) (Dempsey 2000: 339), is familiar to travellers the world over\textsuperscript{181}. FIDS indicate the time, boarding gate, flight number, and destination of aircraft departing the airport over a given time period (normally a given 24 hour period) (Dempsey 2000: 339)\textsuperscript{182}. In doing so, FIDS,\textsuperscript{180} The idea that ‘everything’ orders and is ordered might be an extravagation but the more general point of the omnipresence of ordering is accurate.

\textsuperscript{181} For a visual representation of a Flight Information Display Board see Appendix 2 (356).

\textsuperscript{182} As a cultural artefact the departure board symbolises the airport and its accompanying connotations of transition, change, movement, and mobility. Film-makers are certainly aware of the symbolic significance of the boards. Frequently directors employ shots of departure boards as the lead-in shot to introduce a scene taking place within an airport. Even the familiar sound that the mechanical versions make when information updates has become synonymous with the airport environment, see for example Spielberg’s (2004) film \textit{The Terminal}. An airport departure board symbolises new beginnings and opportunities. Once again the popular philosopher De Botton (2002: 39) expresses the symbolic powers of the departure board with aplomb:

\begin{quote}
Nowhere is the appeal of the airport more concentrated than in the television screens which hang in rows from terminal ceilings announcing the departure and arrival of flights and whose absence of aesthetic self-consciousness, whose workmanlike casing and pedestrian typefaces do nothing to disguise their emotional charge or imaginative allure. Tokyo, Amsterdam, Istanbul, Warsaw, Seattle, Rio. The screens bear all the poetic resonance of the last line of James Joyce’s \textit{Ulysses}.
\end{quote}
like the many other signage systems found in an international airport terminal, engage in ordering performances. ‘Delegated’ (Latour 1992) the responsibilities of guiding, directing, and instructing the world’s travellers, signage must contend with (or develop strategies to counter) the complexities of language and culture to instigate ordering performances or enact ‘prescriptions’ (Akrich 1994: 211; Latour 1992: 232) that transform travellers into ‘obedient’ users. As the semiotician Fuller (2002: 131) explains:

No matter where one is in the world, pictograms, arrows, and locational markers announce the familiar processual logic of the airport. These signs create a globalised navigation system, a visual interface through which one moves. These signs don’t merely represent the airport, they create it. In other words, the textualised cartographies and myriad jurisdictions of the airport are to be obeyed, not believed.

Airports are massive and often alien spaces where people need to transit quickly and efficiently. The delays and hold-ups experienced due to an ‘undisciplined’ or ‘disobedient’ passenger getting lost cause not only angst on the part of the wayward passenger but can have massive follow-on effects for countless others. A missing passenger can cause scheduled flights to be delayed significantly as baggage is found and removed from waiting aircraft. Indeed, in extreme circumstances at a busy airport such as Chicago’s O’Hare or London Heathrow the initial delay caused by a lost passenger can lead to an aircraft losing its scheduled departure slot resulting in the

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De Botton (2002: 39) seeks refuge and comfort in the text displayed on the boards. The departure board acts as a surrogate to ‘real’ travel, like a travel guidebook read by someone who has little potential to depart for a foreign destination but can in a symbolic sense experience an ethereal connection to a place, while temporarily escaping the present moment and confines of space. Through the lyrical resonance of foreign and exotic (and thus appealing) cities the distinctive typeface of the destination board confers the possibility of escape.

While not framed within the parameters of Actor Network Theory or its related schools Fuller’s (2002) work, especially her discussions of ‘wayfinding’ shows an implicit awareness of the ordering powers of airport terminal signage.

As opposed to the ‘disciplined’ and ‘obedient’ actors that follow the prescriptions (Latour 1992: 232) of terminal signage.
waiting aircraft being reshuffled back into the queue (Gottdiener 2001: 77). Such major delays can snowball as connections are missed at far away airports.

In combination with intelligent and straightforward terminal design, clear signage can to some extent reduce the likelihood of passengers becoming inadvertently lost. As Dempsey (2000: 339) explains, effective signage in the terminal space:

[I]s essential to lead passengers quickly and effortlessly to their destinations. Signs serve the purposes of guiding the passengers in the direction they wish to proceed (to and through the airport), and of informing the passengers what alternative services are available (such as concessions, telephones, and rest rooms) and, from a regulatory perspective, what is expected of them (such as customs and immigration requirements).

The various strategies and techniques employed by designers to maximise the clarity of messaging within the airport can be thought of as the ‘logic’ of airport signage. Successful airport signage orders passengers, not only by directing them to their flight or enmities such as restaurants or restrooms (Fuller 2002; Gordon 2004: 225 - 228; Kazda and Caves 2000: 258 - 259), but by ‘prescribing’ action (Akrich 1994: 211; Latour 1992: 232), dictating permissible behaviour (such as smoking) and informing them of the processes and procedures that lie ahead for them (have your boarding pass and passport ready). These commands are transmitted through the imagery of arriving and departing planes, dark figures that symbolise bathroom facilities or men and women, and the ubiquitous four-pronged fork and knife that symbolise the presence of a restaurant (International Civil Aviation Organization 1995: 87, 88, 60 68). As Fuller (2002: 136) points out, within the airport space “the passenger is a navigator

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185 For a commentary on terminal design see pages 150 - 161.
186 The term ‘lost’ here is preferred to ‘disorientated’ because even the cleverest airport signage cannot combat successfully the feelings of disorientation experienced by many passengers suffering the effects of jet-lag and stress in the already alien world of a foreign airport.
more than a reader.” Airport signage is directive not interpretative. In other words, airport signage is not designed for the purposes of denotation or connotation but rather to be complied with (Fuller 2002: 231). Airport signage helps create the airport as a venue of transition where the passenger moves through the airport’s ‘functional areas’ (Major Round Interview A) guided by a cartography of arrows. As Fuller (2002: 133) explains: “signs not only enact semioticised territories but also directly intervene in the material machinic process of travelling.” For Fuller (2002: 137) the directional and ordering logic of signs transcend the boundaries of the airport space and extend into many of the spaces that we inhabit on a daily basis:

Nowadays we are increasingly all travellers, suburban shoppers, global citizens or refugees, following arrows and signs, trying to efficiently navigate the procedures that synchronise daily activity and collective behaviour. We move through and by these semioticised acts: the forms, the arrows, the prohibitions, the diagrams and the maps. (Fuller 2002: 137)

Such semiotic direction can be seen within the Heffernan International Airport. As the image of the Flight Information Display Board recorded at Heffernan International (Appendix 2: 356) shows, passengers are directed towards particular gates in the clear and increasingly universal language of numerals and arrows. Passengers are informed of flight information, told of delays, directed to their boarding gate, or warned of the final call for their flight.

While not framed in the language of ‘Actor Networks’ Fuller's (2002) commentary has a resonance with the arguments of Latour (1992) and Akrich (1994). Charged with the task of directing passengers in the complex, foreign-yet-familiar terrain of the airport terminal, signage does not only inform or educate passengers and other users,

6F: Terminal Signage: Ordering and Being Ordered

While the acknowledgement that terminal signage, like regulation (Ordering: 119 - 131), forms of communication (Communication: 182 - 195), and queues (Ordering: 150 - 161) (to name but a few) enact ordering performances, issuing decrees that might be called prescriptions (Akrich 1994; Latour 1992) is interesting, the example of airport terminal signage is particularly useful in this project because it illuminates the multiplicity and complexity of ordering performances. Socio-technical networks, and importantly, the ordering performances that enact and link them are intricate, relational, and interwoven. Recalling187 Latour (1997: 2) networks (and their orderings) might be described as “having a fibrous, thread-like, wiry, stringy, ropy, capillary character.” Ordering performances then, are multiple rather than singular, and interwoven rather than independent. In mathematical terms, while ‘A’ may enact performances that influence ‘B’, ‘A’ is also simultaneously ordered by other actors (which in turn are ordered by other actors and so on). Or, in the context of terminal signs, while airport guidance systems may influence and educate the actions of airport users, they are also the subject of ordering performances. As shall be demonstrated in this section, these ordering performances regulate and ‘discipline’ terminal signage enabling the signs to engage in their own orderings, which in turn, contribute to the efficient organisation of the airport’s operations.

187 This passage is also quoted above page 228.
The ordering of airport terminal signage is principally a task in regulation and standardisation. As discussed earlier (Ordering 119 - 127), bodies such as ICAO strive towards ordering performances through attempts to standardise and regulate almost of all of an airport’s operations. Yet regulation and standardisation in relation to airport terminal signage was not always considered a priority. ICAO Standards and Recommended Practices (SARPs)\textsuperscript{188} introduced as late as the 1960s were not initially widely accepted (Hart 1985: 136). Only in 1970s, following initiatives by the United States Department of Transportation (DOT), was the idea of standardised terminal signage taken seriously both in North America and beyond (Hart 1985: 136). As Hart (1985: 136) explains:

[I]t [the 1974 DOT report] was republished in Japan, in both Japanese and English, sold in Asia and Europe, and used for airports in the Middle East, bus terminals in Australia, and shopping centres in England.

With the success of the United States Department of Transport standards (Erhart 2001), international organisations such as the International Civil Aviation Organization (1995), and the World Tourism Organisation (2001) followed suit creating a corpus of international recognised standards for airport signage (Fuller 2002: 234).

Indeed, through the adoption of recommended practices established by the United States regulatory authorities\textsuperscript{189} (Erhart 2001), and by the copying of successful practices conducted by leading airports and airport designers, norms have been established for the size, layout, design, and even typeface of terminal signage. For

\textsuperscript{188} For a discussion of SARPs see pages 119 - 127.

\textsuperscript{189} In an Advisory Circular dated the 1\textsuperscript{st} of July 2003 (United States Department of Transportation: Federal Aviation Administration 2003) the United States’ Federal Aviation Administration (FAA) directs airport managers to both the Guidelines for Airport Signing and Graphics (Erhart 2001) and the 1984 version of ICAO’s International Signs to Provide Guidance to Persons at Airports and Marine Terminals for recommended practices in the design of terminal signage.
example, in terms of size, Hart (1985: 137) and Dempsey (2000: 343) explain that various editions of the *Guidelines for Airport Signing and Graphics* (Erhart 2001) recommend that lettering must be 1 inch high for every fifty feet of required viewing distance. In other words, to be distinguishable from 400 feet lettering on a sign must be at least 8 inches high. However, as Dempsey (2000: 343) notes such recommendations can only be regarded as “a rule of thumb” as massive variations in the quality of eyesight occurs within populations\(^{190}\).

The ordering of airport terminal signage also continues in the standardisation of format and overall appearance of the signs. Virtually all airport signage across the globe incorporates the same uniform light background with dark writing (International Civil Aviation Organization 1995: 7). As Hart (1985: 137) describes:

> The basic standard [Recommended by the *Guidelines for Airport Signing and Graphics*], is the concept of a dark figure on a light background, with a symbol field of square shape with rounded corners. Alternatives such as circular shapes are [also] shown.

At Heffernan, this standardised use of yellow/gold and black terminal signage can be seen (Appendix 2: 356). However, at Heffernan International the standard is reversed. Here, the black Flight Information Display Board displays gold and white lettering. Moreover, examples of the uniformity of signage can be seen at London’s Gatwick airport (Appendix 3: 357). In the case of the sign pictured, a black script is placed on a yellow/gold background. However, the symbol-field (indicating the presence of an elevator) is contained in a ‘circular shape’, rather than the ‘square shape with rounded corners’ mentioned by Hart (1985: 137).

\(^{190}\) The International Civil Aviation Organization's (1995: 5) standards, for instance, do not specify the size requirements for signage, ambiguously informing airport planners that “the signs should be large enough to be recognised at reasonable distance.”
Indeed, despite regimes of international standardisation, several subtle differences can be observed between signage at Heffernan and Gatwick and the recommended designs pictured in the documents of the International Civil Aviation Organization (1995: 77), the World Tourism Organisation (2001: 80), and described by Hart (1985: 137). As mentioned earlier, although Heffernan’s sign uses the gold/yellow and black combination prescribed by international standards, in this case the light text appears on a solid black background (Appendix 2: 356). Moreover, although the Gatwick sign (Appendix 3: 357) may appear to meet international standards in fact it the elevator symbol fails to comply with either the International Civil Aviation Organization (1995: 77) or the World Tourism Organization standards. Unlike the elevator sign at Gatwick, the International Civil Aviation Organization (1995: 77) image uses up/down arrow indicators to the right of the elevator shape, while according to the World Tourism Organisation (2001) standards, only one elevator occupant should be pictured. Again in the example of terminal signage, the imperfection and incompleteness of ordering performances is demonstrated. Even in the standardised, and some would argue sanitised, world of the airport myths of ‘pure order’ (Law 1994: 4 - 9) and homogeneity give way to local variation.

Yet despite the limitations and variations observable, the ordering performances of the international regulatory organisations also achieve remarkable successes. For instance, the style of typeface incorporated in airport terminal signage has become more or less uniform across the globe. As Hart (1985: 137) and Gottdiener (2001: 77)

191 For example see Augé (1995). Additionally, the idea of the airport as a homogenised, non-place is critically examined on pages 310 - 317.
note, Helvetica Medium\textsuperscript{192} has become the internationally recognised and standardised typeface for signage within international airports. Returning momentarily again to the image taken at Gatwick Airport (Appendix 3: 357), the texts “Lifts,” and “Passengers with heavy bags & trolleys please use lifts,” seen in the photo are displayed using Helvetica type, as is the incomplete text on the right-hand sign that reads, “Check in,”, “Departure,”, and “Left Baggage.” Likewise, the text displayed on the Heffernan sign (Appendix 2: 356) appears to be a close proximate to Helvetica Medium, if not an exact match to the designated typeface.

Through standardisations of font and the semiotic language of pictograms the ordering performances of international regulatory bodies like the International Civil Aviation Organization (1995) and the World Tourism Organisation (2001) ‘discipline’ airports globally. Good airports are those with clear and easily recognisable signage (Gotttdiener 2001: 75 - 76)\textsuperscript{193}, while conversely, airports with poor terminal signage are lambasted in industry publications and by the wider community. While an airport might not exactly be labelled ‘uncivilised’ (Elias 1983; 1994)\textsuperscript{194}, a degree of shaming

\textsuperscript{192} Introduced in 1957 by Swiss graphic designer Max Miedinger, Helvetica provided a clear and easy to read font that would be adopted by countless organisations around the world (Muller 2002). In the contemporary digital age of desk-top publishing, Helvetica has a new guise within the equally widely used Microsoft Office Font Arial. As Hart (1985, 137) explains, aviation regulators regarded Helvetica as ideal typeface to use in terminal signage:

\begin{quote}
[B]ecause of its compatibility with symbols, aesthetic quality, and the large height of the lower-case type. Upper- and lower-case can therefore be used with relatively little size loss.
\end{quote}

\textsuperscript{193} As Gottdiener (2001: 75 - 76) asserts:

Good airline terminals are, above all, easy places to negotiate the tasks of embarking, disembarking, and transfer to connecting flights.

\textsuperscript{194} In The Civilizing Process, Elias (1994) explores an evolution in attitudes regarding manners, etiquette, and the management of bodily functions through the Middle Ages and beyond. By exploring guides to good conduct designed to instruct European nobility, Elias (1994) charts the changes in social norms which stigmatised certain behaviours. Elias (1994) demonstrates how a perception of good behaviour held by an individual or a few people can become accepted by a significant number of the larger population, and in doing so, become the ‘social’ norm. In other words, Elias (1994) showed how the teachings contained in the writings of Erasmus or Tannhäuser could gradually become the accepted practice (norm) for a larger community. In this way, The Civilising Process became a key text not only in the changing patterns of manners but also in the exploration of the formation of social norms more generally. Moreover, as well as investigating the logic of social norm formation, Elias (1994)
and marginalisation can still occur. In Dempsey's (2000: 342 - 343) handbook on airport management, for instance, the follies of airport managers who failed to comply with international standards are exposed like the ‘uncivilised’ nobility in works of Erasmus and Tannhäuser:

Flight displays at Minneapolis/St Paul International Airport are notoriously poor for passengers seeking information on flights other than those flown by Northwest Airlines. Similarly, Atlanta Hatsfield International Airport lists the flights of its dominant tenant, Delta Airlines, more prominently than those of its competitors… When Frankfurt Airport opened a new terminal in 1994, lack of clarity confused passengers, thereby making it difficult for them to get around. At Munich, parking signs were so small passengers couldn’t find their cars.

Likewise, Heathrow, Charles de Gaulle, and Los Angles International Airport have all developed unwanted reputations amongst the flying public as airports where poor signage (among other things) decreases efficiency (Elliott 2002; 2003)\textsuperscript{195}.

Thus, in the example of airport terminal signage the interwoven conditions of ordering performances can be observed. Airport terminal signage instigates orderings, and is at the same time the subject of ordering though systems of regulation and standardisation. However, to argue that the ordering performances end with the creation of regulatory documents would be reductionist. The stories of ordering are

\textsuperscript{195} Conversely, innovative strategies and successful compliance with international guidelines on terminal signage are met in the airport literature with near-unreserved praise. For instance, Street (1996: 30) commends Denver International Airport’s authorities for consulting the Guidelines for Airport Signage and Graphics (Erhart 2001), while also praising the introduction of bigger signs and clearer typeface at New York’s Newark Airport. Similarly, Cook (1997: 12) extols managers of Kansas City International for their installation of “visual paging systems,” while Erhart (1995: 68) congratulates New York’s Newark Airport for their multi-lingual flight information displays (FIDs).
endless and endlessly interwoven. From the creation of regulatory documents we might consider the ordering performances that govern the regulators. We might ask what techniques are used to distribute the documents; how global organisations such as ICAO cope with differences in language and culture within their global organisation and beyond; how are decisions made; and how is compliance enacted? These types questions could go on and on, but ‘modestly’ (Law 1994: 9, 14 – 18, 32), this project must be aware of limitations.

Nevertheless, even when restricted to the snapshot of terminal signage as ordering actor, and subject of ordering, the multiplicity of ordering performances is demonstrated. Ordering performances that enable socio-technical networks are everywhere. Their ubiquity can be seen in the unmistakable contemporary hieroglyphs of airports and in the mechanisms that govern them as actors.

6G: The A380: A ‘Complex’ Technology to be Integrated

So far this chapter has examined the complexities of materials assemblages such as airport runways, baggage systems, and terminal signage. Such examples have highlighted the ‘materially heterogeneous’ (Law 1994) quality of airports, and examined the performances that strain towards greater durability and efficiency. In the following three sections, however, the focus of this chapter will shift to explore the techniques and strategies used to integrate new and innovative technologies into an airport’s operations. To undertake an examination of the techniques of integration this project has employed a case study of the A380 ‘super-jumbo’.
As the most radically new civilian aircraft since the Boeing 747 and the Concorde, both introduced in the late 1960s, the A380 brings massive expectations, possibilities, and challenges. The first of the so-called super-jumbos, the A380 will accommodate between 550 and 800 passengers (depending on configuration) when it enters service in 2006 (Wong 2003). Within an industry rocked by continuing uncertainty and paranoia regarding threats of terror, and the duel scourges of SARS and avian influenza, the A380 represents a shining light for many working within the world of aviation. While such lofty hopes bar the hallmarks of industry spin, there can be no doubt that the A380 will have a major impact on the aviation world.

The construction of such a large civilian aircraft has never been attempted. Indeed, with the exception of the one-off Antonov 225 Mriya, a Russian-built behemoth cargo plane designed to carry the Buran Space Shuttle, the A380 will be the largest aircraft ever built (Sweetman 2003). In appearance the A380 resembles other Airbus aircraft like the A310 (Airbus 2004: 21, 186, 188). Although while the A380’s design may not first appear radically different (in contrast, the 747, for example, marked a distinctive shift in aircraft appearance) the A380 has sacrificed elaborate shifts in form in favour of simply making everything bigger. Indeed, while less than three metres longer than the 747, the A380 gains its gigantic status through a double-decker configuration that results in a height (24m) some 5 metres taller than the once formidable jumbo jet (Airbus 2004: 23). Even more impressive is the A380’s wingspan, which at 79 metres dwarfs the 747 (64m) by more than 15 metres. Coupled

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196 As this project’s finishing touches were being made the A380 would be launched with much pomp and ceremony as the heads of state of France, Great Britain, Germany, and Spain looked on with the world as CNN and BBC World broadcast images via satellite. The aircraft, while spectacular, had blown over budget and was fractionally overweight. Whether the radically new aircraft would in a commercial sense perform more like Boeing’s cash-cow 747, or the ostentatious, but commercially unviable Concorde would remain to be seen.
with a maximum take-off weight of 560 tonnes (compared to the 747 at 396 tonnes) and the A380 will need 70,000 pounds of thrust from four Trent engines at takeoff to get the massive aircraft off the ground (Airbus 2004: 20 - 21). Unlike the Concorde, which captured the imaginations of travellers but was only ever flown by British Airways and Air France, the A380 appears to have sparked sales as well as interest. At the time of writing eleven airlines had placed orders for the new aircraft including Qantas; Emirates; Malaysian; Lufthansa; Qatar Airways, Singapore Airlines, Air France, Virgin Atlantic, and Korean Air (BBC News 2004).

However, the A380s’ unprecedented size will require airports worldwide to make significant alterations both to their infrastructure and internal operations (de Neufville and Odoni 2003: 80, 304). Runways, bridges, and aprons of airports expecting traffic from the airlines using A380s will need to be modified (Airbus 2001: 5)\(^{197}\). As de Neufville and Odoni (2003: 304) explain, the A380 compatibility survey conducted by Airbus (2001) highlighted the magnitude of the task faced by airport managers to ensure that their airports could take the new aircraft:

The survey found that the three principle problems were runway and taxiway dimensions and separations, weight effect on taxiway bridges, and the effects of aircraft size and capacity on passenger buildings. An Airports Council International survey of 40 of these airports [of the 81 surveyed by Airbus] found an average cost of about $100 million per airport for the adjustments needed to accept the A380.

\(^{197}\) Indeed, such is the size of the A380 that a new code, ‘F’ had to be added in 1999 to the ICAO airport classification system (de Neufville and Odoni 2003: 301, 303, 305). Previously, ICAO’s airport system had incorporated letters ranging from ‘A’ to ‘E’ to categorise airports based on an ability to handle aircraft of a specific wingspan. For example, a ‘D’ classified airport could deal with aircraft with wingspans up to 52m such as the Boeing 767 whereas the much larger 747 required an ‘E’ level airport. In contrast regulators in the United States acted much earlier introducing the classification code ‘VI’ to their equivalent classification system in 1983 (de Neufville and Odoni 2003: 305).
While Airbus (2001: 3) contends that every effort is being made to limit the impact on airports, the introduction of the A380 is often viewed by the aviation industry as a headache as much as it is seen as a panacea for the aviation industry’s recent woes (Kingsley-Jones 2004, 13). As one Heffernan Airport manager (Major Round Interview I) suggested, like the proverbial ancient Chinese curse, the introduction of the A380 promised “interesting times.” Indeed, while all managers asked agreed that the introduction of the A380 would have a significant impact on airports (Major Round Interview B; C; E; G; I; J), little consensus were achieved in relation to the precise nature of this impact, and the level of impact at Heffernan Airport in particular. Some managers interviewed anticipated that major structural changes would be required to make Heffernan Airport A380 compatible (Major Round Interviews B; J; I). As Manager ‘B’ (Major Round Interview B) explained:

Well, [the introduction of the A380] that’s going to mean some re-building because the airport is not built for that type of aircraft, our runway should actually be wider, out to 60 metres wider instead of 45 metres wide, all the turns and the taxiways need to have a larger radius for the turns.

