Bennett, Matthew John-Paul and Doshi, Shyam and Vale, Gilson *A FR.E.S.H idea.* (Unpublished)

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A FR.E.S.H Idea

Introducing Human Factoring into Business Process Modelling

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**Executive Summary**

This paper explores the possibility of including human factoring in a business process model. The importance of doing so is twofold: (1) The organization becomes transparent in its processes as all participants (human, activities and events) are identifiable. (2) Including human factoring allows organizations to hire accordingly to the process needs. (3) Human factoring alleviates the current work related stress that is being encountered. (4) Enable quicker transition for newer employees into job scope.

This was made possible by including a human behaviour layer in between pools within a process to depict human behaviour and feeling. Future work includes having a human thought symbol and a human interaction symbol included into the Business Process Modelling Notation (BPMN).
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1. Introduction

Business modelling technique plays the role of pre-designing and evaluating the business flow before the final implementation (Ou-Yang & Lin, 2008). The importance of the business process model in undeniable. The overall feedback from the real users is that the notation is easy to learn; the models do help people to understand the process better; the models can be used to improve the (business) process; and the notation is expressive enough to capture the essential information. (Sa, n.d.)

Various academics have documented the benefits of process modelling. Indulska et al. (2009) conducted a Delphi survey to obtain some benefits from organization with regards to process modelling. Business Process Modelling was found to bring benefits to the following areas:

1. **Strategic**: benefits *from process modeling* for strategic activities such as long-range planning, mergers & acquisitions, product planning, customer retention.

2. **Organizational**: benefits *from process modeling* to the organization in terms of strategy execution, learning, cohesion, and increased focus.

3. **Managerial**: benefits *from process modeling* provided to management in terms of improved decision making and planning.

4. **Operational**: benefits *from process modeling* related to the reduction of process costs, increase of *process* productivity, increase of *process* quality, improved customer service and/or *reduced process execution time*. 
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5. **IT Infrastructure**: benefits from process modeling relating to the IT support of business agility, reduction of IT costs, reduced implementation time.

However, a process model is a theoretical practice. It is a diagrammatic representation of a process. Once a process is put into practice, external factors affect it. A main component of a process is the people involved. Stress and anxiety occurs in many different circumstances, but is particularly strong when a person’s ability to control the demands of work is threatened. Insecurity about successful performance and fear of negative consequences resulting from performance failure may evoke powerful negative emotions of anxiety, anger and irritation (European Foundation for the Improvement of Living and Working Conditions, n.d.). The causes and consequences for work related stresses are listed below in Figure 1.

![Figure 1: Model of causes and consequences of work-related stress in Europe](image-url)
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These stresses can be attributed to a number of reasons. In the figure below, whilst there has been a slight reduction in monotonous work, freedom to use one’s skills and learning opportunities in the workplace has also been slightly curtailed. This can be attributed to people being asked to adapt to a process.

Another key reason for work related stress could be attributed to learning new things on a job. Morrison and Brantner (1992) stated “the impact of the context, or organizational environment, on learning may be very strong, especially in experiential learning, where the context cannot be controlled.” This means that one may face strong psychological pressure from learning something new that is based on experience.

![Figure 2: Reasons for work related stress](image)

This paper aims to provide an introduction into the possibility of including human factoring in business process models. For the purpose of this paper, Business Process Modelling Notation (BPMN) is used as the default modelling notation. The paper is structured in the following manner:
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1. Defining the Paper Context
   1.1 Scope of the Project
   1.2 Objectives
   1.3 Organizational Impact
   1.4 Outcome Realization

2. Framework
   2.1 Introduction
   2.2 Background on Eriksson
      2.2.1 History
      2.2.2 Main Theory
      2.2.3 Model
   2.3 Background on Maslow
      2.3.1 History
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   2.5 Background on Freud
      2.5.1 History
      2.5.2 Main Theory
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   2.6 FR.E.S.H Framework Break down
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2.6.1 Eriksson Skeletal Core

2.6.2 Maslow’s Core Needs

2.6.3 Skinner’s Behavioural Core

2.6.4 Freud’s Personality Needs

2.7 FR.E.S.H Framework Amalgamation

2.8 Performance Guidelines

2.9 Performance Analysis Tool

3. Practical Application of FR.E.S.H

3.1 Notation Adaptation for BPMN

3.2 The Scenario

3.3 The Concept Application to the Scenario

3.4 The before and after models of Concept Application

4. Conclusions and Limitation

The first section will cover the context behind the framework. The section will be followed by FR.E.S.H framework. In this section, the background on 4 theorists whom this framework is based on is explored. This subsection is followed by the concepts obtained from these theorists and amalgamated in FR.E.S.H framework.