Indeed, Manager ‘J’ (Major Round Interview) echoed similar sentiments regarding improvements to the airport infrastructure as a result of the A380’s introduction:

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198 The requirement for airport planners and administrators to adapt quickly to new technology is not a new phenomenon (Pearman 2004). As Gordon (2004: 218 - 219) explains, similar overhauls to terminals were required when the 747 entered the fray in the early 1970s:

The 747 changed the scale of everything of the field and in the terminals. Runways had to be widened and reinforced to support the Boeing monsters… The planes could carry four hundred passengers, so departure lounges and concourses needed to be twice as big. The stylish restaurants and cocktail lounges of the 1960s gave way to self-service food courts and fast-food franchises, where herds of rumpled travellers waited in line to buy processed snacks.

199 Additionally, Manager ‘J’ also saw the rise in passenger through-puts within the terminal as a major issue:

They’re going to influence, in that currently we see you know, a lot of peaks… [Additionally] it’s an extended peak, there’s going to be a lot of people on the plane at once, so … it’s going to be very spiky… It’s hard for airports because we traditionally have a peak hour during the day, but you don’t want to build the resources just for that peak hour when 90 percent of the time they’re not used by us. So yes, you’ve got to have pain in those peak hours and we’ll see even more pain with it, until it starts to spread… Once you get back to the A380’s you’re
We certainly are currently working on how we can fit the A380 in here in regards to parking bays, taxiways etc… and any future planing we do we make sure now we’re planning for the A380’s such as double air bridges… to move that amount of people.

Other managers (Major Round Interview C; E; G), however, believed that the impact on Heffernan Airport would be slight. Some, like Manager ‘E’ (Major Round Interview), believed that while airports elsewhere would need to undergo restructuring, no operational or structural changes would be required at Heffernan as airlines would be unlikely to fly the A380 to a relatively small airport like Heffernan International:

Because they’re such a large aircraft and their out board engines are right over the grass area of the runway they’re going to cause us a lot of problems. We went… and had a look at what Sydney airport is preparing for, we’re not, we’re not a destination for the A380’s so all we have to do is probably have the occasional diversion so we’re, at this stage, we’re not contemplating doing any civil works to take on the A380s.

Manager ‘G’ (Major Round Interview) concurred suggesting:

We’re [The Heffernan Airport Corporation] doing very little. Because we won’t get the same numbers of A380’s. Once the width of the runway issues is sorted out, whether it’s a 45 or 60m runway… This airport is actually built to take that size aircraft, by the separation of the runways and taxiways. So what we’d have to do is put some glass protection down beside the runways. That’s to protect our asset, do a bit of work on the taxiway corners and things… And we’d use exactly the same air bridges as the terminal, a single air bridge, but downgrade the air bridges either side.

So we’d probably spend a million and a half dollars. Sydney, on the other hand, going to see more of the peaks again, before that starts to spread over the period. Yeah, we are going to experience inconvenience during those periods…
would get sustained operations of A380’s very quickly, so they’ll be spending a lot of money. Probably about 80 million [AU$]….

Alternatively, another manager (Major Round Interview C) argued that alterations to aviation regulations rather than a lack of usage at Heffernan Airport would circumvent the need for major construction works to increase the size of existing runways:

On current indications the runway’s not wide enough. They [The A380] need a 60 metre runway, we’ve got a 45 metre runway. So [instead] I would expect that the regulator here in Australia will relax those [regulations], once the aircraft has flown a bit here and we know a bit more about the airplane. They’ll [the regulators will] probably relax it back to a 45m runway, [as] the only 60m runways in Australia are military ones, in Darwin and Amberley. In [Heffernan] we could probably do with it [a 60m runway] but it’s just a huge cost involved, depending on the amount of traffic that would use it. We get what we call a concession against the standard and we put up a safety case for the [concession]… so if you’re having an aircraft operating and they say well. You put some measures in place to make sure that the safety is maintained. So we probably accommodate it that way.

At the time of writing only a handful of airports were officially certified as A380 ready. The majority of this list consisted of hub airports like those of Singapore, Hong Kong, Dubai, and Bangkok. Of the major ‘destination’ airports only Munich and Tokyo’s Narita had been certified (Done 2004: 6). With a deadline ever-approaching, pressure continues to mount on airports such as London Heathrow\(^{200}\), New York’s John F Kennedy, Los Angles International, and Sydney’s Kingford Smith to be A380 ready (Norris 2004: 8; Schofield 2004; Done 2004; Staff Reporter 2004; Lott 2004; Creedy 2005).

\(^{200}\) As the British Aviation Authority estimates that by 2016 1 in every 8 flights using Heathrow will be an A380 aircraft, it alone is expected to spend £450 million over the next ten years improving facilities to accommodate the new aircraft (Reuters 2004a).
Integrating this extraordinarily complex technology into existing airport facilities, or as Law (1994) would describe them ‘networks of the social’, is thus a major challenge for the aviation industry in general, and individual airports in particular. How this integration is achieved is a powerful and important question. Indeed, it is a question that relates not only to the specific case of the case of the A380, but also to the ways in which new technologies are integrated in the ‘networks of the social’ in general. Following Law (1994), however, there is no single ‘answer’ to this question. There are, however, stories that can be told about the integration of technology. The next two sections of this chapter will tell two stories about the integration of the A380. The first will investigate the way in which representations as a form of talk, such as scale models, figures, and official projections, guide airport managers informing them of the alterations required to integrate the new technology, while the second story will examine how speculation, conjecture, and other forms of informal discourse contribute to the integration of technology.

6F: Enterprise, Representation, and Integration of the A380

At the time of writing the first pictures of a near completed A380 being transferred from hanger to hanger were shown to the public (BBC News 2004). However, the images, while exciting for interested parties, were not as momentous as could be perhaps expected. Indeed, although the photographs of the gigantic, metallic aircraft towering over the nearby onlookers and ground vehicles were impressive, for those that had followed the A380s progression there was no sense of surprise. The images only confirmed what had been known for years. Through artist impressions, photo-realistic computer graphics, scaled drawing, reports, and press releases the
height, weight, internal and external appearance, payload, engine specifications of the A380 were already known (Airbus 2001; 2003; 2004).

Despite the competitiveness between leading manufacturers Airbus and Boeing, the secrecy surrounding the aircraft had to be relinquished years before so that regulators and airport managers were able to begin the long process of integrating this complex technology into existing systems. So when the A380 was finally unveiled in Toulouse in January 2005, there was no great expression of surprise. Industry insiders and interested parties knew what the A380 would look like because they had seen it before. They had seen the A380 not in its physical, material form but through representations. These representations of the A380 ‘spoke for the materials’ (Law 1994: 152). By ‘speaking for the materials’ (Law 1994: 152), the representations of the A380 informed designers, constructors, and users of the dimensions and specifications of the technology. The representations told stories about what the A380 would look like, how big a runway it would need, what sort of speed could it reach, how many passengers it would carry, and how much fuel it would use.

Telling these types of stories is quite a feat. However, representations, regardless of their precise form, manage to ‘simulate’, speak for, or act on behalf of complex technologies, materials, and ideas. Latour (1990: 27) regards representations, or inscriptions as he more commonly refers to them, as the key defining aspect of science, and his insights on the process of representation are particularly useful in this exploration of the integration of the A380. According to Latour (1990: 27) representations strive for ‘optical consistency’. In other words they seek to be immutable mobiles, to on one hand be consistent and accurate, and on the other to be
easily transferable and relocatable. To explain the concept further, in his text Latour (1990: 24 - 28) uses the example of cartography. In this example, a map of a distant island is presented in France. The map is both immutable and mobile. It is accurate and consistent but also mobile as it tells the story of the island no matter its location. As Latour (1990: 27 - 28) describes:

No one can smell or hear or touch Sakhalin Island, but you can look at the map and determine at which bearing you will see land when you send the next fleet. The speakers are talking to one another, feeling, hearing and touching each other, but they are now talking with many absent things presented all at once. This presence / absence is possible through the two-way connection established by these many contrivances – perspective, projection, map, logbook, etc. – that allow translation without corruption.

Nevertheless, as Latour (1990: 28 – 29, 44 - 46) explains, the power of representations as ‘optically consistent’ extends beyond their ability to be immutable mobiles. Representations have the ability to describe ‘impossibilities’, transcending the barriers not only of space but of time to describe materials that once existed or have not yet been created (Latour 1990: 28). Indeed, Latour's (1990) point is not as fanciful as first might be thought. Take for example drawings of dinosaurs, or prehistoric man, an artist’s impression of an uncompleted extension to a supermarket, the architectural designs for the new World Trade Centre in New York, or the models of the A380. All of these are representations that transcend time. Moreover, representations enable possible things to be viewed in impossible ways (Latour 1990: 28). Through representation an object can be seen from all sorts of angles. Whether from above, below, or one side or another, representations allow infinite locations from which to perceive an object. Cross-section diagrams slice through physical boundaries
highlighting internal workings. Scales can be altered so that our solar system appears on a playing card, or a single strand of DNA can be projected on a billboard.

While Latour's (1990: 52) principal interest is the use of representations in science (such as graphs, tables, stained slides, and maps), he nonetheless, also recognises the importance of representation in other fields including industrial design and construction. In exploring the role of representation in the creation of technologies, Latour (1990: 52 - 54) cites historians of engineering drawing including Baynes and Pugh (1981), and in particular Booker (1979). Through these authors a picture emerges of representation as a key component in the process of industrial design. As Latour (1990), through Booker (1979) and Baynes and Pugh (1981) shows, engineering drawings as representations enable a technology to exist on paper. In paper form a technology is far more manipulable, it can be transported seamlessly, it can be reproduced easily and accurately, alternations in design can be simulated and experimented with, and above all, a representation can act as a perfect mould; a template to construct consistent and accurate materials. As Ferdinand Redtenbacher (cited in Booker 1979: 187 - 188)201 explains:

Drawing is a means by which the mechanical engineer can represent his thoughts and ideas with clarity and distinctness that leaves nothing to be desired. A machine that has been drawn is like an ideal realisation of it, but in material that costs little and is easier to handle than iron and steel.

Redtenbacher (cited in Booker 1979: 188) goes on to describe the process whereby the initial design of technology may be scrutinised, altered, and amended. Yet, as Redtenbacher (cited in Booker 1979: 188) asserts, the benefits and applications of

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201 Part of Redtenbacher’s quote (cited in Booker 1979: 187 - 188) is also reproduced in Latour (1990: 53 - 54).
Drawings are of the upmost importance not only in planning but also for execution, since by means of them the measurements and proportions of all the parts can be so sharply and definitely determined from the beginning that when it comes to manufacture it is only necessary to imitate in the materials used for construction exactly what is shown the drawing. Every part of the machine can in general be manufactured independently of every other part; it is therefore possible to distribute the entire work among a great number of workers, and to organise the whole business of manufacture in such a manner that each job can be completed at the right time, in the most suitable position, with the least expenditure of time, money, and material, and with an accuracy and reliability which leave almost nothing to be desired.

Incredibly, Redtenbacher’s (cited in Booker 1979: 188) observations were made in 1852, at a time where the nuances of engineering drawing were still being developed, and long before Fordism or the shift to global production methods. Yet, when reading Redtenbacher’s (cited in Booker 1979: 188) perspective the design and construction of the A380 immediately comes to mind. The process of design, the computer simulations, the scaled drawings (Airbus 2004: 21- 58, 185 - 201), the models, specifications as representations that enable factories in France, the United Kingdom, and Germany as well as sub-contractors from across the globe to assemble separate and individual components with a perfect parallel symmetry (Airbus 2003) all rely on representations reliant on optical consistency (Latour 1990). Representation, for Redtenbacher (cited in Booker 1979: 188), does not just permit mass-production and economies of scale, it also enables the possibility of just-in-time production. Representations enable manufacturers to know the exact specifications for each
component, simplifying a complex technology into its constituent elements, so the mechanics testing the Rolls-Royce Trent 900 engines in Tennessee and the final assembly team in Toulouse effectively work off the same page. To use Latour's (1990) language, the ability of representation to be both immutable and mobile enables precision over distance, a precision that permits Airbus to construct the elements of the cabin in Laupheim, Germany; fuselage in Meaulte, France; the wings in Brouton, England; the doors in Puerto Real, Spain; the flaps in Stade, Germany and the cabin lighting in Buxtehude, Germany (Airbus 2003).

Nevertheless, (to return to core of the argument) representations also influence the ways in which the technology is integrated within existing systems. In short, representations (in their varied forms) are critical in the planning and design of airports to ensure that they will be A380 ready. Indeed, well before the initial services in 2006, the world’s airports will have catered for hundreds of A380 takeoffs and landings. These landings will not be conventional or physical, but rather simulated, occurring only through representation. The A380s takeoffs and landing will in fact be ‘paper airplanes’ and these paper airplanes will be taking off and landing at ‘paper airports’. Or, more accurately, they will be computer simulated planes taking off and landing at computer generated airports. Indeed, there is also some extra irony in the use of the term ‘paper airplane’. In 2003, an airbus executive, David Venz, derided their rival, Boeing’s plans to build a new aircraft known as the 7E7 Dreamliner, commenting: “it's a paper airplane, not an engineering reality… Boeing is very good at building paper airplanes.” (Hirschman 2003) While such a remark was as much about marketing and sound-bite creation as it was a well aimed stab at a corporate competitor, the choice of words becomes ridiculous when considered in this light of
the work of Latour (1990) on representation. Indeed, while Venz choose to sneer at his rival’s attempts to build a ‘paper airplane’, we have seen how essential the construction of paper airplanes (representations in the form of scale models, drawings, simulations) actually is in the design, construction, and now incorporation and integration of new technology. Indeed, despite Airbus’ boasting and belittling of their rival, the A380 for all intents and purposes, remains a paper airplane. Venz should have known better than to mock the influence of paper airplanes.

Simulations have already determined the A380’s takeoff and landing speed and weight, and in turn, these simulations have determined the aircrafts’ required runway dimensions and pavement requirement (which lead to the ICAO category F) (Airbus 2004: 88 -79, 155 - 182). Similar simulations and representations determined the capacity and layout of the cabin, culminating in the figure of 555 passengers, which lead to requirements for double air-bridges to manage the disembarkment of passengers efficiently (Airbus 2004: 25 - 57). While, additionally, another set determined the plane’s external dimensions, including wingspan, which made alterations in taxiway and aprons a necessity for virtually all airports wishing to cater for the giant, new aircraft.

Ultimately, these simulations educate and inform airports of the works required to integrate the new technology. Such is the confidence and reliance on representations in the form of artist impressions; computer simulations; models; tables; graphs; and figures that works that will cost airports tens to hundreds of millions of dollars (Major Round Interview E; Done 2004; Reuters 2004a; Staff Reporter 2004) and will commence even before the A380 has its maiden test flights (due to commence in mid
2005 (Airbus 2003). Yet, to trust these extraordinary levels of expenditure on these types of simulated data is, despite the goals of ‘optical consistency’, a substantial leap of faith for airport managers. The length of this leap, though, is reduced by the multiplicity of the sources used in acquiring information. ‘Paper airplanes’ are key tools for airport managers in the process of integrating complex technologies but they are not a sole technique. As the next section will demonstrate, informal communications are also an important information retrieval device, one that along with the other communication techniques highlighted in this document, make up a manager’s knowledge acquisition tools.

6H: Enterprise, Speculation, and the Integration of the A380

The impending arrival of the A380 has caused a considerable excitement in the aviation industry. Speculation is mixed with specifications as news agencies’ wires and industry publications report every possible development with similar zeal to Hollywood gossip magazines. News, rumour, and speculation of additional customers (both real and potential) (Wong 2003); Reuters 2004i; Reuters 2004q; Flottau 2004; Kositchotethana 2004; Reuters 2004m); potential windfalls (Associated Press 2004; Reuters 2004b; Reuters 2004g; Reuters 2004j; Reuters 2004k; Creedy 2004a); reassurances of completion (Reuters 2004e); delays (Reuters 2004d; Reuters 2004n; Reuters 2004r; Reuters 2004l); impacts on airports (Creedy 2005; Reuters 2004o; Fletcher 2004; Norris 2004); and changes in design (Reuters 2004h; Reuters 2004f; Creedy 2004b; Reuters 2004p; CNN.Com 2004) are all shipped to the desks of industry leaders and interested parties alike with astonishing speed and regularity. In relation to format these wires are very brief, usually only a few hundred words and are overwhelmingly speculative in nature, with most focusing on the comments attributed
to an industry leader or the ubiquitous ‘unnamed spokesperson’. Some reports even contradict themselves within days, as was the case with two reports produced by Reuters (2004d; 2004e). Here, the first suggested that no setbacks were expected in the delivery of craft to Air France, only to report 48 hours later that a delay would indeed occur. In some cases, the presentation of conjecture and inference as news can result in absurdly speculative reporting. For example, in one wire (Reuters 2004c), the head of Air Canada, Robert Milton, was attributed as saying that he found the 7E7, an aircraft to be produced in the near future by Airbus’ rival Boeing to be “interesting.” While hardly a definitive indication of support, this single comment was enough for agencies to speculate about Air Canada’s plans to ditch Airbus in favour of Boeing.

When confronted with these types of reports one of the first questions that comes to mind is what purpose this type of speculative discourse could serve? The answer is likely to be that there are multiple purposes, or at least, multiple interpretations. For instance, it could be argued that the reports from sources such as Reuters and Flight International raise interest and curiosity, and that this interest could have flow on effects to the share prices of the companies involved. In this perspective, the news wires are viewed as a capitalist tool that can be wielded by elites as they manipulate the world’s financial markets, playing on the paranoia of investment corporations and stock-holders. While certainly one possible explanation, this perspective seems too conspiratorial and in Law’s (1994: 12 – 13) language, too symmetrical and reductionist to be tenable in our modest sociology. It seems too easy to attribute the purpose of the news wires to that familiar capitalist scourge.
Instead, following Law (1994: 176, 180) the project proposes an alternative interpretation, which asserts that speculation and conjecture as forms of informal communication\textsuperscript{202} are modes of ordering that assist in the integration of new elements, such as technology, into existing networks of the social. In other words, this project asserts that these speculative reports assist managers in dealing with the integration of new technology, not despite, \textit{but because} of their nature as speculative and informal dialogues.

In a contemporary society dominated by speed, access to ‘instantaneous’ information has taken on a new level of importance (Eriksen 2001; Virilio 1997). Twenty-Four Hour-Dedicated-News channels such as CNN, BBC World, and Bloomberg use satellite technology to broadcast events ‘live’ on a global scale, while internet information services such as on-line ‘newspapers’ measure the age of stories in minutes rather than days. Even mobile telecommunications technologies now possess the ability to update users on events using Short Message Services (SMS) (Eriksen 2001). While such systems seem extraordinary, given the astonishing rate of progress such technologies will probably appear anachronistic in coming years. Speed rather than accuracy has become the principal goal for online news services (Eriksen 2001). Details and complex analysis in the age of ‘now’, it seems, are the responsibility of historians and possibly sociologists rather than journalists (Eriksen 2001).

Yet, in such conditions the importance of speculative reporting and instantaneous information as informal discourse for the airport’s managers becomes apparent. Formal discourse, featuring carefully structured explanations and containing

\textsuperscript{202} The role of informal communication is also explored in depth in pages 177 – 182 and 195 - 202.
information that has been reviewed and considered is too out-dated in an environment where the pace of society has quickened. The speed of decision making must match the speed of change (Law 1994: 180). Airbus' (2004) report, explored in the previous section on representation, which detailed the specifications of the A380, was years in the making. Likewise, such is the pace of change within the aviation industry that the United States General Accounting Office's (2002) report on costs to American airports reading for the A380 was out-of-date only weeks after its release. It takes time to construct formal discourse, to construct accurate representations, create tables or graphs that can ‘speak for’ the materials they represent (Law 1994: 180). This is time that airport managers do not have. The likely take-up of the new technology must be assessed so that that works can be planned and approval from legislative authorities achieved even before the long process of construction and structural alteration can begin. As Law (1994: 180) reiterates:

> It’s also that it [Formal Discourse] trails hopelessly behind. At best it tells stories about what may (perhaps) have been going on weeks or months ago… Flexibility, room for manoeuvre, discretion – the core concerns of the modern reflexive project have long since disappeared

The alternative to formal communication is informal talk. As discussed in the earlier chapter ‘Communication’ (195 - 202), Law (1994: 179 - 181) argues that informal discourse between high level elites provide a key element in the project of information gathering. In this ‘shielded’ environment, secrets can be told, rumours and innuendo reported, and wheeling and dealing exposed. As Law (1994: 180 - 181) explains:

> So intelligence-gathering is a case of reading between the lines, of picking up on hints, of detecting possible trends and changes before they become common currency. And it is verbal, it’s face-to-face, and it takes place especially between stars and
heroes who speak (I use the word advisedly) informally for, and putatively exercise discretion over, their organizations.

It is interesting though that Law (1994: 180) specifies that these informal discourses are both ‘verbal and ‘face-to-face’. In many cases these informal interactions probably do occur between elites behind closed doors, but in the contemporary era of globalisation it is also possible for these informal interactions to take on other forms. Within contemporary society more people are influenced by distant decisions than ever before. The actions of a German Court (Reuters 2004), for instance, can have repercussions for airports as distant as Sydney and Los Angles. Where the community of influence is a global community informal discourse must occur beyond the confines of face-to-face, verbal interaction that Law (1994) speaks of. Here is where informal discourse in the form of speculative and instant reporting comes into play. Through informal discourse, in the guise of instant reporting, managers worldwide can become aware of developments despite the limits imposed by Euclidean space. Instant reporting allows the remarks of the Boeing and Airbus chair or the management of the world’s leading airline chiefs to be logged and transmitted as if they were heard in the backrooms over whiskey or between golf shots at a country club. Yet, is essential to note though, the logic of informal discourse does not change, only the mode by which it is received is altered. Informal discourse though speculative and instant reporting strains towards the removal of the dualism of proximity and distance. In this way, location becomes far less important as the privilege of proximity is extended.
However, that is not to say that informal discourse in the form of speculative reporting is a panacea to a management’s ills. Indeed, the strain towards the removal of the impact of proximity and distance is not without its casualties. There are limits to what Reuters, for example, can know (and as Eriksen (2001) highlights there are limits to what we can digest). At best speculative reporting is a surrogate for the face-to-face, verbal informal contacts between elites that Law (1994) describes are so important. They don’t replace the “participative and interactive” (Law 1994: 177) elements within intelligence gathering, or subvert the importance of ‘who you know’, but informal discourses in the form of speculative reporting can provide managers with an extremely handy supplement in their arsenal of knowledge gathering tools. As Law (1994: 179 emphasis in original) asserts, informal information-gathering is especially useful in volatile industries:

This has to do with change… I’ve said it already: opportunism is the order of the day.

And the object of intelligence-gathering is to cotton on to possibilities as quickly as possible.

To reiterate, the integration of new technologies into existing networks of the social is not a singular process. Instead, managers use multiple tools to gather data, forecast, make decisions, and take the perceived readying actions required. In this light, if interpreted prudently by managers, informal discourse in the guise of speculative and instant news affords unexpected benefits and can be viewed as another important managerial tool.

Nevertheless, the extent to which informal discourses are used by managers as intelligence gathering tools is ultimately very difficult to answer. The data acquired in discussions with managers of the Heffernan Airport Corporation, however, does
point to an organisation that is at the least aware of these informal discourses and, further, may use them in combination with other sources in the planning and development of the airport. While all managers (Major Round Interview B; C; E; G; I; J) asked were aware of the A380, the overall knowledge of the aircraft, the types of knowledge possessed, and the perception of the operational impact varied significantly between managers. Nevertheless, when discussing the A380, one of the managers surveyed (Major Round Interview E) reported informal face-to-face interactions similar to those highlighted by Law (1994) as an information-gathering tool, commenting: “we went… to Sydney and had a look at what Sydney airport is preparing for.” Other managers, however, demonstrated a patchwork of knowledge about the aircraft featuring various facts, specifications, potential uses, and perceptions and opinions that often mirrored the speculative industry reporting. For instance, the similarities in the knowledge between managers’ comments and the speculative industry reporting could be viewed in comments on the required runway length (Major Round Interview B; C; E; G), impacts on passenger through-put (Major Round Interview J), likely airline customers (Major Round Interview I), and legislative requirements (Major Round Interview C). The parallels in the types of information provided combined with the presence of an extensive on-site library (which includes industry publications such as *Airport World* and *Aviation Daily* as well as electronic resources), at the very least, implies that that Heffernan Airport managers garner information from these types of informal, speculative industry publications.

6J: Materials in Summary
This chapter has told selected stories of materials as essential elements in the socio-technical assemblage known as an international airport. This chapter has focused on materials as a way to redress an imbalance contained in much sociological writing that leads to accounts of principally social interactions. As Lee and Brown (1994: 774 emphasis in original) summarise by drawing an analogy to British colonial practices:

Sociology has also consolidated itself and produced a similar temporary settlement by marking some areas of interest as outside its disciplinary boundaries. Here anything nonsocial or nonhuman, including the natural world and the world of technological artefact has been made Other.

Instead, this chapter strove to give a voice to the ‘missing masses’ described by Latour (1992) by exploring the complex interactions between ‘social’ and ‘material’ entities that together perform or enact an international airport.

In particular, this project has told stories about four materials; runway tarmac, baggage handling, conveyer belts, terminal signage, and a new type of aircraft. Yet these stories are less about the materials and more about how through the material's engagements with other entities including humans, materials, just like humans, act simultaneously as agents of, and subjects to, ordering performances. For example, the story of runway tarmac told in this chapter was not about runway tarmac per se. Instead, this story highlighted the multiplicity of materials by describing the various entities that strain to enact 'runway tarmac' as a material performance. Thus, a single mundane, reliable, and simple material was shown to be a complex and provisional material performance. Likewise, the second component in this chapter was less about baggage handling systems than it was about the way that duties and responsibilities are transferred from humans to machines and vice versa in a process Latour (1992)
calls ‘material delegation’. To achieve greater efficiency baggage handling systems are becoming increasingly automated but as this chapter notes, this automation replaces one type of ordering with another. Indeed, the third story in this chapter extended ideas of material delegation by exploring how airport terminal signage acts in one sense as an ordering device directing and influencing passenger flows and in another sense is a subject of ordering performance through provisions and standards of placement and appearance laid down by international regulators. Here, again the multifaceted and complex reality of materials as performances rather than continuos, stable things was demonstrated. Finally, through an examination of the development of the A380 aircraft, this chapter explored the complex process of planning and implementing new technologies within existing systems. The chapter discussed two methods of preparation used by airport planners for the introduction of the A380. The first employed uses material representations of the technology in the form of models and diagram to predict the likely impact of the new entity. The second tactic, in contrast, relies on speculation and industry gossip, which although less accurate, is significantly quicker, allowing the implementation of required changes in shorter timeframes.

To date this dissertation has described the operations of Heffernan International Airport through an exploration of the techniques of ordering used by the airport’s management, an analysis of the communications performances that occur an the airport, and finally an examination of the ways that materials and humans interact. In the following chapter, this dissertation will explore the ways that space is performed or enacted at the airport. This chapter will assert that airports gain their status as spaces in between (Fuller and Harley 2005), spaces of transit (Brambilla 1999), or
non-places (Augé 1995) through spatial performances that create artificial divides monitored by various types of guardians.
Chapter 7: Space

7A: Stories about Alfred

At the time of writing Steven Spielberg's (2004) latest movie *The Terminal*, was due to screen on cinemas across the world. With its release, the ‘real’ story of Mehran Karimi Nasseri, or Sir Alfred Merhan as he prefers to be called, the man who became stuck in an airport, will become known to a much wider audience than at present. Even without Spielberg’s re-telling this story is probably familiar in one way or another to many readers. The story over the years has become an urban myth, an example mentioned quickly when making a point in a lecture, or raised in polite conversation at a dinner party. With each retelling the details of story become fuzzier and the precise reasons for the man’s misfortune more unclear. Compounding the story’s fuzziness is Alfred’s own mental state, which has become progressively frailer over the years, making even his own account of the ‘facts’ leading to his circumstances questionable (Gentleman 2004). That is not to say, however, that the story is untrue. There are many reliable sources to verify that his plight is real (Gentleman 2004; Rahmanian 2000; Elaine 2004; Gottdiener 2001: 27 - 28). Most illuminating of these sources was a documentary appropriately titled *Waiting for Godot at De Gaulle* (Kouros 2000) which was aired (again) on SBS (Australia) television in June of 2004.

203 In Spielberg’s post September the 11th version the story takes place in the United States and the protagonist is not of Middle Eastern origin but a national from a fictional former Soviet country that ‘disappears’ during his flight to the United States leaving him stateless.
The most common version of the story suggests that while in Charles de Galle airport in 1988, Alfred, who was purportedly of Iranian origin, ‘lost’ his travel documentation. It is unclear, however, whether the documentation was misplaced, stolen, or destroyed in an attempt to avoid extradition or deportation. Regardless of the precise circumstances, Alfred has remained in the airport to the present day. In 1999, he refused a temporary residency permit and a refugee's passport offered by the French Government, remaining stateless, positioned in the space between nations (Gentleman 2004; Gottdiener 2001: 27 - 28). Unlike Spielberg's (2004) effort that retells the story as a series of hilarious comical ‘capers’ intermingled with Hollywood ‘heart-warming’ moments, Waiting for Godot at De Gaulle (Kouros 2000) depicts a man teetering on the edge of sanity, a man whose sense of self has not just been suspended but removed, lost like his travel documents.

Like most stories, Alfred’s story can be interpreted in multiple ways. Alfred’s plight could be, for instance, be viewed as an example of the resilience of the nation-state. In this perspective, Alfred’s condition is a product of the modern nation’s desire to maintain boundaries in the face of increasing globalisation and its partner concepts mobility, nomadism, and cosmopolitanism. This story, while entirely reasonable is not the story this project wishes to tell. However, the project will take some of the ideas from this story and rework them. Thus, there will be similarities but there will also be differences in tone, and importantly, in the final message. This story will not be about the resilience of the nation-state, but rather it will, following Law (1994: 142 - 155), contemplate the idea that space is a performance. It will explore the idea that space is an effect, an effect that creates dualisms, like national borders, that must be negotiated in order to progress through the networks of the social, or, in more
conventional terms, dualisms that must be negotiated to cross national borders like Alfred was unable to do.

**7B: Space as Performance**

In *Organizing Modernity*, Law (1994: 142 - 143) asserts that space should be thought of as an effect, performance, or process rather than a stable, constant object. What we may see as permanent and stable spatial constructions are actually only the effects of spatial performance. Space as a permanent and stable construction is an illusion, or in Law's (1994: 15, 110) terms, temporary, fleeting, “pools of order” that strain towards concrete dualisms. The impact of the strain towards spatial dualisms can be seen everywhere defining what we see as ‘normal’, spatial boundaries and ‘normal’ spatial constructions. Inside and Outside; Classroom and Playground; Surgery and Waiting Room; Workshop and Office; Airside and Landside; and Arrivals and Departures are all examples of normal spatial boundaries that are in fact the result of performances, combinations of social, technological, and mechanical orderings that have strained towards an appearance of ‘natural’, ‘normal’, and meaningful spatial boundaries.

These straining, ordering processes not only create the appearance of stable space but also construct the social meanings that we derive from a space. These ordering processes educate us of hierarchies of power, social norms, and the significance and role of the space and its inhabitants. Yet despite their power and influence (or perhaps because of it), these ordering processes that create what we view as spatial performances are rarely explicit or apparent. More often than not these ordering processes are normal, mundane, and everyday ‘things’ that we do not notice but
nonetheless, strain towards the construction of dualisms and socially meaningful space.

However to understand the significance of the social meanings of space, how these social meanings are constructed, and how space as a process impacts the organisation of systems these otherwise mundane ordering processes need to become a focus of analysis. The concept of modes of ordering is one repeated throughout this text, but it is worth reiterating that modes of ordering are diverse and may consist of technologies, materials, ideas, structural elements, communications, instructions, or procedures. As this project has shown, modes of ordering are essential to the operation of an international airport. As we shall see, however, the importance of modes of ordering extends to the creation and perception of space as an effect. So in other words, modes of ordering within the airport, such as those just mentioned, strain towards the creation of dualisms that construct our perceptions of space and spatial boundaries as effects. In this analysis, the ‘architecture’ and spatiality of the airport extends beyond the structural elements seen in the pictorial works of Brambilla (1999), Jahn (1991), Rosler (1998), Images Australia (1999), Fuller and Harley (2004) to also encompass technologies, procedures, instructions, and other modes of ordering. As Law (1994: 141 emphasis in original) explains, in reference to his examination of the Daresbury Laboratory:

In my story of architecture, the machinery and the social relations of the Lab all go together. They all perform and embody modes ordering. They’re inextricably entwined. There is no possibility of separating them out at all.
Here, however, we run into a theoretical and conceptual challenge. If we accept that space is nothing more than an effect and boundaries are a spatial performance then it becomes impossible to draw lines for analysis. In other words, if spatial boundaries are only a performance, or an illusion created by temporary pools of ordering, then our perceptions of the beginnings and ends of space become meaningless. The modes of ordering that strain towards the creation of boundaries in space connect, merge, or transgress with those of multiple others. The networks of the social and the modes of ordering that create them are infinite and infinitely unknowable. Within this theoretical framework is it even possible to speak of a spatial entity known as an airport? Perimeter fencing and signage may mark an Euclidean territory but legislatively, environmentally, politically, and socially the spatial boundaries of airport are far less clear. Even within the perimeter fencing the spatial performances become more distinct but also more complex and convoluted. The modes of ordering that create the infinite demarcations within the ‘airport space’ are themselves infinite. If, as Law (1994: 141) contends: “[T]here is no possibility of separating them out at all” then is an analysis of these modes of ordering possible?

Not surprisingly, Law (1994, 40) wrestles with this challenge in his analysis struggling to define the site of his research the Daresbury Laboratory:

Is Daresbury Laboratory a set of different and conflicting ideas or dreams of purity.
Is it a row of figures? Is it a set of scientific results? Is it a site? Is it a lot of people?
Is it a set of plans? I really don’t know what is would mean to offer a definition of what is it is. To define it would be to breach the principle of symmetry. For there are many places in the Laboratory, and many different forms of ordering

Staring into this potential conceptual abyss, Law (1994: 40 - 43) recognises that in any analysis choices must be made and parameters of study must be set. While we
must recognise that space and spatial boundaries are performances, the concepts of space and place, nonetheless, remain as useful containers for analysis as, if for no other reason, they provide concepts that we can easily digest. Law (1994: 40) is happy to acknowledge that what we might view as the laboratory is in fact: “[A] network of different places. Or, perhaps better, it is a pastiche.” Conscious of the inherent limits of a modest sociology, Law (1994: 40 - 42) elects to tell selected stories of the places in the laboratory and the modes of ordering that strain towards their creation as dualistic and meaningful spaces. He tells stories about the Machine Area, the Office Area, and the Experimental Area and the interactions, procedures, and materials that shape the existence of these spaces. In particular, however, Law (1994: 140 – 151) tells stories about the modes of ordering that perform Daresbury’s manager, Andrew Goldthorpe’s office. As Law (1994: 141) describes:

Though it’s not palatial, it’s somewhat larger and better appointed than the average office at Daresbury. But though the walls and the door are standard issue, they perform somewhat differently here: they tell of ranking, though they don’t do so by themselves. For the performance is also told by a gatekeeper, his secretary, and her presence in an ante-room. And the general absence of the lower ranks.

Law (1994: 142) argues the same material performances contribute to the performance of the space as a site of management, and that they carry with them certain social meanings, certain social constructions of power, class, and gender.

Sociologists are ever mindful of these social constructions observable in space, but they argue we often fail to observe how the combination of material, technological, social, legislative, and procedural orderings produce the spatial effects known in sociological discourse as social constructions (Law 1994). In other words, Law
(1994) contends, we ignore the mundane elements that perform space. Returning to
Andrew’s office, Law (1994:146 - 147) continues his description:

Physically, it is furnished with a version of the accoutrements that are thought
appropriate for the managing directors of large organizations in the 1990s. There is a
rather superior carpet. There is a large ‘executive desk’ with a VDU and a keyboard,
together with (one or more telephones). There are several easy chairs, grouped
around a low coffee table. And there is a conference table, with six upright but
comfortable chairs. This is not the shiny idiom of sprayed metal and plastic to be
found in lower-status offices. Instead, the predominant effect is of oiled wood and
attractive rough-textured cloth.

While Law’s (1994: 146 - 147) account may appear mundane and banal, more akin to
a furniture or real estate brochure than a sociological exploration, embedded in this
description is an analysis of the operations of the Daresbury management, and
importantly in the context of this chapter, an exploration of the way in which modes
of ordering strain towards the construction of Andrew’s office as a hierarchical,
managerial space. As Law (1994: 147) points out, the layout of the office and the
materials present, especially the furniture, tell stories about space and the hierarchies
that are performed in it. The large desk tells of individual managerial work, while the
conference table tells of communicative work with equals (Law 1994: 147).

Moreover, the layout of the office and the limited number of seats at the conference
table tells of hierarchies and exclusion (Law 1994: 147 - 149). Yet, and this is most
important point, as Law (1994: 150) explicitly informs us, the story of the Andrew’s
office tells that these social constructions, these dualisms of hierarchy and space are
an effect, an effect of spatial performance created by modes of ordering.
The contents of this chapter are divided into four main elements across seven sections. The first half of the chapter is dedicated to exploring the spatial performances that strain towards dualisms within the airport terminal. These spatial dualisms are seen to be critical in the operation of the airport, and provide it with its distinct environment as a space ‘in-between’. This first half contends that varied types of spatial performance exist within the airport terminal, each with its own benefits, weaknesses, and impacts. Moreover, these spatial performances are said to extend beyond the terminal space to infiltrate the operations of the external airport environment, impacting in the form of performances that strain towards the separation of the airport from the rest of the environment. The second half of the chapter explores other related issues of spatial performance. For instance, the section titled, ‘Time, Time Performance, and Ordering’ (301 - 310) explores the attempts to manipulate and manage clock-time within the airport environment. Moreover, in the subsequent section the idea of the airport as a non-place (Augé 1995) is critically examined. In this section, the performances that strain towards repetition, familiarity, and homogeneity within the airport are said to produce the perceptions elucidated in Augé's (1995) work. Yet, these non-place characteristics are not inherent, but are rather the result of ordering outcomes. Finally, the chapter’s final component investigates the Heffernan International Airport Management’s objective to transform the airport space into a diversified site of retail, commercial, and non-aeronautical industry elements. This section examines the process of transforming space through ordering performances like planning and zoning.

7C: The Terminal as Spatial Performance: Boundaries, Barriers, and Gates and Gatekeepers
Although Law's (1994: 140 - 151) work in *Organizing Modernity* on duality and spatiality focuses on modes of ordering that perform hierarchies and rankings in an office environment, the principles of space as an effect and the theoretical framework that he offers can also be integrated into our discussions of the operation of an international airport to provide insights into the understanding of the spatial aspects of the airport. Like Law's (1994) laboratory, the airport is full of different ‘places’, and possesses a multitude of modes of ordering that perform a wide range of dualisms. In this section, this project will explore some of these modes of ordering that perform dualisms within the airport terminal. This is not the first time that stories about the modes of ordering within the airport terminal have been told in this project. In the chapter Ordering (150 - 161), the techniques, processes, materials, and procedures used by the airport’s management to better manage flows were explored. In the chapter the management, disciplining, and regulation of agents, in particular, passengers was of principle concern. Embedded in the chapter was an understanding that modes of ordering played an important role in perform the terminal space.

However, in this chapter, this project wants to make the point explicitly that modes of ordering perform the space known as an airport terminal, and that these modes of ordering strain towards the appearance of dualisms. In particular, this section will investigate the performance of dualisms in the terminal that sociologists, and for that matter, passengers, take for granted, but nonetheless embody, enact, and perform the airport terminal space and enable an airport facility to operate efficiently. Foremost amongst these dualistic divides within an airport terminal is the spatial partition between the check-in area and the departure lounge. Although the spatial performances that divide the check-in area and the departure lounge may first appear
mundane they are critical not only to the logistics and security of the airport facility but also take form as a guarded gateway of the contemporary nation-state. Indeed, viewed within Law's (1994) theoretical framework it becomes apparent that in few other places are the impacts and paradoxes of spatial performance as clearly observable as they are in an international airport terminal. When viewed as spatial performances, the separation between check-in and departure gate appear at once artificial and somewhat arbitrary, yet definitive, powerful, and logical.

However, while Law's (1994: 140 - 151) discussion of modes of ordering and the performance of spatial dualisms is useful, his framework does not provide an especially detailed or in-depth analysis of the different forms of modes of ordering and the similarities and variations that they may possess. Reading Law (1994), all modes of ordering that perform spatial boundaries are seen to operate more or less in the same way. There is no recognition that variations in these modes of ordering may exist. However, extending Law (1994), this chapter proposes that three category types of ordering that strain towards the creation of dualisms can be observed. The three categories that have been labelled *boundaries, barriers, and gates* and *gatekeepers* feature a combination of subtle and explicit differences that allow each mode of ordering to perform space in different ways. These categories provide useful tools to describe how modes of ordering perform the spatial divides that we might variously view as concrete or porous; arbitrary or defined; material or social. In line with the principles of a modest sociology, when categorising the modes of ordering there is no privileging of human actors (Latour 1988; 1992; Law 1991; 1992; 1994; Law and Hetherington 2000). Material agents may act as ‘gatekeepers’ or ‘boundaries’, just as human agents may. The variation in the modes of ordering
categories is based on the way that they perform space. In effect membership of each category is determined by how effective each mode of ordering is at straining towards a spatial dualism.

The first mode of ordering that strains towards spatial dualism between an international airports’ check-in area and the departure lounge can be labelled barriers. Despite recognising the principles of ‘modest sociology’ (Law 1994), it seems fair to suggest that barriers are almost exclusively structural and material in form. Barriers perform spatial divisions physically and materially. They take form as walls, fences, barricades, and screens straining towards the separation, division, and classification of spaces. Barriers are more effective at straining towards dualisms than their counterparts. As a physical obstacle, they are less likely to permit agents to pass into or through to the next network of the social. Barriers, however, are never able to achieve a perfect division. Without maintenance, walls over time deteriorate and crumble cancelling the division\(^{204}\). Some barriers can be scaled, or broken, or destroyed through force. Indeed, some agents, like gasses, may be able to penetrate the barrier rendering any spatial separation nonexistent. With these limitations barriers cannot operate independently requiring surveillance and ‘guarding’. As Law (1994: 102 emphasis in original) explains: “[Durability – materiality – are themselves relational effects. Concrete walls are solid while they are maintained and patrolled.” Nevertheless, despite these limitations barriers provide a very useful mode of ordering. Compared to boundaries and gates and gatekeepers, barriers are relatively cheap and effective. Moreover, depending on their material makeup and design barriers can be very flexible in their spatial performance. For example,

\(^{204}\) In the context of airports a recent and tragic example of barriers deteriorating over time occurred at Charles de Gaulle Airport when part of a terminal ceiling collapsed (Reuters 2004). Ceilings, just like walls, strain towards spatial divisions but cannot provide permanent, total, or complete spatial divide.
transparent screens can permit vision but still restrict access, while barriers of different shapes and sizes can permit some agents but not others. At Heffernan International Airport specifically, such barriers as a method of spatial performance are used to separate the ‘sterile’ customs and immigration processing area and the ‘freedom’ of the airport’s arrivals hall. Here, a gigantic white wall as a powerful and durable physical barrier divides the ‘nowhere’ of customs and immigration processing area and legitimate Australian soil. As a formidable physical division, for arriving passengers the wall serves as an (unintentional) reminder of the regulation of global air-travel. Before returning to their loved ones or embarking on their dream holiday or lucrative business endeavour they must pass through the corridors that strain to monitor, regulate, and order global flows.

Secondly, unlike barriers, boundaries do not incorporate physical or material divisions to strive towards spatial dualisms. Instead, boundaries operate through a combination of social norms, perceptions, and collective understandings to demarcate space. However, like barriers, boundaries are commonplace and can be viewed in the form of markings, signs, text, and symbols. Boundaries are so ubiquitous that we are rarely conscious of them. Countless train passengers, for example, stand to attention behind the line that demarcates the safe position on a railway platform waiting for their trains to arrive. Understandably, few passengers stop to think that this marker as a type of boundary is an ordering construct working towards a spatial dualism that divides a safe zone from an unsafe zone. Boundaries are also very common in the international airport terminal, straining towards dualisms that separate the check-in and departure lounge. For instance, terminal signage (Appendix 2: 356; Appendix 3: 357) does not only assist in the management of flows but also communicates information about
spatial divisions. In the context of an airport, signage creates dualisms regarding where and where not it is appropriate to smoke; which bathrooms are provided for each gender; where the check-in facilities for each carrier are located; and even where the territorial boundaries of the nation-state commence and end. At Heffernan, examples of these divisions that strive towards spatial dualisms can be seen. Signage displayed on the Flight Information Display Board (Appendix 2: 356) divides the airport departure wing into North Concourse and South Concourse. Through the creation of these spatial performances, passengers travelling on flights boarding from a particular gate are directed to either the North or South Concourse.

Thus, as ‘signification devices’ (Barthes 1979) these signage-boundaries rely on actors to perceive, interpret, and understand the information communicated. If an actor fails to correctly understand the sign, then the boundary it demarcates will become, at least for that actor, nonexistent. However, as highlighted in the earlier chapter ‘Materials’ (234 - 240), the likelihood of misinterpretation of international terminal signage is reduced significantly through international regulation (Erhart 1995; International Civil Aviation Organization 1995; United States Department of Transportation: Federal Aviation Administration 2003; World Tourism Organisation 2001). Indeed, defiance rather than ignorance by actors represents a more significant limitation on the effectiveness of boundaries as modes of spatial performance. To return to the example of the train platform, for every passenger that obeys, many fail to heed the yellow line’s warning. Like the barriers described above, boundaries are never impermeable. Despite the imposition of controlling devices such as social norms, guidelines, rules, laws, and regulations boundaries are never able to produce absolute spatial distinctions. Nevertheless, the ability of boundaries to work towards
the creation of temporary spatial dualisms should not be underestimated. Norms and
signs operate within a powerful logic of implicit self-discipline and education
(Foucault 1977) and governed by this logic we are likely to unknowingly accept the
spatial dualisms performed by boundaries as definitive rather than as constructions.