The next subsection combines these theories to form the FR.E.S.H framework. The whole section is concluded with performance guidelines and analysis tools. The third section explores the practical application of the framework. Finally, the concept application and models conclude this section.
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Following this section, the possibility of further development to the concept has
been explored. This paper is concluded and the limitations are presented in the last
section.
2. Overview of the Paper

Four postgraduate students and two undergraduate students from Queensland University of Technology (QUT) enrolled in the unit Business Process Modelling conducted this study. A project plan was created to meet the scope in allocated time and meeting quality. The project plans consisted of a work breakdown structure (WBS) and Gantt chart. These diagrams are listed in Appendix C.

The group established that a weekly meeting would be on Saturdays lasting between 1 and 3 hours long. The group also agreed that alternatively, weekly communication would be through email, mobile phones and Skype. The tasks were divided based on the structure of the assignment and the weighting of each topic. The tasks were allocated in the following manner:

<table>
<thead>
<tr>
<th>Task</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defining the Context of the Study</td>
<td>Shyam Doshi</td>
</tr>
<tr>
<td>FR.E.S.H Framework</td>
<td>Matthew Bennett</td>
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<tr>
<td>Business Modelling</td>
<td>Gilson Vale, Ravi Kumar</td>
</tr>
<tr>
<td>Project Management</td>
<td>Malathi Madavan, Pramilla Manikam</td>
</tr>
</tbody>
</table>

Table 1: Work Distribution
3. Defining the Context of the Study

3.1 Scope of the Project

This paper will focus on the possibility of including human factoring within a business process model. For the purpose of this study, the Business Process Modelling Notation (BPMN) is used.

Through the study of four building block theorists and deriving a comprehensible framework to implement human factoring in BPMN will be developed in this theory.

3.2 Objectives

The FR.E.S.H Framework has been developed with the main purpose of human factoring allowance in business process modelling, the secondary applications of this framework are the uses in employee management (performance, reward and recognition, and unsatisfactory performance management), incident management (human conditioning and affects understanding) and also allow for employee safety management with additions to evaluated areas.

3.3 Organizational Impact

The introduction of the FR.E.S.H framework into business process modelling will allow for changes to training, people development, job integration, employee transition, job evaluation, employee performance issues, management of employee performance issues and also the enhancement of both employee satisfaction and operational capacity.
3.4 Outcome Realization

The utilization and the research that would be conducted would be highly profitable meaning that worker flexibility and skill sets would not be limited to one area, as well as this would allow for special duty employees as well transitional employees will be able to have jobs which they can assign to that will fit both their personality and skill sets.

The development of a human factoring framework to overlay on top of business process models will also allow better understanding of business-employee model interactions allowing for performance enhancement and any emanating problematic situations.

The framework that would be implemented would have more then one application making it a highly valuable asset should it be developed, and properly integrated into an organization.
4. The FR.E.S.H Framework

4.1 Introduction

The FR.E.S.H Framework is an essential investigation made into the possibility of human factoring in a process model. This approach is explored by acknowledging the fact that every person is different. However, in a business process model, this key aspect is never depicted. As a result, this disregard has led to numerous work related stress and anxiety cases in personal.

The FR.E.S.H acronym stands for the 4 theorists whose Theory forms the framework: Freud, Eriksson, Skinner and Hierarchy of Maslow. The theories form the core mental model of a human being and by acknowledging that people are indeed different. The theorists explain different aspects and stages in a human life. This determines the way in which a person characterises their manner of thinking up till that point in his or her life.

Figure 3: FR.E.S.H Framework
4.2 Background on Eriksson

4.2.1 History

Harder (2009) states that during Erikson’s early years, his interest in \textit{Identity Development} was based upon on his own schooling experiences. During which time other children teased him for being Nordic because he was tall, blonde, and blue eyed. While attending Grammar school, he was rejected because of his Jewish background.

For most of Erikson’s life, he studied the cultural life of the Indian tribes in Sioux of South Dakota and the Yurok of North California, utilising the knowledge gained of cultural, environmental, and social influences to further develop his psychoanalytic theory of Psychological Development.

4.2.2 Main Theory

Erik Erikson’s model of development describes the physical, emotional, and psychological stages of development, relating to specific issues, or developmental work or tasks that each stage may encounter (Harder, 2009). The Erikson Development Theory shows the development through the interaction of body (biological programming), mind (psychology) and cultural (ethos) influences (Harder, 2009). The theory divides each stage of development covering eight differing stages between birth and death, these stages can be seen in the below model.
## 4.2.3 Model