Finally, gates and gatekeepers as the third categories of modes of ordering that strain
towards spatial dualisms are so intrinsically interlinked that separating them entirely
for discussion is a rather futile and counterproductive activity. Although they perform
different roles, gates and gatekeepers work in tandem performing spatial divisions. In
sum, one cannot operate without the other. In terms of porousness and permeance,
gates (and their keepers) fit in-between barriers and boundaries. As the name
suggests, gates are capable of offering resistance (and possibly preventing) actors that
fail to meet the requirements monitored and enforced by their gatekeeper. However,
when these requirements are met, gates lose much of their mystique becoming mere
indicators like boundaries. The idea of gates and gatekeepers might initially appear
quite foreign conjuring up images of trolls living under bridges, or the hidden
passageway in the Arabian Nights tale which required the words, ‘open sesame,’ but
in fact gates and gatekeepers are a very common form of mode of spatial ordering that
we encounter, often without realising, almost everyday. Indeed, any time we use a
key on a locked door we are engaging with gates and gatekeepers. Without
specifically mentioning boundaries, barriers, and gates and gatekeepers Latour (1988:
298 - 299), in his quirky but classic jab at human-centred sociology, highlights the
problems of barriers and boundaries and the benefits of door as gates:

    Walls are a nice invention, but if there were no holes in them, there would be no way
to get in or out; they would be mausoleums or tombs. The problem is that if you
make holes in the walls, anything and anyone can get in and out (bear, visitors, dust, rats, noise). So architects invented this hybrid: a hole wall, often called a door, which, although common enough has always struck me as a miracle of technology.

Latour's (1988) discussion is also particularly pertinent because he explores the role of the door-closer which in this paper’s vocabulary can be understood as the gatekeeper. In Latour's (1988: 300) paper, the door-closer is delegated the responsibility to manage the ‘gate’ ensuring that door can be opened and that the door will close once the user has entered. However, the gatekeeper / door closer must be monitored and disciplined to ensure that it does its job properly (Latour 1988: 300 - 392).

Returning to the Heffernan International airport, quarantine sniffer dogs and their handlers indicate that the parameters for gates and gatekeepers extend beyond materials and humans and into the animal world. As the example of sniffer dogs hints, the airport terminal possesses an array of noteworthy, and occasionally fascinating, gates and gatekeepers. Indeed, it could be argued that few other organisations are as reliant on gates and gatekeepers as modes of ordering as an international airport. Moving through Heffernan’s terminal is an exercise in dealing with the ‘trolls’ that live under the bridge. From the confirmation of ticketing at the check-in desk and the receipt of a boarding pass; the clearing of customs and immigration; initial security checks (processes that are reversed at some airports); additional subsequent security checks (most often in flights involving United States airlines); the scanning or otherwise checking of the boarding pass; to the final boarding pass check by the flight attendant, an airline passenger must engage with multiple gates and gatekeepers before they can enjoy the benefits of global mobility. Evidently, a similar, albeit reversed, routine awaits passengers at their destination. In
the language of Actor Network Theory the gates and gatekeepers act as a physical obligatory point of passage (Latour 1988: 302).

Moreover, gates and gatekeepers, like boundaries and barriers, perform space and create the appearance of spatial dualisms. Taken together gates and gatekeepers, boundaries, and barriers work towards making spatial partitions and divisions in the airport. They categorise and define space constructing the functional areas described by Manager ‘A’ (Major Round Interview) that are so important to the airport’s self-monitoring. Unlike boundaries and barriers, however, gates and their keepers possess an extra ability to determine who or what can pass into the next network of the social. With the ability to determine who or what can pass the ability to determine who cannot pass occurs. With the advent of gates and gatekeepers a need develops for keys and ‘magic’ passwords to unlock the door and enable movement through the networks of the social. This is the next story; a story about the tools used to open the gates and please the gatekeepers.

7D: Tools of Transition, Travel Documents as Immutable Mobiles

Recalling this chapter’s opening story, Alfred did not have the key to open the gate at Charles de Galle airport in 1988. He did not possess the magic password that would enable him to reveal the artificial illusion of spatial dualisms constructed by the immigration desk that separates one part of the terminal from another and the airport from the remainder of the nation-state. If we accept the conventional telling of the story, Alfred became a prisoner of the gates and gatekeepers. In Alfred’s case the required missing key was valid travel documentation. He had no passport and visa to
open the gates that lay before him. By failing to possess a valid passport and visa this project asserts that Alfred lacked the necessary *tools of transition*.

Tools of transition act as the magic password that forces the gatekeeper to open their gates, and enable the actor to progress through the networks of the social. They are often common, everyday, and mundane devices, but they are nonetheless and paradoxically, special and extraordinary collectively possessing the useful characteristic of being both immutable and mobile. As discussed in the chapter Materials (246 - 253), Callon (1986), Latour (1990; 1992), and Law (1986; 1994) use the term ‘immutable mobile’ to describe a range of actors that possess the ability to be stable and operational through transition. While the term ‘immutable mobiles’ is useful to many applications, Law (1986) and Latour (1990; 1992) have often employed the concept more specially to explore those immutable mobile actors that enable transition through space, networks, and systems. It is these particular types of immutable mobiles that this project wishes to investigate within the new guise of tools of transition.

The power and flexibility of the concept of tools of transition or immutable mobiles has seen it be taken to some quite unusual places by theorists working within the broad parameters of Actor Network Theory and Science and Technology Studies. In Law’s (1986) classic paper, for example, the innovations of the 15th and 16th-century Portuguese Naval Fleet, such as navigational aids and new types of vessels are presented as tools for transition that enable the Portuguese sailors to ‘unlock’ and ‘pass through’ the gate/gatekeeper posed by the Indian Ocean and its fickle winds. As

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205 See for example the discussion of representations in the chapter ‘Materials’ pages 246 - 253.
Law (1986: 236 - 241) explains, the Portuguese’s favoured vessel, the Carrack, was strong, durable, and mobile, able to resist most attack from pirates and foreign fleets. Yet the Carrack alone was a tool of transition capable of crossing the expanses of the Indian Ocean. Even with such a powerful ship the Mediaeval Mediterranean navigation technologies used by the Portuguese at the time were not sufficiently sophisticated as to allow safe, reliable passage in ‘uncharted’ waters (Law 1986: 241 - 243). In effect, the old navigational techniques that had worked in the clear and relatively calm Mediterranean were not immutable when transported to the Indian Ocean. They had failed as a tool of transition.

However, salvation arrived with the advent of new technologies of navigation such as the astrolabe and the quadrant. When combined with systematic training (a point emphasised by Law (1986: 248 - 251) these new navigation aids became simple and effective tools of transition that enabled the Portuguese to ‘unlock’ the Indian Ocean. The new navigational aids achieved this success because they were immutable and mobile in the ways that the old systems had not been. As Law (1986: 245 emphasis in Original) explained, these small and relatively simple devices provided accurate readings across space:

By the later 1480s their mariners were using not only the Pole Star (which could be used only in the northern hemisphere) but also measuring the altura of the Sun and the Southern Cross as an aid to navigation.

Over five hundred years later, travel documentation in the form of passports and visas have long overtaken these now-archaic naval navigational aids as the principal ‘gate-opener’ to become an ubiquitous symbol of the enablement of global mobility.
As Torpey (2000) and O'Byrne (2001) discuss in their histories of travel documentation, the passport as a necessary tool of transition is a product of the modern nation-state. From its beginnings in France in the 17th and 18th centuries\textsuperscript{206} to its rise in the 19th century and beyond, the passport and the nation-state possess a shared and interconnected history (Torpey 2000: 2). In sum, it could be argued that the rise of the modern nation-state and travel documentation go hand-in-hand. Yet, despite the evolutions of the nation-state, following the onset of globalisation processes and more recently the development of Machine Readable travel documents (International Civil Aviation Organization 1994; 1999; 2002), the logic and operations of travel documents has changed remarkably little since the introduction of the first Australian Passport in 1916\textsuperscript{207}. Indeed, regardless of the massive changes to the overall speed and magnitude of contemporary global mobility, travel documentation continues to operate within the same logic of reading, recognition, and confirmation. It is the repetition of this simple logic that enables travel documents to be an immutable mobile, and thus, an effective tool of transition. In spite of the destination and the barriers of culture, language, and even technology, the worldwide procedures of processing a passport are virtually identical. In ports globally, the same system of verifying identity through initial visual checks of the passport photo are followed by the entering and cataloguing of a passport number, country code, and surname. In this remarkably simple system the identity of the passenger as well as their entitlement to enter the territory is determined by a cross-referencing with international databases. In other words, through a process of reading, recognition, and confirmation the

\textsuperscript{206} O'Byrne (2001: 400) traces the origins of the passport to 11th century Spain in the form of the \textit{guidaticum}. The term \textit{guidaticum} derived from the Arabic word for ‘friendship’ was employed to guarantee the holder safe passage. O'Byrne's (2001: 400) failure to elaborate on the \textit{guidaticum} suggests that it was nothing more than an exceptional fore-runner to the modern passport.

\textsuperscript{207} The 1916 passport was introduced following the \textit{War Precautions Act 1914 – 1915}. The Australian government would later create the first \textit{Passports Act} in 1920 which was later repealed to make way for a revised 1938 version (Department of Foreign Affairs and Trade 2001).
passport becomes a tool of transition. Here, remarkable parallels can be observed between the operation of contemporary travel documentation and the Portuguese navigation instruments of old. In both systems, mobility and immutability are maintained through the retention of a system that uses simple but accurate processes of recognition that are easily extendable across time and space. Like the Portuguese navigator cross-referencing their findings with charts and mathematical tables (Law 1986: 253), the immigration officer combines initial observation with further checking and cataloguing. Reading, recognition, and confirmation create a simple, accurate, and repeatable system that possesses the treasured characteristics of being both immutable and mobile.

However, for the travel document processing system to be both immutable and mobile so must the documents themselves. In short, passports, visas, and other documentation must be compact and easily transportable but also stable, standardised, regulated, and unalterable. As with other elements in the regulation of global aviation the responsibility of ensuring that travel documents remain reliable and effective tools of transition falls to ICAO. ICAO’s regulation of travel documentation was originally mandated by the then League of Nations in Annex 9 of the Chicago Convention (International Civil Aviation Organization 1999: I-2), and is addressed in the three-part Document 9303 (International Civil Aviation Organization 1994; 1999; 2002). In these documents, ICAO spells out the technical and physical specifications and characteristics as well as the necessary content that all travel documents require. For example, Part I: Machine Readable Passports (International Civil Aviation Organization 1999: III-1) lists numerous required physical characteristics including resistance to humidity, temperature fluctuations, and light. In a later section, ICAO
(1999: III-3 – III-7) specifies the required type-face, mandating the use of Latin script, as well as specifying the required dimensions of the holder’s portrait. Meanwhile, examples of the recommended layout and required fields are provided as samples in International Civil Aviation Organization (1999: IV-26 IV-34) documentation. Through this attention to detail and their attempted standardisation of design, format, and content the International Civil Aviation Organization (1994; 1999; 2002) is striving to make travel documents the perfect tools of transition, the perfect immutable and mobile that may act as key or password to unlock the regulated gates of the nation-state. One particularly strange, perhaps subconscious or entirely coincidental, illustration of this striving for perfection can be found in the (International Civil Aviation Organization's (1999; 2002) sample documents. In these sample documents, the dummy holder’s nationality is curiously listed as ‘UTOPIAN’ and their place of birth as ‘ZENITH’ (International Civil Aviation Organization 1999: IV–31 – IV - 33; 2002: V-5-1, V-E-3). However, as Law (1994: 5, 15) reiterates, the determination to achieve perfection is an unattainable goal. Pure order is impossible. No device, process, procedure, or agent can be entirely immutable or mobile and as a result there is no perfect tool of transition. As reliable as their vessels and navigational systems were, the Portuguese Navy would still regularly lose ships, and equally, forgery, incorrect data, errors in entry and manufacture (among many other possible failings) prevent travel documentation from achieving the impossible ‘utopian’ goal of pure order208.

Tragically, for Alfred, like the Portuguese vessels that became lost and sunk, his travel documentation failed to meet the requirements of immutable mobility.

208 That is not to say that agencies will not strive for perfection. For example, in their annual report Passports Australia (2002: 28 -29; 2003: 29) catalogue the numbers and reasons for each failure in manufacture.
Depending on the version of events, Alfred’s documentation was either, not sufficiently mobile (if the version that he misplaced them or they were stolen is accepted), or not sufficiently immutable (if the alternative version that he destroyed them is accepted). Probably the quirkiest, albeit totally fictitious, version of the story is contained in Spielberg's (2004) re-telling of the Alfred story. In *The Terminal*, Spielberg's (2004) hero’s home country ‘vanishes’ overnight because of a military coup. His passport immediately ceases to be immutable because the essential data of his homeland contained in the passport becomes unrecognisable. Such instances demonstrate the fallibility of immutable mobiles. As Law (1994: 102) points out texts, such as passports, are not a perfect tool of transition:

They can be burned, lost, or misinterpreted… [but] they tend to travel well and they last well if they are properly looked after… Texts order only if they are not destroyed *en route*, and there is someone at the other end who will read them and order her conduct accordingly.

So on one hand, Alfred’s story can be seen as a story about the failures of tools of transition and immutable mobiles. Alfred’s travel documents were unable to act as a key or magic password to unlock the ‘gates’ performed by the French immigration authorities. Like a stranded Portuguese Carrack with broken sails and unreliable navigation instruments, without the necessary working tools of transition, Alfred remained trapped in a spatial performance of gates and barriers.

While the fallibility of tools of translation is one lesson that can be learned from this story there are other possible conclusions from these stories about Alfred, spatial performances, and tools of transition. For instance, when considered in conjunction with the notion that space is a performance and borders are only an effect caused by modes of spatial ordering such as barriers, boundaries, and gates and gatekeepers,
Alfred’s story provides a powerful case for those advocating the plight of asylum seekers and stateless individuals. Travel documents, which previously might have been viewed as ‘natural’ and ‘omnipresent’, can instead be understood as ‘necessary’ tool of transition only because of the arbitrary spatial performances of the modern nation-state that result in the gates we know as international borders. As O'Byrne (2001: 411- 413) explains, historically, there has been a recognition of the artificiality of national divisions. For example, Article 13 (2) of the United Nations' (1948) *Universal Declaration of Human Rights* mandates that all individuals have “[T]he right to leave any country, including his own, and to return to his country.” The belief that national borders are only performances or effects has lead to the questioning of the legitimacy of the requirement for nation-based travel documentation and even to attempts to establish a ‘world passport’ (O'Byrne 2001: 412 - 413). As O'Byrne (2001: 413) explains, the values of the ‘world passport’ is predicated on the perceived:

[R]ight of people to travel, to cross borders and escape persecution… It is a document intended to neutralise the power of border officials, countering the violations of human rights which occur because of the alleged need for passports and visas… The philosophy which underpins it, though, is that there should be no need for passports at all… The presence, and use, of the world passport is by its nature a critical challenge to the assumptions made and the structures that in exist in the world.

However, in practice national borders, despite their artificiality, are a powerful and resilient spatial performance, and one that ‘strains’ more successfully toward achieving duality than most. In particular, the stories of Alfred, tools of translation, and spatial performances demonstrate that while for the holder, travel documents (or other tools of translation) are a device that enables movement, for governors and
managers, tools of translation are ordering devices used to govern, control, discipline, and order ‘at a distance’ (Law 1986). As O'Byrne (2001: 403) describes:

The passport is a political tool because it allows an administrative body to discriminate in terms of who can and who cannot travel in its name.

In the following section this project will explore this ‘counter side’ to tools of translation further by highlighting how tools of translation are used by actors in the airport to ‘govern at distance’ and how this long distance control contributes to the efficient running of the airport that in turn enables global mobility.

7E Tools of Transition and Governing at a Distance

From the outset it must be made clear that the governing at a distance is not necessarily the insidious manipulation that the term might first imply. Governing at a distance is essentially an exercise in influence that can equally create good, bad, or indifferent outcomes. An exploration of governing at a distance within the framework inspired by Actor Network Theory, like those conducted by Law (1986), Latour (1990), and Kendall (1997), does not concern itself primarily with the ethics of the use of power, but instead investigates how the techniques and processes of long distance control contribute to the establishment and management of systems. So in this discussion of the tools of transition in the airport, questions of legitimacy explored briefly above must be left aside and instead the focus of the chapter should be on how the tools of transition within the airport allow certain actors to exercise long distance control and how these governing apparatuses enable the airport to run efficiently.
If ‘knowledge is power’ then the process of exercising power at distance, to, in other words, govern at a distance, is reliant on the ability to garner information through surveillance and other means of retrieval and classification. In theory, the process of control through the garnering information may seem simple. However, the challenge for potential governors of systems (be they managers, politicians, royalty, or military commanders) is how to retrieve accurate information at distance, and additionally, once that information has been processed, how to execute orders that will effect the required changes. While convenient, the adage ‘knowledge is power’ oversimplifies the processes of governing at a distance. Although knowledge is fundamental to exercising influence, equally important are the mechanisms and strategies that permit the retrieval of information and the exercising of successful commands (Foucault 1977). In other words, to understand the process of ordering, social scientists must understand the mechanisms of ordering like gates and gatekeepers and the tools of transition used to unlock them. Put even more precisely, this section strains to understand, using the theoretical tools provided by Law (1986; 1994) and Latour (1990) how, in the context of the airport, travel documents permit authorities to govern at a distance.

Following Law (1986; 1994) and Latour (1990), this section will argue that travel documentation as a tool of transition permits governing at distance via a three stage process\textsuperscript{209}. In particular, travel documentation functions as an apparatus for long distance control by first, acting as a reservoir for information about the user, secondly, operating as an immutable mobile and thus remaining effective over space, and

\textsuperscript{209} Like previous sections on tarmac and baggage handling, this section discusses travel documentation as immutable mobiles generally rather than their specific usage at Heffernan. As this section will demonstrate, the use of travel documentation has strong commonalities across the globe. As such the references made in this section to the processing of travel documentation are akin to those at Heffernan and are applicable in this study of Heffernan International Airport’s operations.
finally, in combination with installation of gates, forcing users to transit through manageable and regulable obligatory points of passage.

Expanding further on these attributes, first, travel documentation provides governors with a powerful knowledge gathering and retaining device\textsuperscript{210}. Passports and visas perform identity in an easily readable and transparent form. Age, physical appearance, nationality, sex (if not gender), locations of previous travels, and purported purpose of current visit are all disclosed in a document as digestible as a supermarket shopping list. In short, the passport and visa provide a snapshot of classifiable identity. From this ready-made surveillance, classifications and decisions can be made by the gatekeepers. Is the user a ‘person of interest’? Do the patterns of sex, age, and travel history classify them as an individual who is more or less likely to be a drug trafficker, terrorist, or ‘illegal alien’ than the next passenger in the queue? Through the passport the difficult and complex self is simplified. The complex and difficult self is transformed into an inscription that can be easily understood maintaining its optical consistency (Latour 1990: 36 - 37).

Indeed, as a source and storage for classifiable knowledge and statistics about populations, travel documentation can be viewed as a contemporary example of Foucault's (1975; 1977) concept of ‘biopower’ (Hacking 1991; Ransom 1997: 60 - 63). ‘Biopower’, for Foucault (1975; 1977), was the strategic combination of ‘science’, statistical knowledge, and policy directed by 19\textsuperscript{th}-century rulers to deal with the wave of problems (particularly health related) experienced by populations in the new metropolises of Western Europe. Knowledge in the form of statistical data was

\textsuperscript{210} For a critical account of the evolution apparatuses of surveillance see Parenti (2003: 13 - 43).
critical in the management of populations. Studies of life expectancy, diet, crime, and fertility established normal and deviant behaviours and determined ‘solutions’ to assist the population (Ransom 1997: 60 - 64). Like travel documents, these scientific and medical studies sought to classify and label populations. Through classification, standards can be established for ‘normality’. ‘Normal’ passports may be permitted to transfer through the gates while ‘deviant’ passports may not. Knowledge of populations and the ability to classify, it would seem, provides the first step in controlling and ordering populations211.

Yet knowledge alone cannot provide a guarantee of governance over distance. In summary, the scope of influence of the modes of ordering must be increased. Here, the ability of travel documents to be both immutable and mobile comes to the aid of potential governors. So, secondly, the ability of travel documents to be immutable and mobile that makes passports and visas tools of transition, also makes travel documentation an apparatus of long distance control. Or, in other words, immutable mobility constitutes the ‘long distance’ component in long distance control. As an

211 While Foucault’s (1991) recognition of the importance of statistical knowledge in ordering populations can be useful in explaining the role of travel documentation as apparatuses of long distance control there are limitations to the applicability of the work. Foucault suggested that this combination of knowledge and policy amounted to new form of power. This new form of power, collectively known as ‘liberal governance’ sought to control and manage populations not with brute force but rather with complex techniques of discipline and regulation. Foucault’s (1965; 1975; 1977; 1991) then revolutionary investigations of the development of institutions such as the prison, school, and asylum challenged older Marxist perspectives, arguing instead that power was exercised through largely invisible regimes of discipline and control that favoured a reshaping of individuals actions through self-management and self-discipline. When employed successfully Foucault (1965; 1975; 1977; 1991) argued, these liberal forms of governance could achieve the management of populations through the individual’s management of their own self. Techniques of liberal governance are common in an airport. For instance, as we have seen in the chapter “Ordering” queues and other forms of ‘boundaries’ (see the section on boundaries as spatial performance above) rely on control through the discipline and regulation of the self. However, in sum, boundaries and their accompanying regimes of liberal governance are not sufficiently durable to resist those eager to cross national borders. Like the boundary line that distinguishes the safe area at on a railway platform, a border in the form of a demarcation is too porous. Instead, a combination of barriers in the form of walls and screens and gates and gatekeepers in the guise of immigration and customs guard the performance of the dualism that separates the departure lounge from the rest of the airport.
immutable mobile, the snapshot of identity contained in travel documents remains stable through transit. Regardless of the holder’s position globally in the network of mobility, international regulations, agreements, and standardisations of design result in uniformity across spatial distance.

Indeed, passport stamps from distant places not only are symbols of the ritual of travel (O'Byrne 2001: 403) they also demonstrate the uniformity of travel document processing worldwide. Whether in Bahrain, Beijing, or Barbados a traveller’s passports and visas will be processed in an (approximately) identical fashion ensuring the distance of control spans continents that encompass the entire global network of international aviation.

However, global conformity in relation to travel documents, and the long distance control that it enables, is not only the product of documents and the international agreements, but is also the result of immigration and customs officials in each country processing uniformly. Only if the immigration officers across the world are abiding by the same system will the global system maintain its integrity and immutable mobility. Law (1986: 251 - 258) makes the same point when discussing the Portuguese Navy, arguing that a combination of documents, devices, and ‘drilled people’ contributed to the success of the Portuguese’s gigantic naval empire. As Law (1986: 253) explains, the Portuguese government could be confident in the fidelity and competency of their sailors:

[F]irst because of the structural envelope in which they were placed, and second because they themselves embodied a great deal of previous effort.
This previous effort took the shape of extensive training which sought to simplify each complex process that was required to be undertaken in navigating the vessel (Law 1986: 253 - 254).

Similarly, immigration and customs officials must also undergo a training program prior to the commencement of their position, where all their required duties, procedures, and actions are governed and carefully managed through manuals and near-military precision. So like Law's (1986: 254) Portuguese Navy, the success of travel documentation as a mode of ordering that enables governing at a distance is determined in part by “documents, devices and drilled people.” By relying on documents, devices, and drilled people governors gain long distance control through a process of delegation (Law 1986; Law and Hetherington 2000). Or in other words through durability, mobility, and training, the actors acquire ‘fidelity’ (Kendall 1997). As Law and Hetherington (2000: 41) explain:

> If the King of Portugal or Vasco da Gama had been obliged to subdue the Indians alone and with bare hands they would not have been up to the task. Delegation, then, is something which works through a series of tiers. It is an arrangement in which you push the levers and something happens, something that magnifies itself in the next stage, and then again.

The ability to delegate through the use of immutable mobiles (or in this particular case, tools of transition) is a defining characteristic of managers. ‘Powerful’ actors, or at least durable and reliant actors, are able to call upon an array of resources to govern at a distance (Latour 1986; Law 1997). For example, the manager of Daresbury Laboratory, explored in Law's (1994) *Organizing Modernity*, has a range of reliable actors such as computer spread-sheets and reports as well as other managers and staff that he can manipulate and manoeuvre in ordering the operations of the laboratory.
point out, however, some ‘governors’ are not so lucky and thus their scope of
influence is dramatically reduced. In particular, Callon and Latour (1981: 281 - 284)
illustrate the importance of delegation to long distance control by exploring the
ordering techniques used by baboons. Unlike Daresbury’s manager Andrew, the
leader of the baboon troop does not have a range of materials, technologies, and other
actors to administer his territory. As Law and Mol (1995: 275) explains the lack of
instruments of long distance control make the baboon leader’s role extremely
difficult:

[I]’s pretty tough-going at the top, because nothing stays in place for very long. 
Sure, the head baboon can intimidate the smaller male baboons in face-to-face
interaction. And he may convince the females that they should mate with him. But
the moment his back is turned his dominance is under threat.

So for the baboon guarding his territory is a constant physical and immediate battle. 
The leader of the baboon has no system of travel documentation nor any barriers or
gates or gatekeepers to manage the borders of his troop’s land. He has no opportunity
to delegate and thus his ability to govern at a distance is drastically weakened. Still as
Law and Mol (1995: 276) explains:

But (this is the point of the story) people aren’t like baboons. They deal in both social
and technical relations; they produce (and simultaneously shape) scientific
knowledge, economies, industrial structures, and technologies. They are, as the
jargon puts it, heterogeneous engineers, or engineer-sociologists.
Likewise, the managers of global mobility through delegation to documentation,
devices, and drilled people have an advantage over the baboon in regards to their
ability to manage the spatial performances. Or, as Latour (1986: 276) describes:

\[212\] The baboon society Callon and Latour (1981) discusses is patriarchal.
‘Power’ is now transferred to the many resources used to strengthen the bonds. The power of a manager may now be obtained by a long series of telephone calls, record-keeping, walls, clothes and machines.

Despite the baboon’s impressive displays of strength and dexterity combined with the force and speed of powerful jaws he alone is simply not as effective as a delegated material system of “walls and written contracts,” (Callon and Latour 1981: 284) and “prison[s],..., bayonets, files, or secret police,” (Law and Mol 1995: 276) or, to put in squarely within the context of the airport, passports, visas, incoming passenger cards, immigration checks, and border guards.

Yet, even with delegation, the quest for long distance control is not complete. For while stable travel documents and drilled and disciplined immigration officials might be ready to regulate and order the networks of global mobility they face the impossible task of being omnipresent to deal with the movements of all the world’s people across nations. That problem exists until barriers and gates are incorporated to steer travellers through ‘obligatory points of passage’ (Law and Hetherington 2000), where they must present their travel documentation for classification and review. This creation of borders and gates as obligatory points of passage is the third feature of travel documentation as a mode of long distance control.

The concept of ‘obligatory points of passage’ was originally used by (Callon 1986) to describe a point of intersection within a network. An obligatory point of passage can be defined as the point in any network that must be traversed in order to progress. In Callon's (1986: 206) work, this point of intersection was a question about sea scallops important to three different groups. However, more recent Actor Network
Theory-inspired texts have used Callon's (1986) concept to explore the governing of networks of the social, and in particular, how obligatory points of passage act as ‘centres’ in systems of long distance control. Law and Hetherington (2000: 37 - 39), for instance, argue that Andrew Goldthorpe becomes an unavoidable node in the network of Daresbury Laboratory by placing himself in a position where information is streamed to him constantly via reports, meetings, and electronic updates. As Law and Hetherington (2000: 37) elaborate:

We may think of Andrew, then, not just as a man but more specifically as a knowing location. Or a point of surveillance. But he’s only a point of surveillance – he only knows – because he is at the right place in a network of materially heterogeneous elements.

An obligatory point of passage is a powerful position. It is a panoptical position where ordering and governing at a distance are made possible (Law and Hetherington 2000). Ideally from his vantage point, nothing related to the management of the laboratory should escape Andrew’s ‘gaze’ (Foucault 1975). As an obligatory point of passage Andrew strains towards becoming an unavoidable, inescapable, and inevitable centre of knowing (Law 1997). Likewise within the airport, barriers and gates that strain towards the creation of dualisms also work towards the creation of unavoidable obligatory points of passage. Through the layout of the terminal and the structural effects created by walls, screens, and escalators the ‘gates’ of customs and immigration become unavoidable. As the images of the terminal recorded by Rosler (1998: 81, 86, 88, 93, 97, 99) and Brambilla (1999: 8, 11, 19) testify, international passengers are funnelled by capillary like pathways that lead them through the airport’s various “functional areas” (Major Round Interview A). This layout is no

Indeed, the use of obligatory points of passage to siphon passengers past the ‘gaze’ of customs and immigration staff is no exception at Heffernan. As mentioned earlier, passengers arriving at Heffernan must pass through a network of various customs queues. Which queue a passenger must take is first decided by whether the passenger in question is an Australian passport holder or not. Following this initial siphoning, customs officials record a mysterious (at least to non-customs officials) code on the passengers incoming passenger card (itself another immutable mobile) that directs later customs officials in the chain to possible alerts. Departing passengers at Heffernan too face a similar linear progression. Indeed, in the case of departing passengers the siphoning past customs at Heffernan is even more distinct as departing passengers leave the airline counters and are lowered down escalators to a deliberate customs bottleneck.

213 For a commentary on the layout of terminals see pages 150 - 161.
Nevertheless, there are limitations to the power of obligatory points. Andrew cannot know all that occurs in the laboratory (Law and Hetherington 2000), and likewise, customs and immigration cannot manage all trans-national flows. Certainly, transitions by people via other means may avoid the gates, rendering the spatial performances void. However, for those using the network of global air-travel, the gates that strain towards the creation of dualisms between nations are inevitable. In order to govern the networks of air-travel there is no need for customs and immigration to be omnipresent because through the logic of obligatory points they are located exactly where they need to be. Through this privileged position the regulators of the air-travel networks can observe and govern at a distance, confident in the knowledge that their spatial performances of gates and barriers and governed by tools of transition should stand firm.

7F: Environment, Ordering, and Spatial Performance

So far this chapter has focused on spatial performances within the airport terminal. However, an international airport consists of more than just its terminals. As a gargantuan combination of terminals, hangers, runways, and airside approach and run-off areas an international airport leaves an indelible mark on a city landscape. From above and on approach to Heffernan International Airport, the green fields, dry low-level scrubland, and mangrove wetlands that surround the main runway dwarf the nearby suburbs. Normally otherwise massive constructions such as suburban shopping malls, housing estates become miniaturised in comparison to the airport’s expanses.
The dwarfing of the nearby cityscape, however, is not simply a romantic illusion created by the experience of flight. The Heffernan International Airport complex covers some 2,700 hectares (Preliminary Round Interview 1; Preliminary Round Interview 4). In comparison space-restricted Sydney Airport only occupies 900 hectares (Preliminary Round Interview 1). Yet, the greater portion of Heffernan Airport is unseen and therefore forgotten by the public. Only a tiny fraction can be observed from the tree-lined motorway that transports travellers to the separate international and domestic terminals. For the most part, airport maintenance and security teams are the only people to observe the airport’s varied environment of bushland scrub and mangrove coastal terrain.

The spatial relationship between the airport and its surrounding environment is a complex and sociologically interesting one. Indeed, that we may choose to speak of the ‘surrounding environment’ and ‘airport’ as separate entities is in itself peculiar. As we saw in the case of the airport terminal, spatial divisions and dualisms are performances, actions of modes of ordering that strain towards definable borders through the use of barriers, boundaries, gates and gatekeepers. Indeed, there is no reason to suspect that outside the terminal these laws of spatial performance are any different. As indicated, from above the Heffernan Airport is a ‘pastiche’ (Law 1994: 40). It is a spectacular and largely inseparable ‘mess’ of man-made structures and wilderness comprising grasslands, wetlands, concrete, and tarmac. Yet, through modes of ordering, a constant battle is waged by airport managers to strain towards spatial dualisms that separate the environment from the remainder of the airport facility. These modes of ordering, in effect, attempt to draw lines between the environment and the rest of the airport.
The spatial performances that work towards separation are important for airport managers because, in general, and despite their indivisibility, airports and the environment do not coexist well. The complex and unpredictable nature of the environment can play havoc with the precision tasks of landing and taking-off aircraft efficiently and safely. Weather, as well as flora, and fauna can grind even the biggest airports to halt. While adverse weather conditions, particularly in the Northern Hemisphere winter, are a predictable and somewhat manageable event (Kazda and Caves 2000: 197 - 218; de Neufville and Odoni 2003: 390; Horonjeff and McKelvey 1994: 596; Dempsey 2000: 395), some environmental interventions are far less predictable. For instance, in July of 2004, concerns were raised regarding the operations at Nice Airport when a swarm of locusts invaded the airport (Agence France-Presse 2004). Similarly, in 1995, at Cape Canaveral (a facility that shares some common characteristics with international airports), the launch of the NASA Space Shuttle ‘Discovery’ was infamously delayed due to the activities of woodpeckers who punched holes through the exterior foam sidings of the shuttle’s fuel tanks (Guterl 1996: 28).

To limit the impact or regularity of such incidents, airport administrators use a range of modes of ordering to manage the environment through spatial performances that strive towards a segregation of airport and the surrounding environment. Typical of the performances by the Heffernan Airport Corporation that attempt to separate the airport from the environment is their management of birds. Birds provide a safety and commercial threat to airports, airlines, and passengers (de Neufville and Odoni 2003: 210 - 211;) Kazda and Caves 2000: 339 - 341; Dempsey 2000: 210 - 211). Indeed,
while a single bird strike is evidently fatal to the bird concerned, such incidents can also cause hundreds of thousands of dollars damage to an aircraft’s engines and even force the aircraft into emergency procedures (Kazda and Caves 2000: 340). Unfortunately, too, with their wide open spaces, lack of human interference and activity, and at many airports, regular fresh water and suitable nesting positions, most airports provide an ideal ecosystem for various species of birds. Heffernan International Airport, with its vast mangrove wetlands, is no exception attracting many forms of water birds including the relatively large cormorant (Global Operations Flight Information Resource 2004) and ibis (Webb 2004).

In response to the challenge posed by bird strikes, airport managers employ various techniques to discourage birds from roosting. As explored in depth by Kazda and Caves (2000: 339 - 348) and by the United States Federal Aviation Administration report, Wildlife Hazard Management at Airports (Cleary and Dolbeer 1999: 89 - 112) the techniques for deterrence used by airports worldwide are wide ranging and include audio repellents, through the use of propane cannons, ‘electronic noise-generating systems’, and pyrotechnics; visual repellents in the form of fast-moving ground vehicles and variants on scarecrows such as balloons or predatory bird effigies, and occasional lethal measures through the use of toxins and firearms. In regards to the specific techniques employed at Heffernan Airport, Manager ‘B’ (Major Round Interview) provided these insights:

[We] use firearms, right, and this is to manage birds. Manage birds, not destroy them, manage [them]. Try and scare them off… [and if in the process] you may have to destroy a bird because that keeps them away for a little bit longer than you know, just making a noise.
These deterrents, first and foremost, strain towards the creation of a boundary as spatial performance through the ordering of the airport’s resident birdlife. This boundary, like those that occur in the terminal explored before, is entirely artificial, it is only a temporary product of modes of ordering. Indeed, it could be argued that deterrents such as noise generators perform spatial dualisms identically to those that govern human movements such as the yellow line marked on a railway platform or signs that direct patrons through a terminal. Both the yellow line and the noise generator operate with the same logic that strains towards the creation of boundaries as artificial spatial dualisms. Unlike barriers and gates, which use mainly physical and material separations, boundaries operate less visibly to govern and order actors through norms, and in this particular case, the application of deterrents. However, like the techniques used in the terminal, these spatial performances are never complete. Birds become acclimatised to the visual or auditory deterrents (Cleary and Dolbeer 1999; Kazda and Caves 2000: 344) rendering the spatially constructed division between the airport and the environment once again void. Thus, the performance of spatial divisions within the airport is on-going. New modes of ordering such as the current experiments with grass lengths and species being trialled at the Heffernan International Airport (Webb 2004) are regularly experimented with at airports internationally (Cleary and Dolbeer 1999: 97), as administrators and scientists attempt to find improved ways of reinforcing the spatial segregation.

Whether by manipulations of grass types, walls, officials, or coloured lines airport administrations seek to perform space and enact spatial divides that aid in their attempts to control the potential madness of an international airport. These spatial performances make international airports spaces marked by divisions and strategic
separations (Fuller and Harley 2005). Indeed, through the administrators’ ordering performances perhaps no space, with the exception of a prison, is as marked by spatial divisions as an international airport. Nevertheless, as the next section shall argue, it is not only space that is manipulated, managed, and performed within the idiosyncratic world of the international airport. Indeed, the following section shall argue that time as well as space is performed and enacted in international airports.

7G: Time, Time Performance, and Ordering

Time can be a complex, elusive, and overwhelming concept. On one hand, time is seemingly infinite, yet it is also infinitely measurable. As well as our own internal ‘body-clocks’ we possess an array of artificial devices to determine and calculate time. On the other hand, time verges on the unperceivable, invisible to the senses, it seems to be omnipresent yet fleeting and ephemeral (Urry 2000: 105; Elias 1992: 1). Time’s complexities are at the heart of physics but also span philosophy and metaphysics. From Aristotle, to Galileo, Newton, and Einstein, science’s greatest have sought to understand the intricacies of time. Their knowledge contests and the subsequent theoretical evolutions of the understanding of time are notoriously complex, but are captured and reevaluated for a general audience in Hawking's (1988) legendary A Brief History of Time.

However, this paper is not interested in exploring the essence or true meaning of time. Instead, this project will focus on time as it is enacted in the networks of the social. In particular, it is interested in the orderings that perform the measurement and experience of time. Like space, the project will argue, our experience and perception of time are educated and informed by modes of ordering. Indeed, similarly to their
spatial counterparts, these modes of ordering, while perpetually incomplete, strain towards creating time-performances that inform our social reality. Moreover, like the orderings of space, performances of time are critical to the successful operations of an international airport and to the management of global air-travel system more generally.

As previous accounts of time within the social sciences have recognised, multiple systems of time are enacted and performed within society (Adam 1990; 1995; Urry 2000: 111 - 113; Smith 2003a). The project wishes to argue then, leaving aside the heady debates of Quantum physics and Relativity Theories (Hawking 1988), that while time can be more or less regarded as a constant, measurements and perceptions of time can be manipulated, twisted, or to use Smith's (2003a: 568) terms, folded and unfolded in an attempt to create certain social circumstances and realities. These systems of time ordering are varied and multiple and, as multifarious, strain towards different productions of time experience.

Yet, orderings of time, once again like orderings of space, are so ubiquitous that we rarely perceive them as performances of time. Any measure of time is an ordering or performance of time. Years; months; weeks; days; minutes; seconds; microseconds; nanoseconds are all artificial divisions yet they are critical to coordination of contemporary society (Urry 2000: 108). Many feel naked without their watch (or

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214 I would like to thank Steve Jender for his contribution which allowed me to 'decipher' some of the scientific discourse on time.
215 As Urry (2000: 108) notes:

No other animal appears to have adopted the week as temporal unit; or to have developed a unit so independent of astronomic divisions. The seven day week derives from the Babylonians who in turn influenced the Judaic conception of the week consisting of six days plus the Sabbath. There have been various unsuccessful attempts to change the length of the week – such as in post-revolutionary France after 1789 which a decimal ten day week and in the Soviet Union with a five day week.
increasingly the clock contained in a person’s mobile phone) because they feel that their lives require the guidance or governance of the orderings of clock-time. As Adam (1995: 26 - 27) points out, humanity has since the earliest first forms of civilisation sought to order time. The ‘time’ of the Ancient Celts, Mayan, Romans, and Chinese was not the ‘modern’ industrial clock-time that we know so well today, but was instead tuned to the ‘natural’ rhythms of the solar system and seasons, providing the necessary accuracy to govern their fairly localised and agrarian environments.

Nevertheless, gradually in European monasteries (particularly influenced by the teachings of St Benedict of Nursia) alternative modes of time ordering developed that privileged routine and habit through the adherence to timetables and schedules. The rise of this standardisation in practice through the ordering of time was noted by Weber (1992: 118, 154) in his *The Protestant Ethic and the Spirit of Capitalism*, while Foucault (1977: 154) also recognised the shift as an example of the ascendency of governmentality (Adam 1995: 65; Urry 2000: 109). Indeed, as capitalism in Europe in the 18th and 19th centuries grew so did the manipulations and orderings of ‘clock-time’. Urry (2000: 108) writing on Thompson (1967) suggests:

> [A]n orientation to time, rather than to task or social activities, becomes the crucial characteristic of industrial capitalist societies.

Such a new orientation to time is illustrated by Adam (1995) in the example of modern education practices. As Adam (1995: 60 - 61) describes with the example of the education system, performances of clock-time are critical in the regulation and ordering of the students’ (and teachers’) behaviours:
The time of clocks and calendars, of minutes, hours, days and years, is unquestionably the dominant time experience in contemporary Western… It is this universalised, decontextualised and quantitative time which underpins the physical structuring of Western education: bells, buzzers and preset units of lesson times, timetables and schedules, all of which function as time structures, as parameters within which pupils study and educators teach, record, review, and plan. These artefactual devices thus constitute a framework for the explicit organization of education time.

Moreover, in extreme cases, such as the embracing of Taylorist ‘Time and Motion Studies’ (Spender 1996: 11), this manipulation of time performances was transformed into near-obsessions that bore more than a passing resemblance to the attempts of pure order attacked by Law (1994: 4 - 5) in Organizing Modernity. However, the manipulations and ordering of industrial clock-time were still localised. Travellers in 19th-century Britain (Urry 2000: 111) and the United States (Adam 1995: 113) were confronted with a myriad of local times. Such local variation led to circumstances that we now would find quite absurd, such as a Great Western Railway timetable in 1841 cited by Urry (2000: 111) which explained to passengers:

London time is kept at all the stations on the railway, which is about 4 minutes earlier than Reading time; 5 minutes before Cirencester time; 8 minutes before Chippenham time; and 14 minutes before Bridgewater time.

Yet, as connections across nations and beyond grew, moves were initiated to standardise global time (Adam 1995: 113 - 114). Principal amongst these time performances were the efforts to establish a system of global time zones. In 1884, following considerable and often difficult negotiations at the International Meridian Conference, Greenwich, on the outskirts of London, was nominated as ‘Zero
Meridian’, and a global system on 24 equal time zones initiated (Adam 1995: 113 -
ordering performance was still imperfect. By July 1st 1913, the day designated to
signify the coordination of global time through the use of a radio signal from the
Eiffel tower, many nations including some in Western Europe such as Ireland (1916),
Greece (1916), and Finland (1921) were yet to conform (Howse 1980: 154 - 155).
Incredibly, the Dutch only conformed to the standards of Greenwich Meridian after
the German invasion of 1940, and the system of GMT was only officially recognised
by the Dutch parliament in 1956 (Howse 1980: 156). The creation of a standardised
global time system through the Greenwich Meridian and subsequently the
introduction of the International Dateline (which according to Howse (1980: 163) is
surprisingly not governed formally by any international agreements) was an essential
initial global time-performance that would permit further manipulations and orderings
of time within the world of international airports and global air-travel.

To return to the focus of this project, airports are not the timeless places portrayed by
Rosler (1998), Brambilla (1999), and Fuller and Harley (2004). When they
occasionally appear to be ‘timeless’, this property is certainly the product of
temporary pools of successful ordering (Law 1994). Airports are dominated by the
restraints and performances of time. As Dempsey (2000: 406) describes, the
governing of an airport can be generalised as:

[A] combination of time in the air, time in the airport, and time on the ground getting
to or from the airport.

Like the time performances of the Benedictine Monks, airport administrators
incorporate an array of orderings of clock-time to govern an airport’s operations. As
we have already seen (130 - 135) the efficiency of an airport’s various functional areas (Major Round Interview A; Preliminary Round Interview 1) are measured, standardised, and governed by their performance vis-à-vis standards established by ICAO, IATA, regional regulatory authorities, or by the administrators of the airport or airlines (de Neufville and Odoni 2003: 640, 853). Yet, the airport’s performances of clock-time strain towards routine, as well as efficiency. Maintenance regimes are established through the airport’s Computerised Maintenance System, or CMMS\textsuperscript{216}. As Manager ‘E’ (Major Round Interview) explained:

[The CMMS] identifies assets and identifies the work that has to be done by the assets. So you’ll get a job planned with the assets and the CMMS actually programs the maintenance in and does the schedule.

By establishing set routines for maintenance, such as the mowing of grass (Preliminary Round Interview 2), the CMMS, like the bells and timetables in Adam’s (1995: 60 - 61) classrooms, governs the actions of airport employees based on the performances of a specific clock-time. Without timetabling and scheduling the airport would be thrown into disorder (Horonjeff and McKelvey 1994: 311). For example, the already difficult task of ordering departing and arriving aircraft experienced by Air Traffic Controllers would be rendered virtually impossible with disastrous consequences. Like the many other ‘orderings’ discussed in this project, the orderings of time at the airport enable its existence.

However, it is not sufficient to say that airports are simply dominated or governed by performances of ‘time’. Time within the airport (as outside the airport) is not

\textsuperscript{216} What the extra M in ‘CMMS’ stands for is unclear. As the term was recorded several times in the interview it seems fairly certain that the extra ‘M’ was not a simply slip of the tongue or a transcribing error. Possible alternative acronyms that feature the extra ‘M’ include Computerised Maintenance Management System or Computerised Maintenance Monitoring System.
singular, but rather multiple and varied (Smith 2003a: 568). As Thrift (1998: 55) (cited in Smith 2003a: 568) explains, numerous times can be performed simultaneously “in different ways in different places [and] according to different purposes.” Latour (1993: 74 - 76) makes a similar point when he points out that individuals experience various ‘times’ at once. As Latour (1993: 74 - 75) explains:

Time is not a general framework but a provisional result of the connection among entities… I may use an electric drill, but I also use a hammer. The former is thirty-five years old, the latter hundreds of thousands… As Peguy’s Clio said, and as Michel Serres repeats, ‘we are exchangers and brewers of time.’

If time is multiple and fluid, we often live varied times at once. Our minds constantly flick from the present to the past, and to consider the future. Through global connections too, we can experience varied time performances that transcend distance. For example, many blurry-eyed sports devotees ‘live’ both local and international times, as they stay up all night watching major championships such as the Olympics and Football World Cup on television.217 Likewise, airport administrators, in cooperation with airlines, instigate various modes of ordering time within the airport that strain towards the creation of multiple and varied time performances. These manipulations of time are incorporated in attempts to work towards synchronisation with the networks of global mobility and coordinate the operations of the airport to achieve efficiency and safety. Time in the airport is thus not singular but varied and multiple. Local clock-times are performed, to be sure, but through the interconnections of global mobility, international clock-times of airports around the world must also be integrated. Operating without curfew (Preliminary Round Interview 1; Preliminary Round Interview 2; Major Round Interview 1; Major Round Interview 2; Major Round Interview 2).

217 Indeed, during the 2002 Football World Cup some governments and businesses in China, Mexico, and Brazil altered the operational hours of shops and schools in a time performance designed to temporarily synchronise themselves with the host venues of Japan and South Korea.
Interview J), Heffernan airport is able to function continuously ‘around the clock’, performing its own manipulated local clock-time to temporarily and artificially synchronise itself with the local-clock times of Singapore, Los Angeles, Auckland, and Perth to name only a few\(^{218}\).

Still, the airport’s orderings and manipulations time to match global systems are not easy, absolute, or seamless. As Leyshon and Thrift (1997) and Thrift (1992) demonstrate in their examinations of international financial networks, global systems that manipulate local clock-time to operate continuously require enormous and constant monitoring and ordering. The belief propagated in some accounts of globalisation (Makimoto and Manners 1997) that these systems seamlessly transcend and subvert the boundaries of time and space is misleading. As Smith (2003b: 567) discussing Leyshon and Thrift's (1997) findings argues:

In fact, global monetary networks of both the past and the present are not frictionless or necessarily fast. What networks do require is constant work and maintenance by the actants in that network who collectively carve out (and measure) a multitude of times and spaces for financial transactions that may or may not conform to popular expectations.

In sum, ordering time is a difficult, complex, and never-ending process. While airports may perform multiple and varied times, these times may not necessarily be compatible. Global universal times and the local-clock times can clash. As Wells (1994: 400 - 401) points out, with the advent of GMT and Universal Time, the challenges in manipulating time become particularly evident in the planning and

\(^{218}\) For a general commentary on the impacts and possibilities of continual operation in urban environments see Kreitzmann (1999).
scheduling of aircraft arrivals and departures. Hours are lost and gained leading to arrivals and departures at unusual and therefore unpopular times. While continuous operation may curb the load experienced at peak, it correspondingly increases an airport’s costs, as personal and equipment are mobilised for extended periods (Wells 1994: 402). Moreover, for an international airport, embedded as it is within the networks of air-travel and intrinsically tied to the operations of its compatriot airports, the challenges of time-zones are compounded when non-curfew airports are forced to accommodate those that possess operational limitations (Preliminary Round Interview 3). As one manager (Preliminary Round Interview 3) commented, the operational limitations of one airport can flow through the entire network to have wide implications for flight scheduling:

There are constraints at other airports, the feeder airports overseas, there’s slot constraints, but there’s curfews, there’s all sorts of things.

Such constraints demonstrate the limitations of ordering time. Despite the performances and manipulations of time that temporarily suspend distance delays, bad weather, and countless other unforeseeable factors will render the orderings incomplete and send reverberations across the networks of global mobility. Yet, the best demonstration of the competition between multiple times apparent in the networks of air-travel might be ‘jetlag’ (McGuigan 1999: 125 - 126; Gottdiener 2001: 128 - 132). Jetlag is the physical embodiment of the incompleteness global time-performance. Here, our bodies’ internal time performances (Adam 1995: 45 - 48) clash and compete with the clock-time performances of the world of global mobility and air-travel.
These manipulations of time performances within an international airport that lead to the enactment of multiple, simultaneous times shape the appearance of airport terminals. Time is central to the operations of an airport and the emphasis on time is demonstrated by the proliferation of markers of time most notably clocks and timetables (Appendix 2: 356). Strangely though, in airport imagery (Fuller and Harley 2005; Brambilla 1999; Rosler 1998; Edwards 1998; Pearman 2004) the airport as a ‘social’ space appears devoid of time. These images tell the story of the airport as a non-place (Augé 1995), an ‘other’ space that is strangely different but familiar. The airport as non-place (Augé 1995) is one of the most powerful and popular descriptions within sociological writing on the international airport and the following chapter will explore the spatial performances that have led writers (and photographers) to describe international airports as unique spaces apart.

7H: Non-Place, Repetition, and Terminal Space

So, to leave the concept of time behind and return directly to space, the airport has often been viewed in academic works (Fuller 2003; Fuller and Harley 2004; Rosler 1998; Brambilla 1999) and beyond as a special kind of space, one that is familiar yet alien. For example, in the controversial but unquestionably socially aware film219 *Fight Club* (Fincher 1999), the world of air travel and mobility is presented in a typically (for the film) dark and disturbing manner:

You wake up at SeaTac, SFO, LAX. You wake up at O’Hare, Dallas Ft Worth, BWI. Pacific, Mountain, Central. Lose an hour, gain an hour.

In this instance, the airport is presented as a copy of a copy. Place, being, identity, and time have no relevance; they are paralysed in a void of endless repetition. The

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219 The original book (Palahniuk 1999) tells a more or less the same story although the description is broken over several pages intermingled with elements of the plot.
narration in the film has parallels with Baudrillard (1983)\textsuperscript{220}, but is also reminiscent of another French social thinker, Augé (1995). The idea of the airport as a space where experience is reduced to, or perhaps produced as, simulation is prevalent within airport literature from varied disciplines (Gottdiener 2001; Berman 1986; Brambilla 1999; Rosler 1998; Fuller 2003; Makimoto and Manners 1997; Castells 1996; Iyer 2000: 43; Rowley and Slack 1999; De Botton 2002; Ritzer 2004). In these texts, the airport is depicted as separate from reality, an almost transcendental nowhere, or ‘in between’ world shaped only by the markers of mass consumption and the occasional watered-down injection of local culture (Augé 1995). As Iyer (2000: 43) describes:

A modern airport is based on the assumption that everyone’s from somewhere else, and so in need of something he can recognize to make him feel at home; it becomes, therefore, an anthology of generic spaces.

The vision of the airport as endless sameness is also captured by Rayner cited in (Gottdiener 2001: 59) when he writes:

As airports become cyberized and malled up, the downtown cities they serve become increasingly redundant to the business traveller. Travel will be reduced to an essence of inoffensive white space: the airport, the airplane, the airport, the airplane, the airport again.

\textsuperscript{220} While it is unclear whether Palahniuk (1999) was explicitly aware (or for that matter inspired) by Baudrillard’s (1983) writing, both authors tell stories of a sinister world where mass media and consumption have resulted in a sensory overload that strains the traditional meanings of reality. In Baudrillard’s (1983) text this overload is referred to as ‘Third order simulation’ or ‘hyper-reality’ (Lane 2000: 86 - 87; Gane 1991: 99). According to Baudrillard (1983) through an overdose of signification, particularly in the domain of mass media and advertising, the conventional boundaries of semiotics explored by de Saussure (1959) and Barthes (1979) have imploded. The connections between signifier, signified, and sign have become detached, in the process losing their reference points from which they derived their meaning. Free floating signifiers replace clear stable meaning. Everything in hyper-reality is a copy of a copy; of a copy; of an original that may or may not have existed in the first place. The Gulf War (Baudrillard 1995), Disneyland, and Watergate (Baudrillard 1983: 26) are all presented as examples of simulacra, a merging of image, sign, reality, and repetition that ushers in new forms of reality (Butler 1999: 23) where the conventional notions of experience have been subverted, or at least, radically altered (Ritzer 1997: 95 - 99; Lane 2000: 83 - 100).
Although the airport as a different form of space has been described variously by authors as a ‘transitory space’ (Rosler 1998; Brambilla 1999), or as part of the ‘space of flows’ (Castells 1996) it is the concept of the airport as a ‘non-place’ (Augé 1995) that has especially shaped social theory’s depiction of the airport terminal. From Augé (1995), the image of the airport as a placeless, soulless, and homogeneous space becomes almost inescapable.

Augé's (1995) vision of non-places opens with an account of man’s journey from Paris to Bangkok. The traveller starts his journey on a massive motorway that leads to the airport, and on the way he must pay a toll-machine, withdraw currency from an Automatic Teller Machine, buy a parking ticket, before checking-in and depositing his baggage, clearing customs, and waiting in the gigantic departure lounge for his flight to board. The story told by Augé (1995) is remarkably familiar. Yet Augé (1995) argues it also depicts the rise of new form of space, non-place, that he asserts has emerged from processes of ‘supermodernity’ to exemplify the contemporary spatial landscape. Non-places, Augé (1995) contends, can be witnessed not only in the form of airports, but other ‘travelling spaces’ such as railway stations, and hotel lobbies, as well as, other spaces like highway service stations and supermarkets. Augé's (1995) traveller journeyed through a homogeneous, formless, and seamless space. The interactions he experienced when dealing with airline employees or ATMs were mechanical and impersonal. He was, at one level, anonymous, but paradoxically, this anonymity and solitude could only be achieved from the proving of his identity through documentation.
Yet as appealing as this rendition appears, a more modest sociological account of this story can be told. As a whole Augé's (1995) work is too immodest. In particular, to label a space a non-place or transitory space, to proclaim that it possesses a specific identity precludes all other possibilities (Kendall and Wickham 2001: 156 - 157). Instead, this project wishes to instigate a modest sociology of verbs that recognises the performance rather than identity of a space (Law 1994: 103, 155). In particular, it wishes to assert that the homogeneity, lack of authenticity, and impersonality identified by Augé (1995) as instances of non-place can be better interpreted as modes of ordering that strain towards routine and repetition.

In the pursuit of safety and efficiency, the governors and administrators of airports attempt to make the operations of global mobility as predicable, routine, uniform, and repeatable as possible. Through these modes of ordering only an appearance of the sameness and homogeneity discussed by Augé (1995) is created. The theme that modes of ordering strive towards standardisation and regulation has been the central concern within this project, and instances and examples of them within the airport are varied. For example, routine and repetition as modes of ordering can be observed in the airport through attempts to standardise and regulate travel documentation (Department of Foreign Affairs and Trade 2001), terminal lighting (Major Round Interview C; E), the marking of runways and taxiways (Horonjeff and McKelvey 1994: 678) (Kazda and Caves 2000: 43 - 49) (Major Round Interview I), air traffic control (Sanne 1999) (Gras et al. 1994) (Suchman 1993) (Harper and Hughes 1993), and the way that aircraft are refuelled (Kazda and Caves 2000: 135) to name only a few. These orderings establish routine by governing subjects across spatial

221 See also the commentary on Augé's (1995) work on pages 62 - 70.
boundaries. Subjects become drilled (Law 1986) and communication, whether by NOTAMs, air traffic control exchanges, of the scripts by aircraft personnel at check-in or in-flight at takeoff, become predictable, reliable, and in Augé's (1995) eyes, impersonal. Through this ‘administrative discourse’ (Law 1994: 75 - 77) efficiency and safety are strived for through the elimination of variation.

However, the key point is that these modes of ordering do not make a space uniform, mechanical, impersonal, or homogenous by default but that they may contribute to a sensation that the experience of being in the space is familiar. In other words, repetition is a product not of the space but of the experience of that space\(^{222}\). Thus, with each experience the associated familiarity and awareness grows. For frequent flyers like Augé's (1995) traveller, Makimoto and Manners' (1997) global nomads, Castells' (1996) business elites, or Fight Club’s (Palahniuk 1999; Fincher 1999) unnamed narrator, this familiarity can quickly transform into the monotony and tedium depicted further in the accounts of contemporary air travel found in Gottdiener (2001) and Berman (1986). Likewise, for those who fly rarely the potential monotony of the experience of air-travel is far less evident. To return to the specific accounts discussed earlier, Augé's (1995) traveller had, in all likelihood, travelled down that superhighway en-route to the airport many times before. Similarly, he had used an automatic teller machine countless times and encountered the impersonal but efficient script of check-in every time he had flown. The experiences he encountered were familiar, repetitious, and unproblematic leading to the illusionary sensation that the spaces he had travelled through had been stripped of their authenticity and essence.

\(^{222}\) A similar criticism of Augé's (1995) theory of non-place is made by Martinotti (1999: 170) who contends that we may feel empathy with the concept of non-places because we are so regularly engage with the spaces such as airports and subway stations that Augé (1995) classifies as non-places.
Likewise, our own engagements with non-place are actually a product of countless repeatable modes of ordering. For instance, the sensation of familiarity or déjà vu is caused, in part, because we follow predictable routines of ordering. In other words, our own habitual orderings, combined with the regulations of service standards conducted by corporate enterprises, the standardisations of lighting governed by ICAO, and the repetition of principles of design contribute to the sensation of non-place. In sum, it is not the airport as a space that is familiar but instead actions of actors that are routine, predictable, and homogenous.

However, the modes of ordering used by airport administrators are imperfect and incomplete (Law 1994: 4). Indeed, when examined more closely the airports as spaces are far more heterogeneous than some writers (Augé 1995; Castells 1996; Fuller and Harley 2004; Brambilla 1999; Rosler 1998) suggest. For instance, there is ample room within the parameters of the International School of Architecture for variation and design. The architectural works of Gensler Airports(2004), Jahn (1991), Images Australia (1999, and Fell (1994), for example, showcase the many ways that spatial forms within the airport can be manipulated whilst still complying with international standards. Meanwhile, as seen in the chapter ‘Ordering’ (144 - 150), the internal layout of an airport terminal’s functional areas, if not the procedures themselves, can be manipulated by airport managers and planners to suit local conditions. For airport managers establishing difference with their competitors is a key to their commercial success. In discussions (Preliminary Round Interview 5; 6), and in other more public forums (Heffernan Airport Corporation 2003), the airport’s management strove to identify advantageous local variations as one manager described (Preliminary Round Interview 5):
Heaps! Heaps… Twenty four hour operation, in other words, no curfew, which can be very important for flights that have to arrive at all times of the night or day. Huge land bank, lots of opportunities for development. We are reasonably low cost, compared to the others... We’ve got moderate facilities, which helps cost wise because of operating costs [and even more]… other things.

For the managers and administrator of the airport, homogeneity and sameness were not characteristics attributable to the airport, as Manager ‘B’ (Major Round Interview) explained:

Airports around the world are alike. Untrue! To what extent do airports worldwide find similar systems and ways of doing things… Well it’s mostly it’s just the procedures that are common, IATA, ICAO, and the local civil aviation organizations have in common and that’s basically where it ends because everything else is different.

It would be unwise too, to underestimate the extent that culture, and thus cultural variation, can seep into the airport particularly through the presence of local agents. Unlike the image portrayed by Augé (1995) and Castells (1996) the airport is not a vacuum or self-contained ‘bio-sphere’ cut off entirely from the rest of the world. To be sure, travellers as non-experts may not notice the subtle variations in procedure, layout, or architectural design that distinguish the world’s airports, but as a social space the cultural variations experienced between airports in Singapore, London, New York, Lagos, and Frankfurt, for instance, seem undeniable. These cultural variations are not only the result of size and scale as they can be observed in comparable spaces, such as a bathroom, where the magnitude of the airport is largely unknowable. These are social differences that permeate the airport in the languages spoken, the clothing worn, the religious and spiritual customs observable, and the micro-sociological
elements such as body language and pace that inform us where we are in the world. In Bangkok airport, Augé's (1995) traveller would not only have glimpsed Thai culture in form of the orchid seller but would have been immersed to some extent in it as he wandered through the airport’s concourses. Although this experience is watered-down, and in many instances consumer capital attempts to package it symbolically and virtually, in every interaction, nevertheless, the traveller would have the foreignism of his destination reaffirmed.

7I: Diversified Space and the Future of Airports

[Heffernan] Airport Corporation Limited has a clear vision for [Heffernan] Airport, not only as a premier gateway airport, but as a centre of regional economic growth generating prosperity… That vision is the evolution of an Airport City. (Heffernan Airport Corporation 2003: 1)

This opening statement located in the Heffernan Airport’s 2003 Master Plan clearly spells out the airport administration’s vision for the future of the airport. According to the Heffernan Airport Corporation (Major Round Interview E; Major Round Interview F) the goal of creating an ‘Airport City,’ represents a shift, or at least, a diversification in the envisioned role and function of airports within contemporary cities. The ‘business’ of airports, it seems, may have altered. No longer solely interested in the landing and taking-off of aircraft and the facilitation of the global air-travel networks airports now seek multiplicity and variation in their corporate interests and functions (Graham 2001: 140 - 177). Within this vision of the ‘Airport City’ the singularity of core business is replaced by an embracing of multiplicity and an extension of the airport functions to encompass:

For a discussion of the cultural variations experienced in airport from an airport management perspective see de Neufville and Odoni (2003: 38 - 49)
Retail offices, [a] golf course, visitor’s centre, hotels, mixed-use business facilities, offices, direct factory outlets, homemaker’s centre, tourism outlets, health centres, cafes and dining facilities. (Heffernan Airport Corporation 2003: 177)

Such diversification does, at one level, make good business sense. As one respondent (Major Round Interview G) noted emphatically:

There’s no money in taking off and landing aeroplanes, we get 65% of our revenue from commercial property. And that’s what keeps the company going.

Within the evidently unpredictable aviation industry a diversification in the airport’s corporate interests can make, in words of one manager interviewed (Major Round Interview E), the organisation “a bit more bullet proof.”

Many airports internationally share Heffernan’s goal of becoming commercially “more bullet proof” (Major Round Interview E) through business diversification and the expansion of retail and leisure facilities (Fuller and Harley 2004; Pearman 2004; Gordon 2004). The movement towards non-aviation development has been lead especially by hub city airports like Singapore’s Changi and Dubai. These airports, which rely principally on transiting passengers to generate income, use elaborate duty free stores, convenient airport hotels, and massive industrial transport and logistics cargo components to encourage airlines to use their facilities as refuelling or supply chain points on long haul flights. The interior of Dubai’s terminal, for example, resembles a shopping mall more than departure lounge (Appendix 1: 355). Like a strange postmodern bazaar, transiting passengers can purchase all manner of goods from terminal’s stores. As well as the ubiquitous duty free store staples of boxes of discount cigarettes stacked like LEGO blocks and bottles of liquor from across the globe, Dubai Airport’s stores sell electronics, including large units like digital sound...
systems, toys, cosmetics, perfume, and clothing. Outside the terminal the efforts that make Dubai the integrated airport city that Heffernan wishes to be are easy to see.

Lured by tax free incentives, key players in the global logistics games have built huge distributions centres near and within the airport’s boundaries. More than a centre for aviation through diversification Dubai’s airport has become centres of capitalism and consumerism.

Yet airports are certainly not alone in this drive towards diversification. The growth of postmodern (Featherstone 1991) or post-industrial (Lash and Urry 1994) society has lead to expansions and alterations to the traditional purposes and meanings of spaces and institutions. This new ethos of the ‘economies of signs and space’ (Lash and Urry 1994: 193 - 195) is driven towards a proliferation of service, leisure, and consumption. Indeed, the well-documented (Featherstone 1983; 1991; Corrigan 1997; Roberts 1999; Shields 1992; Gottdiener et al. 1999; Gottdiener 1998; Sandikci and Holt 1999) rise of lifestyle consumption has altered the cultural and spatial landscape of cities. As Featherstone (1991: 65) writes, the ascent of branding, sign-consumption, leisure, and lifestyle has lead to an:

emphasis… not only on the type of new architecture specifically designated postmodern, but also on the more general eclectic stylistic hotchpotch which one finds in the urban fabric of the built environment.

Moreover, the postmodern architecture that Featherstone (1991) speaks of such as the works of Jencks (1977) and particularly Venturi et al. (1977) urged designers to ‘Learn from Las Vegas’, and in response create spaces that were not only a pastiche aesthetically but also multifaceted, multi-purposed, and flexible in function. Casinos become shopping centres (for example Melbourne’s Crown Casio Complex), or theme parks (Circus Circus, Las Vegas); while sports stadiums feature hotels (Skydome
Toronto) and swimming pools (Bank One Ballpark, Phoenix); sporting events are transformed into carnivals\(^{224}\) (Cart Grand Prix, Gold Coast); while gentrification transforms urban areas into pedestrian boulevards with parks, gardens, restaurants, and boutiques (Rocks, Sydney). Still, as Shields (1989; 1994) notes, in his classic texts on the subject, the diversification and hybridisation of contemporary spaces through the proliferation of lifestyle consumption and service (as opposed to manufacturing) can be witnessed to the greatest extent in contemporary shopping malls\(^ {225}\). The classic 1950’s-hub style shopping mall that featured a handful of supermarkets or department stores linked via ‘spokes’ of small malls has long been superseded by gigantic varieties that feature now ‘essential’ elements such as cinemas, hotels, bars, restaurants, entertainment arcades.

While most attempts at diversification have failed to reach the excesses of West Edmonton Mall (Shields 1989) or the Las Vagas strip (Gottdiener et al. 1999), airports internationally have embraced diversification to become multi-functional and largely self-contained sites of leisure, services, and sign-consumption. As Manager ‘F’ (Major Round Interview) explained, self-containment and diversification sought to rapidly transform even a small airport (by global standards) like Heffernan into its own industrial and commercial community:

> The phrase, airport city, is often used not only by [Heffernan] but by other large, modern, privatised airports and really it’s about bringing associated businesses on airport, that creates a working population on the airport who have to be serviced by other retail outlets and things like hotels, gyms, pharmacies and what have you. So

\(^{224}\) For more insights into motorsport as carnival see Parker (2003a).

\(^{225}\) It is important though not to overestimate the ‘newness’ of this merging of lifestyle and consumption. As Laermans (1993), Miller (1981), and Parker (2003b) demonstrate, the 19th-century department stores of Europe, the United States, and the ‘colonies’ featured many attractions such as theatres that exceed even contemporary shopping centres.
really feeds on itself. And if you have a look at the [Heffernan] master plan, that is the real core driver, is to build up that related business on airports and the associated support businesses for those people.

In some ways the evolution in shopping malls mirrors that of airports. Like the now-redundant 1950’s style shopping centre, airports risk being superseded if they do not supply the increasingly ‘necessary’ amenities such as hotels, gyms, business and conference facilities, bars, restaurants, cinemas, and the ubiquitous endless stream of duty-free stores.

Sociologists too, with an interest in mobility have not missed the evolutions in airport space. Lash and Urry (1994: 260), for instance, view the alteration as an example of the shift towards post-industry and following Featherstone (1991), suggest that such changes are an example of the ‘aestheticization of everyday life’, part of the unstoppable move towards the greater proliferations of signs, image, the sensory, and the virtual. Meanwhile, Castells (1996; 2000a; 2000b) understands the evolution of the self-contained airport-city and the propagation of amenities for travellers as part of the global capitalist moves towards the creation of the ‘space of flows’. Facilities like business centres, hotels, and restaurants built into airports, Castells (1996; 2000a; 2000b) argues, facilitate global capital by permitting greater interconnections amongst the global business elite and sheltering them from the harsh and haphazard realities of the developing world that they would have otherwise have to endure. Similarly, Augé's (1995) notion of non-place, explored in the previous section, treats the movement towards diversification as a example of the dehumanising of contemporary existence that replaces genuine experiences with signs, images, and referential experiences.
The accounts provided by Lash and Urry (1994), Castells (1996), and Augé (1995) are useful and certainly capture the ‘new world’ of airports created by the shift towards the vision of the airport city, but in their concern for broad patterns and consequences they tend to skim over the specific spatial performances that enable the realisation of the multi-functional space that challenges conventional parameters of what constitutes an airport. In contrast, this chapter has sought to make the performances of space explicit and, likewise, this section will present stories about modes of ordering that work towards transforming the contemporary airport into a hybrid space and, perhaps what others see as an exemplar of the post-industrial turn (Lash and Urry 1994) and the explosion in ‘servicescapes’ (Aubert-Gamet and Cova 1999; Sherry 1998). By recognising that spatial hybridity and diversification are performances of space, this section identifies the mundane but essential work required in achieving such performances. So, in sum, this section will assert that spatial hybridity (if such a term can be used at all) at the airport is achieved not through chance, or solely driven by a broad social shift towards consumption and service based industry (Lash and Urry 1994; Featherstone 1991), or through a gargantuan global capitalist conspiracy (Castells 1996; Sklair 1998), but is instead, strained towards via two analytically separated but intertwined modes of ordering instigated by the management of the airport. In particular, the vision of the ‘airport city’ is strived for by the airport’s management through, first, planning and forecasting, and second, via the actual material performances of the space that strain towards the creation of divisions within the airport complex.\footnote{By airport complex the project refers to the airport as a total sum comprising the terminals, airside, and landside.}
First, attempts to achieve multi-functionality are impossible without planning. Constructing a hybrid space is a difficult and complex task and requires careful management and preparation if the many components are to come together successfully without diluting or negatively altering the ‘core business’ (Major Round Interview B; H) of the organisation. Planning is viewed as a critical initial spatial performance, as a mode of ordering that permits spatial and functional fusions. To determine the importance of planning in the efforts to instigate diversification managers were asked:

I have noticed that the land surrounding the airport is undergoing a large amount of redevelopment. In preliminary discussions with your colleagues it was indicated that retail, leisure, and commercial sites are planned. Does this initiative reflect a widespread change in the way that space is used at airports? (Major Round Interview Question 11)

Several responded (Major Round Interview A; C; G; H) that due to the considerable planning, forecasting, and preparation involved the changes at the airport did not represent a shift in thinking but rather was a continuation of a long held vision. As Manager ‘G’ (Major Round Interview) explained:

No…it’s always been planned to do that, and going back to the original master plans when it was a government owned airport. What’s changed I think is the capital to implement those plans.

Indeed, as Manager ‘G’ (Major Round Interview) indicated in his response, the Airport’s Master Plan (Heffernan Airport Corporation 2003: 165 - 180) can be viewed as the key document that permits or enables such planning and forecasting. Even within the abridged Draft for Public Comment version (Heffernan Airport Corporation 2003: 175) the ‘development vision’ is presented in detail using text as
well as the visual representational apparatuses\textsuperscript{227} of artist impressions and detailed scaled maps.

While such a large-scale development can probably not avoid controversy (Knight 2003; Dempsey 2000: 35), the Master Plan (Heffernan Airport Corporation 2003) at least, provides a determinable vision of the spatial performances intended to be taken. In particular, through the framework provided by the Master Plan (Heffernan Airport Corporation 2003) the hybrid, diversified, and multi-functional spatial performances that the airport’s administration intends to instigate are catalogued point-by-point and development-by-development. Here, the Master Plan (Heffernan Airport Corporation 2003) operates with an identical logic to the design specifications of the A380 (Airbus 2004) explored earlier in the chapter ‘Materials’ (246 - 253). Planning as a mode of ordering relies on ‘optical consistency’ (Latour 1990: 27). Indeed, if the difficult and demanding task of successfully integrating commercial, retail, and leisure elements within the Heffernan Airport precinct is to be achieved then the objects that “[S]peak on behalf of” (Law 1994: 152) must accurately simulate and reproduce the airport’s vision. Nevertheless, evidently these representations are perpetually imperfect and demonstrate the incomplete nature of modes of ordering. Like the A380’s specifications (Airbus 2004) it is simply impossible to predict with a total degree of certainty how the ‘Airport city’ developments will impact on the logistics of the airport and the surrounding area. Certainty, like the dreams of pure order, discussed by Law (1994), is a managerial fiction. Indeed, as Manager ‘H’ (Major Round Interview) explains, while imperfect, the Master Plan, as a mode of ordering in the quest for a multi-functional, hybrid space is indispensable,

\textsuperscript{227} For an exploration of the processes of visual representations as modes of ordering see the chapter ‘Materials’ (246 - 253). There the usefulness of visual representations is analysed with reference to the A380 using theoretical perspectives derived from Latour (1990).
It really comes back to your master plans… It [The Development Vision] has, an impact on existing, sites, or you want to make sure that there isn’t an impact on existing sites and you want to know how that affects other areas that surround that particular sites that could be affected as far as future planning goes.

Second, the vision of an ‘airport city’ as a multi-functional hybrid space is worked towards through material spatial performances. Here, one of the paradoxes or contradictions of spatial performances at the airport is revealed. To create a hybrid, multi-functional, and diversified space, one that brings together many elements into a single location, an organisation must paradoxically introduce artificial spatial divisions and dualisms to manage and order the potentially chaotic assembly. Such spatial performances can be witnessed at other hybrid spaces such as the contemporary casino/shopping mall hybrid space and the shopping mall/entertainment complex hybrid space. In both examples, dualisms are strictly maintained by gates/gatekeepers\(^{228}\) that maintain the integrity of each space. For example, in the case of the casino/shopping mall hybrid space, gatekeepers in the form of security personal ensure that young people, who are encouraged in the mall component, cannot enter the licensed gambling or drinking areas.

Likewise at the airport, an identical logic, albeit for different case-specific reasons, applies. There, the threat is patently not from minors engaging in underage gambling or drinking, but rather that the non-aeronautical developments may impede the airport’s core task of dispatching and landing aircraft safely and efficiently. In a worst case scenario, the encroachment of buildings could jeopardise the process of landing aircraft, particularly those engaging in emergency procedures. However, a

\(^{228}\) For an extended discussion of gates and gatekeepers see pages 270 - 278.
More realistic threat is to the airport’s efficiency. Essentially, airports, as access points to the world, cannot operate effectively if people cannot get to them (Dempsey 2000: 405; Kazda and Caves 2000: 297). Despite their benefits financially to the airport, retail, commercial, and leisure centres create increased traffic volumes making the challenges of ‘landside access’ even greater. To avoid such logistical disasters airports managers must introduce subtle but important spatial performances that simultaneously keep the aeronautical and non-aeronautical components separate but interlinked. These spatial performances, like those in the casino or observable elsewhere in the airport terminal, strain towards the creation of partitions or spatial dualisms that divide the airport’s elements. Unlike the casino/shopping mall hybrid space, however, airport managers favour spatial performances in the form of boundaries rather than gates/gatekeepers. These boundaries partition the airport into various “land use designations” (Heffernan Airport Corporation 2003: 180) that separate not only aeronautical and non-aeronautical elements but also retail areas from commercial and light industry. In particular, the Heffernan Airport Corporation's (2003: 175 - 180) Master Plan divides the airport into eight “land use designations” such as ‘Export Park’, ‘Number 1 Airport Drive’, ‘Banksia Park’, ‘Aerotech Park’, and the ‘Heffernan International Precinct’. Rather than just catchy marketing phrases designed to encourage capital investment these “land use designations” (Heffernan Airport Corporation 2003: 180) act as spatial performances in the form of boundaries that dictate what activities occur in each part of the newly multi-functional, diversified, and hybridised airport space. The creation of boundaries is, in effect, an exercise in urban planning as airport administrators attempt to order the airport’s new guise as a miniature city. Through the performance of spatial partitions the airport’s
rapid change is, to every possible extent, controlled so that the development of hybridity is more of an ‘evolution’ rather than ‘mutation’.

However, although the airport strains to control its development, the Heffernan Airport’s expansion and diversification provides yet another example of the inevitable limits of ordering. As much as the airport’s management attempts to carefully control its evolution to a hybrid space, great discrepancies can arise from paper plans and ‘artist impressions’ to the material experience. In the specific case of Heffernan, the limits of planning could be witnessed following the regrettable opening of the much heralded but controversial discount factory outlet (DFO) shopping centre constructed of the edge of the airport’s land. As a central part of the airport’s evolution to a hybrid, leisure orientated space, the DFO centre was built on land adjacent to the airport’s single access arterial road. However, attracted by the promise of heavily discounted designer fashion, at least 20,000 consumers attempted to fill the centre’s 1,000 space car park on opening day, choking the airport’s major access point and surrounding thoroughfares, including the major connecting highway linking northern parts of the state with the city of Heffernan. The subsequent traffic gridlock caused flights at the airport to be missed or delayed as passengers, airport staff, and even flight crew become stuck in the massive congestion. Although the opening day chaos appeared to be the problem’s high water mark, similar scenes would be repeated on following days and weeks as the already busy and occasionally congested arterial roads failed to cope with the influx of non-travelling consumers to the hybridised airport facility (Morley 2005; Williams 2005).
Yet, the traffic problems caused by the DFO centre had been predicted. In particular, a local shopping mall, fearful to losing cliental to the new centre, had previously made an unsuccessful appearance in Federal Court to stop the airport’s development plans. They had claimed that a legal loophole that (partially) excluded the federally regulated airport from local planning laws should be closed. As part of their case, they cited local council and state government reports that indicated that the airport’s shopping centre building forays would lead to an untenable traffic situation and require additional road infrastructure.

Yet, leaving aside the specificities of their case, for the purposes of this project, the DFO centre example highlights the tenuous control that organisations possess on their environment. As much as the airport can strain to carefully control its development, factors and events exist on the edges of influence that weaken certainty and control. By placing excessive trust in its own planning and forecasting, the airport’s management invited more interaction with the less orderable city and its people. By swinging the spatial pendulum of separation and interaction that defines the complex relationship between airports and cities too far towards amalgamation, the airport’s management committed a version of ordering hubris. Dreams of perfect order and of perfect symmetry between a city and airport, while infinitely desired are also infinitely unattainable.

7J: Space in Summary

Overall, this chapter has explored the idea that space in an international airport is performed by ordering strategies and techniques that strain to make divisions and divides in the airport’s landscape inside and outside the terminal. These ordering
strategies enact the spatial divides that mark the airport as a highly regulated space of flows (Fuller and Harley 2005). Indeed, it was argued that when moving through the environment an actor may encounter various forms of divisions, namely barriers, boundaries, and gates and their gatekeepers. These divisions work to direct, coordinate, and regulate movement. Some, like the ‘gates’ of customs and immigration, it was argued, require documents like passports and visas that act as immutable mobiles (Latour 1990), permitting passage through the airport’s divisions.

Yet, as this chapter has demonstrated, time as well as space is enacted in the airport. In the peculiar ‘global’ environment of an international airport clock times merge and separate leading to the performance of simultaneous multiple times. Airports become 24-hour cities as dazed travellers deal with the consequences of being on Sydney, Singapore, and London time at once at the same time. That said, the performance of space is the principal interest of this chapter and the final sections were dedicated to the performances that lead to an international airport’s appearance as a non-place and the performances that strain to enact the airport as a commercially competitive multipurpose facility. In relation to the first of these matters, this chapter described the performances that give airports their unique alien yet familiar appearance. In particular, this section argued that the features that Castells (1996) identified that make an airport part of the space of flows or what Augé (1995) viewed as the development of non-places are in fact spatial ordering performances that strain towards maximum efficiency of controlled flows. Finally, this chapter explored the future direction of airports. It was argued that increasingly airports are attempting to become multipurpose venues of consumption and industry. Nevertheless, this chapter asserted that ordering performances play an important role in these expansions as
well. In particular, ordering performances label and divide the terrain permitting divisions that mark airside and landside that strain to keep the various operations from negatively impacting each other. Nevertheless, as this chapter demonstrates with the example of the Direct Factory Outlet development, these ordering performances, like all ordering performances, are provisional, require constant review and maintenance, and are inherently imperfect.
Chapter 8: Conclusion

8A: Presenting a Bottom Line

At the end of *Organizing Modernity*, a work that has provided this text with its inspiration, methodology, and substantial and critical theoretical insights, Law (1994: 185 - 189) favours a postscript rather than a traditional conclusion. In it, Law (1994: 185 - 189) offers some reflective thoughts on his study and responds to the comments of those who read the preliminary manuscript. One to provide feedback was Giovanni, a scientist who participated in the study. Giovanni questioned Law's (1994) lack of a summary at the text’s climax. Law's (1994: 187 - 188) response was that he did not feel that the work required a summary, as any summary would be that few definitive or ‘hard and fast’ conclusions could be made. As Law (1994: 188 emphasis in original) comments:

> Why do we feel the need for a bottom line, when the argument is precisely about the absence of a bottom line? Why do we still respond to modes of ordering that demand discrete and relatively simple conclusions that can be transported from one place to another?

Yet, in an otherwise powerful work, this omission seems to be a major oversight. While this paper concurs with Law (1994) and his proponents like Kendall and Wickham (2001) that a modest sociology should avoid a slavish dedication to bold and ultimately unsupported conclusions based on tenuous cause and effect equations, *this project’s version of a modest sociology, like Law's (1994) work, possesses a number of conclusions pertinent to sociology, and in the specific case of this project to the sociology of mobility and airports, that deserve elucidation.*
When taken in sum, this project strives to supplement the social sciences’ predominant image of the airport as an empty, lonely, soulless, dehumanising space captured beautifully and poetically in the photographic work of Rosler (1998) and Brambilla (1999), and in the prose of Augé (1995) and Gordon (2004) with an image of the airport as an organisation. However, this image is not of a perfect organisation; a precise and ‘ordered’ entity Law (1994: 5). Instead, the image of the airport as an organisation depicted in this project is messy and complex. The airport is occasionally extremely busy and verges on the chaotic, it is full of complicated technology, and (as part of the global air-travel system) is reliant on countless actors located across the world whose failures can jeopardise delicate flight timetables putting whole aviation networks into a tangle of rescheduling.

Yet, through multiple socio-technical ordering performances, strategies engineered to strain towards routine, efficiency, and homogenisation, and arrangements that work towards nullifying the influence of spatial distances, the airport as an organisation operates with remarkable prowess. Indeed, as this project has demonstrated, through these performances, and despite all the delayed flights, long queues, occasionally incoherent or impractical designs, and lost baggage, the airport as a contemporary institution successfully facilitates the safe and efficient movement of millions of passengers daily contributing materially to the phenomenon of global interconnectivity.

By depicting the airport as a complex, socio-technical assemblage that strains but never fully succeeds in governing the airport, this project differs from traditional
sociological accounts of organisation (Clegg 1990; Clark 2000) by emphasising the limited, ubiquitous, and material reality of ordering and organisation. Unlike traditional sociological accounts of organisation, this project does not see ordering as a form of power that emanates from a single position or actor. Ordering is everywhere (Kendall and Wickham 2001). As such, although this project has focused on the airport management’s ordering performances, it has simultaneously recognised that while the airport management engages in ordering so does countless other actors including regulators like ICAO and CASA, airlines, government agencies, passengers, employees, and even mundane entities like birds, signs, and runway tarmac. In contrast to writers like Clegg (1990), this project regards management as a total or holistic system. Ordering is often not employed to solve a particular crisis, improve a product, or meet the challenges of the new market economy. Instead, most ordering performances are remarkably mundane and forgettable but paradoxically essential and fundamental to the successful operations of organisations.

Moreover, by embracing Law’s (1994) concept of ordering this project has run counter to a trend within contemporary social theory that favours inquires questioning the relationship between knowledge, risk, and organisation in advanced modern society (Beck 1992; 1999; Stehr 1992; 2001; 2003a; 2003b). Lead by influential authors like Ulrich Beck (1992; 1999) and Nico Stehr (1992; 2001; 2003a; 2003b) the growing concern for risk / knowledge society within contemporary social theory is not surprising given the current and wider parallel global concerns about terrorism, pandemic influenza outbreaks, and war involving weapons of mass destruction even outstripping older anxieties about cloning, deforestation and global warming, and radioactive nuclear contamination. For Beck (1992; 1999) and Stehr (1992; 2001;
the rapid evolution and advance of science and technology has lead to the creation of new social age. This new form of advanced modernity, Beck (1992) and Stehr (1992; 2001; 2003a; 2003b) argue, is marked by developments in knowledge, science, and technical advances and by subsequent global threats and risks caused by these same developments. As Fuchs and Hofkirchner (2005: 14) explain, in this new advanced modernity:

Knowledge creates non-knowledge, [and] in the KBS [Knowledge based society] this dynamic is of special importance because scientific-technological progress results in a number of unpredictable uncertainties of development, ie.modernization risks. These risks threaten to get out of control… [Overall] the increased influence of scientific-technological knowledge on our lives has resulted in an increased fragility of science and nature.

Large, slow moving organisations are seen as the most at risk in this fragile knowledge (Stehr 2001; 2003b: 6 - 7). As Stehr (2003b: 7) argues:

The power of large institutions is being increasingly undermined and replaced by small groups with growing capacity for action… Not only has the capacity of supposedly powerful institutions to ‘control’ society declined but so has their capacity to predict social developments.

In other words, Stehr (2001; 2003b: 6) asserts that in the new risky and fragile knowledge society, the capacity for the “monolithic institutions” of church, state, and capital to control and manipulate society has been diminished by growing uncertainty.

This project contrasts the concern for knowledge and risk contained in Beck (1992; 1999) and Stehr (1992; 2001; 2003a; 2003b) with an emphasis on ordering. Where Beck (1992; 1999) and Stehr (1992; 2001; 2003a; 2003b) see risk and fragility as markers of a new technological and knowledge based age, this project argues that
sociology should still be very interested in the methods of governance and ordering used by actors. Examples of the difference between these models for studying society can be seen especially in the work Stehr (2003b: 2), who calls for an abandonment of analyses of actor and networks in favour of works that examine knowledge. Nevertheless, this project would argue that Stehr (1992; 2001; 2003a; 2003b) is too quick to shelve sociological questioning of ordering and governance and subsequently too easily dismisses the ability of organisations to cope with change. Faced by mounting global challenges (Beck 1992; 1999), organisations are remarkably adaptable and resilient. Much like Marx (1990) who underestimated the reflexive capacities of capitalism, Stehr (2001; 2003a; 2003b) in particular fails to appreciate the multitude of mundane orderings that actors use to enact organisations as a durable and robust performance. For this project, reports of the demise of the need to examine ordering performances are grossly exaggerated. Indeed, in a ‘risk’ (Beck 1992; 1999) or ‘fragile knowledge based’ (Stehr 2001; 2003a; 2003b) society the types of ordering performances identified in this project take on an even greater importance.

8B: Contributions to Sociology

However, the major intention of this project was to supplement the sociological body of knowledge concerning global mobility with an analysis of the airport as an institution essential in its facilitation. By on one hand, initiating an emphasis on the processes and performances that enact global mobility and, on the other, by assessing the generalisability of Law's (1994) perspective on organisation described in Organizing Modernity this project makes two important and innovative contributions to sociology.
First, this project provides a decidedly unromantic account of an international airport as an organisation central to the performance of global interconnectivity. Unlike Rosler (1998), Brambilla (1999), Augé (1995), or even much of Gordon's (2004) excellent social history *Naked Airport*, the contribution of this project is centred on illuminating various strategies, techniques, and performances used to organise the operations of an international airport. This focus on the organisation of an international airport marks a departure from traditional accounts of global mobility found in the social sciences. Indeed, for the traditional accounts provided by the likes of Rosler (1998), Brambilla (1999), Augé (1995), Gottdiener (2001), Pascoe (2001), and Fuller (2003) the airport is interesting because it is (allegedly) separate from society, capable of producing new forms of identity (or least manipulating present forms of the self), and because it is a transitory space, non-place, or border-land that is inherently different from the stable, meaning-centred spaces of modernity. The representation of airports in these texts mirrors those found in literature and film\(^\text{229}\). Indeed, the airport is depicted by social science as strange, erotic\(^\text{230}\), unique, and exotic.

In contrast, this project does not share the traditional social scientific vision. The contribution made by this project to the sociological understanding of airports is *that international airports as organisations are not particularly different or special.* Evidently, if taken at face value, this statement may seem absurd to a reader that has endured this text, and the comment certainly requires some clarification. Expanded and put differently, it should be said that the project views international airports as

\(^{229}\) For account of the airport’s representations in these forms in the 1970s see Gordon (2004: 228 - 231).
spectacular. They are extraordinarily complex conglomerations of humans, machines, spaces, technologies, instruments, and communications. They are the most impressive venues with the contemporary condition of global interconnectivity, and their role as points of departure and arrival affords them an unparalleled sense of magic and fascination.

However, and this is the important part, when examined as a functioning organisation, this project argues that international airports operate in a similar fashion to other organisations. Like any other institution, organisation, system, or network, international airports rely on ordering performances. Airports require performances, strategies, and techniques that strain towards governance, control, administration, and management. They need instruments to convey information, to regulate actions and strive towards routine, and to control or ‘govern at a distance’ (Law 1986; 1987; 1997a). The results of these performances are amazing; a busy international airport with scores of aircraft arriving and departing every minute carrying with them thousands of passengers and tons of cargo is an incredible achievement. However, the performances that enable and enact the system are overwhelming mundane. Since the performances of airport terminal signage (Materials: 227 - 240), international regulation (Ordering: 119 - 131), baggage handling systems (Materials: 220 - 227), NOTAMs (Communication: 182 - 190), and airport administration conferences (Communication: 195 - 202), to name only a handful, are so mundane and routine their stories have predominately been told only in airport management texts231.

231 Some of these stories, for instance, those of NOTAMs have not even been illuminated in many industry handbooks (de Neufville and Odoni 2003; Dempsey 2000; Graham 2001; Horonjeff and McKelvey 1994; Kazda and Caves 2000).
Yet, it is exactly these performances that allow an airport to function. *Illuminating the hidden complexities of these performances, their strengths and inherent limitations, their roles and purposes, has been the defining, original sociological contribution of this project.* In other words, the most important innovative, sociological contribution made by this project is to describe the airport in a different way, to direct attention to the airport as a complex, socio-technical assemblage that requires multiple, varied, and interwoven ordering performances to fulfil its role as a conduit for mobility on a global scale. Still, in the process this project has made a series of smaller, or at least, less noticeable contributions and sociological insights that can be summarised thus;

**A. An emphasis on the importance of efforts that strive to produce routine and standardisation**\(^{232}\). The prominence of efforts to engineer predictability and routine were highlighted throughout this project, for example in the performances of international and national forms of aviation regulation (Ordering: 119 - 132), the forms of administrative and formal communication, and especially NOTAMs (Communication: 182 - 190), the design of airport terminal signage (Materials: 227 - 234), and the construction and processing of travel documents (Space: 278 - 296).

**B. A focus on the techniques of long distance control** (Latour 1986; Law 1986; 1987; 1997a). Here, the project demonstrated how influence is strained towards through monitoring and surveillance, with devices like busy hour measures (Ordering: 144 - 150) and travel documents (Space: 278 - 286), and

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\(^{232}\) As the International Civil Aviation Organization (2004 also cited on page 1 of this volume) states, the prevailing goal for aviation is that every flight is “[H]andled in the same, uniform manner, whether by air traffic control, airport authorities or pilots at the controls of their aircraft.”
strategies to discipline or ‘drill actors’ (Law 1986: 254) including memorandum, manuals (Ordering: 127-132), queues (Ordering: 150-161), terminal signage (Materials: 227-240), and meetings (Communication: 167-177).

C. A recognition of the role of materials in socio-technical assemblages. A version of actors inclusive of humans and nonhumans was employed in this project. Thus, the roles of telephones and paperwork (Communication: 190-195), conveyer belts (Materials: 220-227), runway tarmac (Materials: 213-220), passports (Space: 278-286), and walls and fences (Space: 270-278) among many others were described.

D. An emphasis on the inherent limitations of attempts at organisation. Following Law (1994: 5-15), this project has depicted the ordering performances observable at the airport as efforts that are temporary, imperfect, or provisional, which rely on monitoring and maintenance (runway tarmac, Materials: 213-220), and ‘strain’ or ‘strive towards’ (airport terminal signage, Materials: 227-240; techniques for environmental management, Space: 296-301) rather than ‘permanently achieve’.

E. An emphasis on the notion of ‘performance’ and the ways that organisations, actors, and networks are produced as outcomes of performances. Again indebted to Law (1994: 15, 34), this project has argued that the airport as an organisation is an outcome or effect of countless performances. Yet, in line with principles of symmetry (Law 1994: 10-12) this project argues that all entities (actors, networks, or institutions) are the result of performances, they are the constituent products of socio-technical assemblages. So runway tarmac (Materials: 213-220), influential managers (Ordering: 144-150),
methods of communication (Communication: 190 - 195), and even space (Space: 263 - 327) and time (Space: 301 - 310) are performed or enacted by multiple and varied entities, strategies, and actions.

Second, this project makes an additional contribution to sociology by presenting the model used by Law's (1994) in *Organizing Modernity* as a viable, repeatable, and generalisable model for describing organisations. Yet, oddly, Law (1994) does not believe his account of Daresbury is generalisable. Whether through modesty or miscalculation, this project believes that Law (1994) is incorrect in this assertion. Indeed, this project argues that *Organizing Modernity* and his other important works\textsuperscript{233} lay out a discernible framework for studying society. Kendall and Wickham (2001), for instance agree, incorporating Law's (1994) emphasis on ordering in their prescriptions for creating better cultural studies. As the title implies, *Organizing Modernity* is concerned with identifying practices that may occur beyond the confines of the laboratory:

> My assumption is that versions of these [ordering] strategies are found elsewhere: that they are not peculiar to Daresbury. It is this that makes the Daresbury case-study of general rather than specific interest. (Law 1994: 138)

Yet, even with the generalisable qualities, the extent to which Law's (1994) work was transportable to the new context of the Heffernan International Airport was remarkable. In particular, the symmetries in commentaries provided by the managers of the different organisations separated by role, function, space, and time were quite surprising. Unexpected parallels could be drawn with the managerial team’s attitudes

and perspectives on informal communication (Law 1994: 176 – 181) (Major Round Interview E; G} (Communication: 177 - 182), and with their outlook on enterprise (Law 1994: 63) (Preliminary Round Interview 4) (Communication: 195 - 202). Such symmetry was made all the more significant when reminded that Law's (1994) data came predominately from sitting in on managerial meetings while this project’s primary data originated from semi-structured interviews. Although such parallels might be dismissed as aligning with an overall ‘managerial’ discourse, it is felt that such similarities are still notable given the considerable differences in culture and the type of work at the two organisations. Not only was Law’s (1994) site of research a scientific laboratory, and thus a very different workplace than Heffernan International, the differences between the two organisations might, it could be thought, be exacerbated as Daresbury was a British laboratory with its own particular cultural values.

Aside from the parallels found between managerial discourses, strong similarities between Law's (1994) description of Daresbury as an organisation and the operation of Heffernan International could be observed elsewhere. Perhaps these links might be dismissed as instances of ‘looking for links until they are found’. However, the pervasiveness of the similarities suggests that, at least tentatively, common emphases on ordering (Ordering: 119 - 127), methods of long distances control (Ordering: 144 - 150; Space: 286 - 296), spatial performances (Space: 265 - 301), representation (Materials: 246 - 253), and multiplicity in forms of communication (Communication: 167 - 177) observed between the organisations were not the product of over inference or coincidence.
This project has thus concluded that Law's (1994) framework is a useful tool within the sociological arsenal for describing the complexities of organisation. Employing the theoretical underpinnings depicted in Law's (1994) text illuminated aspects of an airport’s operation unseen in previous sociological accounts. Indeed, beyond its field-specific contributions to the study of global mobility, the most important contribution of this project might be its employment of Law's (1994) model for studying organisation. While Actor Network theory may have lost much of its momentum through misappropriation or simply over-use {Moser, 1999 #441; Latour, 1997 #437; Latour, 1999 #444}, this project concurs with Kendall and Wickham (2001) that Law's (1994) work, and in particular his emphasis on ordering as a locus of sociological interest, still has much to offer as a sociological framework for navigating the complexities of organisations. In response, this project contributes as an example of what a sociology of organisation incorporating Law's (1994) prescriptions for a modest sociology of ordering might look like.

Moreover, this project has expanded upon Law’s (1994) model by building upon his insights to create its own innovative ways of understanding organisation. This extension of Law’s (1994) ideas can be seen in many minor examples throughout the project. However, the project’s contribution in extending Law’s (1994) explorations of organisation can be seen particularly in three major examples. First, although Law (1994: 9 – 12, 85) spends much effort praising the inclusion of material actors within sociological analysis, his study of the Daresbury Laboratory contains very few detailed examinations of the roles of nonhuman actors within the Laboratory. Indeed, Law (1994: 145) mostly restricts himself to brief allusions to entities like furniture when discussing Daresbury’s ‘other’ inhabitants. Furthermore, when Law (1994: 140
– 145) does venture into a deeper exploration of the complexities of one of the laboratories many machines and the ordering techniques used to ensure its safe operation, he retreats all to quickly, perhaps concerned that the material might stretch the bounds of sociology too far:

In my story of architecture, the machinery and the social relations of the Lab all go together… [But] How many ways can I say this without being boring. Without stating the obvious? (Law 1994: 141)

In contrast, this project has responded to Law’s (1994: 9 – 12) challenge to create sociology that recognises both humans and nonhumans by adopting an inclusive representation of the airport’s operations, incorporating that investigate the successes and failures of material as well as human actors. Much more than Law’s (1994) text, this project has attempted to implement stories of nonhumans in its analysis. Thus, this project has not only concerned itself with the human management of the airport, but has also told stories about nonhuman actors such as runway tarmac layers, aircraft plans, airport terminal signage, travel documentation, queues, birds, and timetables.

Second, like the example of nonhuman actors, while Law (1994: 142 - 143) notes that spaces are performances of provisional, ordering mechanisms, his analysis in Organizing Modernity falls short of providing readers with detailed theoretical tools to better understand the processes in constructing and regulating these spatial performances. In response, when thinking of the performances that enact space at the Heffernan International Airport, this project developed three concepts for describing various forms of spatial performance. The original concepts barriers, boundaries, and gates and gatekeepers were employed in this project to provide a more thorough examination of the processes and techniques that strain to create different forms of
spatial separation. Supplementing Law’s (1994) initial observations, this project used the concepts to demonstrate how materials like Perspex barriers, signage and other markings, or legislative requirements like travel documentation perform and enact spatial segregation.

Third, this project expanded on the analysis of ordering found in Law’s (1994) work by examining mechanisms of governance and administration in new and innovative contexts. For instance, this project explored how forms of international regulation ordered systems globally, straining towards the forms homogenised environments discussed by authors such as Ritzer (1983; 1996a; 1996b; 2004). Moreover, extending Law’s (1994) concepts of ordering further, this project investigated how actors strain towards the ordering or management of futures through forecasting. Finally, in contrast to Law (1994), this project also explored the ordering of time. Here, building on Latour (1993) and Smith (2003b) as well as Law (1994), methods of governing and manipulating time including timetabling and the concepts of a single, global-time were examined.

8C: Contribution to Practitioners

Although this project’s contributions are geared towards the sociology of global mobility some provisional and tentative insights might also be offered first, to the field of airport management literature, and second, to the managers of the Heffernan International Airport. The term ‘tentative’ should be emphasised as the sociology as practiced by Law (1994) and Latour (1993) is more often descriptive rather than perspective, and likewise, this project’s intentions have always been centred on depicting airport operations rather than evaluating or critiquing them. Still, tied so
closely to the study of airport management, this project feels an obligation to elucidate some observations about airport management, and its study, which are embedded within this text’s sociological offering.

First, while this project is unwilling to criticise the accounts of airport management offered in industry handbooks, this project’s sociological analysis of airport operations does, like its contribution to the sociology of mobility, supplement existing managerial accounts with a perspective that examines airports in an unconventional manner. In particular, by deriving its primary data collection from interviews with an international airport administration, this project focuses on the ways that managers perceive an airport to operate. This attention to managerial perceptions of airport operations provided in this project varies from those accounts most often provided by airport industry literature (Wells and Young 2000; de Neufville 1995a; 1995b; de Neufville et al. 2002; de Neufville and Odoni 1992; de Neufville and Odoni 2003; Kazda and Caves 2000; Ashford et al. 1997), which tend to focus on the way that airports should operate. Indeed, despite their proximity and enormous contributions to the aviation industry, airport management texts rarely cite discussions with airport managers. In contrast, by exploring how Heffernan International Airport is seen by its administration to operate, this project, (tentatively) contributes an alternative, sociological form of understanding airport management, which shifts attention from

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234 See for instance Ashford et al. (1997); de Neufville and Odoni (2003); Dempsey (2000); Dempsey et al. (1997); Graham (2001); Horonjeff and McKelvey (1994); Kazda and Caves (2000); Wells (1994); and Wells and Young (2000).

235 The term ‘perceive’ is used here deliberately. The descriptions of the airport garnered from the airport’s management are perceptions of its operations. Although the airport’s management should know how their airport works, certainty is a precious commodity in a ‘modest sociology’ (Law 1994), and, as such, it is safer to say that perceptions of the operations or the airport have been told in this project. Using interviews it is impossible to argue that the descriptions of operations found in this project match those that occur daily within and around the terminal.
concepts of ‘best practice’, to instead consider the varied performances that strain towards the ordering or governance of the airport as a socio-technical assemblage.

Second, as the focus of this project has been on how an airport is seen to operate, rather than how it should operate, the recommendations to Heffernan International Airport, who supported this study with access to managers, are limited. Perhaps, though, after examining the contents of the interviews conducted with the Heffernan Airport Corporation, and considering the contents of this project, a few cautious recommendations might be made. Principally, while it is acknowledged that this study sought perspectives from managers from various levels of the corporate hierarchy, each with diverse roles and responsibilities, the inconsistency and contradictions in knowledge and attitude in relation to areas of the airport’s administration observed in the undertaking of this project is a feature that senior management may seek to remedy with educational and training apparatuses. In particular, in the course of the two interview rounds, inconsistencies in perspectives regarding international aviation regulation (Ordering: 125 - 126), communication with other airport administrations (Communication: 195 - 202), the impact of new aircraft technology (Materials: 240 - 246), and the future direction of the airport (Space: 317 - 328) were detected. In other words, although this project has emphasised the importance of multiplicity and diversity in techniques of airport governance, there is also a level at which airport managers need to share common knowledge and perspective as well as shared goals and aspirations.

Indeed, interviews with managers of the Heffernan International Airport Corporation revealed that such unity was not always present. For instance, as discussed in the
chapter ‘Ordering’ (125 - 126), certain managers (Major Round Interview C; E; I) placed a greater importance on the role of International Aviation Standards as a governing apparatus than others (Major Round Interview B; G; D) who emphasised convention rather than regulation. Likewise, as explored in the chapter ‘Materials’ (240 - 246), perspectives regarding the impact of the introduction of the new A380 aircraft varied considerably. Some (Major Round Interviews B; I; J) believed that considerable work would be required to ready the airport’s facilities prior to the new aircraft’s commencement. Others (Major Round Interview C; E; G), in contrast, asserted that the impact of the aircraft would be minimal and that little alteration to the airport’s facilities would be needed. Such inconsistencies serve as a reminder of the limitations of ordering performances (Law 1994: 5). However, in attempting to forge an united airport administration, with a common philosophy, knowledge, and goals the Heffernan International Airport is advised to consider introducing further methods that aim to increase communication and information circulation amongst its managerial team.

8D: Limitations

The perfect research project, much like the perfect airport, is a fantasy. This statement is true in the sense that, as Law (1994: 5) explains, all ordering projects, including writing, are necessarily incomplete and imperfect, but it is also true in the sense that, more specifically, in the creation of social research choices are made (or made on the researcher’s behalf), and paths taken, that ultimately prove to be imprudent, or otherwise in retrospect, could have been conducted differently. This section will explore the limitations of the project and discuss four features of the project, which in different (ideal) circumstances would have altered the direction and
outcomes of the research. In particular, this section will investigate issues pertaining to the lack of primary data comparisons, the quantity of interview respondents, the absence of questions in relation to airport security, and the lack of supplemental interviews as limitations, that if the study were to be repeated would, where possible, be rectified.

First, this project’s subject of inquiry was a single airport administration. In retrospect, interviewing parties from multiple airport administrations nationally, and ideally, internationally would have provided this project with a more complete depiction of airport operations across multiple venues and permitted may have permitted more opportunities for cross comparisons. While comparisons with other airports are drawn via second hand accounts taken from airport management literature\textsuperscript{236}, a primary data collection drawn from other airport administrations would have yielded more diverse opinions and exposed elements unaddressed by the Heffernan Administration. However, resources, the frequent enemy of research would prevent a larger study. Obtaining the assistance of one airport administration, even one close to the researcher and one that has engaged in industry linkages with other elements of the researcher’s university\textsuperscript{237}, would prove difficult enough with the project’s timeline, let alone convincing a distant administration of the researcher’s professionalism and integrity. In hindsight, and with more time and the resources to

\textsuperscript{236} See for instance de Neufville (1995a); de Neufville et al. (2002); de Neufville and Odoni (2003); Dempsey (2000); Dempsey et al. (1997); Kazda and Caves (2000); Graham (2001); Horonjef and McKelvey (1994); Wells (1994); Wells and Young (2000); Blow (1996); Hart (1985); Jahn (1991); Sealy (1976); and Wiley (1981).

\textsuperscript{237} Unbeknownst to the researcher, while developing this study the Queensland University of Technology and the Heffernan International Airport Corporation negotiated an agreement to increase industry and academic linkages between the two organisations. This project however is independent of the agreement and was forged separately between the individual researcher (with the assistance of Dr Bruce Rich) and the Airport’s management.
fly to other locations to establish the critical face-to-face contact\textsuperscript{238}, as well as perhaps, the standing and reputation within the industry to ‘open doors’, this project would have sought to provide a snapshot of multiple airports. Although, in line with principles of ‘modest sociology’ (Law 1994) the findings of the research may not have been made any more generalisable, access to multiple airports as research sites would have permitted greater insight into the ordering performances used by airports to manage mobility.

Second, in retrospect, within the single airport administration examined, this project should have interviewed more managers. The issue here is not so much the quantity of data, for the interviews provided more than enough valuable insights, but with the range and variety of responses that additional interviews may have been able to accrue. Nevertheless, even with the limited number of managers interviewed a remarkable range of opinions was garnered. Part of this success must be attributed to selection of interview respondents conducted by the researcher’s industry contact, who provided respondents with a diverse collection of roles, experience at the airport, and personalities. Still, if more interviews were conducted there would simultaneously be more opportunity for alternative insights and perspectives. However, this project was only possible because the access afforded by the airport’s administration, and given the delicateness of that relationship it was felt that calling for further access to the airport’s managers might strain this relationship and jeopardise the viability of the study.

\textsuperscript{238} An entire chapter in a different project could be written on the requirement of formal but face-to-face communications as an ordering performance to establish ties between academia and industry.
Third, in negotiating access for interviews the airport administration insisted that no questions in relation to airport security were to be asked. In the terrorism-conscious world of aviation, such a caveat was not surprising, and one that this project was prepared to oblige. Such a caveat, and the researcher’s acceptance of that limitation, however, raises an importance question over the integrity of the project and the extent that the researcher was free to write an ‘unbiased’ account\textsuperscript{239}, especially given that the study’s publication was subject to final approval by the airport administration.

Evidently, the researcher feels that no restrictions (with the exception of issues pertaining to airport security) were placed on the document during its drafting\textsuperscript{240}. As a project concerned with the operations of an international airport administration, or simply, how airports work, this project did not seek to embarrass managers or discredit the airport, or indeed conversely, paint them in virtuous or righteous light.

That is not to say, however, that the author was not conscious of the airport’s veto rights, and indeed, a persistent fear was felt that the material would be either be considered ‘anti-airport’ or ‘pro-airport’. As such, while it is felt that due to its subject matter this study is as more or less ‘neutral’, given that the perception of influence is difficult to eradicate such an arrangement (despite the lack of real alternatives) was in hindsight, imprudent.

Finally, in retrospect a series of ‘follow-up’ interviews with the Heffernan International Airport management would have been a useful device to clarify the data collected in the two interview rounds, and may have informed additional insights.

However, when negotiating access it was felt that two interviews rounds with the

\textsuperscript{239} As discussed earlier (Research Methods: 84 - 85), Law (1994: 38 -39) too wrestled with this demon and spent considerable time in Organizing Modernity contemplating whether he could examine what increasingly became his laboratory.

\textsuperscript{240} What restrictions the respondents felt is unknowable. This is an ongoing and probably unsolvable dilemma for social research.
airport’s management would provide sufficient primary data. A third supplemental round was not at the time considered to be necessary. Indeed, keen not to strain the relationship with the airport, it was decided that requesting further contact to that originally agreed might risk this important and potentially beneficial industry liaison. Again, this decision, in hindsight, appears overly cautious. After reaching an agreement, the airport’s administration had been extremely accommodating and would have been very unlikely to refuse access. However, balancing the needs of a research project with the need to avoid straining relationships with the site of research is an act of compromise. Occasionally, this compromise results in (ultimately unnecessary) sacrifices, like that of a supplemental interview round, although in sum, it is believed that for the greater part this project succeeded in maintaining an equilibrium between the two requirements.

**8E: Future Directions**

The concluding thoughts of this project should be focused on looking forward rather than backward. To meet this end, this section will explore the paths that future accounts of global mobility may take. Like an airport runway, this project provides a base on which further studies of issues pertaining to the performance of global mobility may be launched. Indeed, this project, while providing an illumination of aspects of an international airport is, as a product of ordering, inherently limited by the scale and scope of the subject of inquiry (Law 1994: 9). Elements worthy of attention have been omitted, or otherwise, received only cursory attention.

The most significant omission within this project has been an examination of the roles played by airlines. Questions of the relationship between airports and airlines were
asked in the interviews with the Heffernan International management (Question 8 Major Round Interview) but few detailed insights were acquired. Evidently, the airport’s management felt some reluctance to speak on the issue. In future studies a more focused exploration of airlines contribution to networks could be undertaken, especially in relation to questions pertaining to how airports attract airlines as customers and thus, in part, dictate the routes that passengers fly. Such an investigation, for instance, would provide insights into the phenomenon of hub-cities like Atlanta, Dubai, Singapore, and even to some extent, Frankfurt. Building on the accounts of Smith and Timberlake (2001), Smith (2003), Song (2000), and Taylor (2000; 2001; 2004) this exploration could investigate the systems that permit and drive global networks as the connections within contemporary, global society.

Second, further questions directly related to the operations of international airports can be asked. In particular, issues pertaining to the planning and development of airports discussed in the chapter ‘Space’ (317 - 328) warrant extra consideration. For instance, questions can be asked of the actors that contribute to the setting of targets, or how potential conflicts between the interests of private industry, state, and community are resolved.

Third, with the A380 at the time of writing undergoing its first test flights, future explorations could continue monitoring the complex process of integrating the new technology into existing systems. While ‘paper’ airports are capable of handling ‘paper’ aircraft, the impact of the new plane will only be felt once the hidden secrets
of the aircraft’s weight, noise, and viability are tested in the reality of the socio-technical world.\footnote{Latour's (1987) theory of ‘black-boxes’, for instance, could provide an interesting theoretical lens. Latour (1987) asserted that science used ‘black-boxes’ to describe unknown or untested elements within systems. The A380, until it begins regular service, is a ‘black box’ for the aviation industry its role and impact, as well as many elements within its design remain unknown.}

Fourth, as the focus of this project has been on the airport management, future inquires could seek further insight by exploring the ordering performances engaged by general staff and passengers. Such stories would expand on the vision depicted by this project of the airport as a materially heterogeneous socio-technical assemblage. Questions, for instance, could be asked to evaluate the success of the management’s attempts at ordering staff and passengers. Here, the value of the airport administration’s performances that strains ‘towards long distance control’ (Law 1986) could be further investigated. Moreover, an analysis incorporating passengers could highlight previously hidden aspects of the material enactment of mobility. Building on the image contained in Augé (1995) of the solo travellers coping with automated, dehumanising environment of the airport, this project might consider the strategies and performances used by passengers to interact with the peculiar, regulated surroundings of the international airport as the theatre for global mobility and interaction.

Finally, although this project has focused on the performance of global mobility as it applies to the transportation of passengers via air travel, other forms of mobility might also be examined using the Law (1994)-inspired model incorporated in this project. Future accounts of global mobility, for instance, might like the contributors to Pinder and Slack (2004), consider the performances involved in coordinating or ‘ordering’
the systems that transport cargo at sea via massive container ships. Indeed, although
the global trade economy receives widespread sociological attention as a key element
within the greater international interconnectivity, logistically the performance
involved in actioning that system are less well understood. Similarly, following
Leyshon and Thrift (1997) and Thrift (1992), the process of ‘ordering’ mobile capital
through international financial markets could also be interrogated. In both cases, like
this project, the attention is focused on how global interconnectivity and the mobility
is produced, organised, and performed.
Appendix 1

A1: Main Concourse Dubai Airport

This image was recorded by the researcher at the Dubai International Airport on the 14th of March 2004.
Appendix 2

A2: Flight Information Display Board, Heffernan International Airport

This image recorded by the researcher at the Heffernan International Airport on the 10th of March 2004 depicts a typical Flight Information Display System.
Appendix 3

A3: Airport Terminal Signage Gatwick International Airport, London

This image recorded by the researcher at Gatwick International Airport on the 26th of March, 2004 depicts several examples of airport terminal signs.
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