<table>
<thead>
<tr>
<th>Stage</th>
<th>Basic Conflict</th>
<th>Important Events</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infancy (birth to 18 months)</td>
<td>Trust vs. Mistrust</td>
<td>Feeding</td>
<td>Children develop a sense of trust when caregivers provide reliability, care, and affection. A lack of this will lead to mistrust.</td>
</tr>
<tr>
<td>Early Childhood (2 to 3 years)</td>
<td>Autonomy vs. Shame and Doubt</td>
<td>Toilet Training</td>
<td>Children need to develop a sense of personal control over physical skills and a sense of independence. Success leads to feelings of autonomy, failure results in feelings of shame and doubt.</td>
</tr>
<tr>
<td>Preschool (3 to 5 years)</td>
<td>Initiative vs. Guilt</td>
<td>Exploration</td>
<td>Children need to begin asserting control and power over the environment. Success in this stage leads to a sense of purpose. Children who try to exert too much power experience disapproval, resulting in a sense of guilt.</td>
</tr>
<tr>
<td>School Age (6 to 11 years)</td>
<td>Industry vs. Inferiority</td>
<td>School</td>
<td>Children need to cope with new social and academic demands. Success leads to a sense of competence, while failure results in feelings of inferiority.</td>
</tr>
<tr>
<td>Adolescence (12 to 18 years)</td>
<td>Identity vs. Role Confusion</td>
<td>Social Relationships</td>
<td>Teens need to develop a sense of self and personal identity. Success leads to an ability to stay true to yourself, while failure leads to role confusion and a weak sense of self.</td>
</tr>
<tr>
<td>Young Adulthood (19 to 40 years)</td>
<td>Intimacy vs. Isolation</td>
<td>Relationships</td>
<td>Young adults need to form intimate, loving relationships with other people. Success leads to strong relationships, while failure results in loneliness and isolation.</td>
</tr>
<tr>
<td>Middle Adulthood (40 to 65 years)</td>
<td>Generativity vs. Stagnation</td>
<td>Work and Parenthood</td>
<td>Adults need to create or nurture things that will outlast them, often by having children or creating a positive change that benefits other people. Success leads to feelings of usefulness and accomplishment, while failure results in shallow involvement in the world.</td>
</tr>
<tr>
<td>Maturity (65 to death)</td>
<td>Ego Integrity vs. Despair</td>
<td>Reflection on Life</td>
<td>Older adults need to look back on life and feel a sense of fulfillment. Success at this stage leads to feelings of wisdom, while failure results in regret, bitterness, and despair.</td>
</tr>
</tbody>
</table>

*Figure 5: Erikson Stages of Development (Pais, n.d.)*
4.3 Background on Maslow

4.3.1 History

Abraham Maslow had a slow, tidy, lonely, and rather unhappy childhood. He best reflect when he said, “I was a little Jewish boy in the non-Jewish neighbourhood. The first Negro enrolled a little like being in the all-white school. I was isolated and unhappy. I grew up in libraries and among books, without friends.”

Abraham Maslow studied law, transferring to University of Wisconsin where he pursued an original line of research, investigating primate dominance behaviour and sexuality under the watchful of Harry Harlow. He furthered his study at Columbia University under the watchful eye of his new mentor Alfred Adler, one of Freud’s early followers (Business Balls, n.d.).

4.3.2 Main Theory

Maslow’s humanistic theory is a hierarchy of a person’s needs, and as a person progresses up this hierarchy of needs their own personality develops, until they reach their potential. Once a person has reached the final stage of self-actualization, they would be deemed a “fully functioning person” with a “healthy personality.”
4.3.3 Model

![Maslow Hierarchy of Needs](image)

**Figure 7: Maslow Hierarchy of Needs**

### 4.4 Background on Skinner

#### 4.4.1 History

The B.F. Skinner behavioural theory is based on operant conditioning. Deriving from an organism being in the process of “operating” in the environment, which means in other words the organism, ‘does what it does’. However, during this “operating,” an organism can encounter special stimulus, called a reinforcing stimulus, or a reinforcer. This special stimulus has the effect of increasing the operant – that is, the behaviour occurring just before the reinforcer. The organism undertakes a specific operation, the operant conditioning - “the behaviour is followed by a consequence, and the nature of the consequence modifies the organism’s tendency to repeat the behaviour in the future (Kearsley, 2009).**
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Skinner had a great deal of contact with different ways we get to behaviours that are more complex. Skinner also came up with the idea of shaping, or “the method of successive approximations.” It first involves reinforcing behaviour only vaguely similar to the one desired, once established, the ability to look closer at variations will reveal that the behaviour is going closer to the desired outcome (Carpenter, 1974).

4.4.2 Main Theory

An aversive stimulus is the opposite of a reinforcing stimulus, something that would be found to be unpleasant or painful to the subject.

With the behaviour, theory following an aversive stimulus results in a decreased probability of the behaviour occurring in the future, defining an aversive stimulus and describes the form of conditioning known as negative reinforcement (Bjork, n.d.).

Another technique that that came direct from skinner’s work was Behaviour modification or B-mod. This therapy technique is the extinguishment of an undesirable behaviour (though the removing of the reinforcer) and replacing it with the desirable behaviour by reinforcement.
4.4.3 Model

![Skinner Behaviour Model](figure9.png)

**Figure 9: Skinner Behaviour Model**

4.5 Background on Freud

4.5.1 History

Freud based most of his knowledge on human nature and accepted the traditional belief that the roots of human nature are morally bad and wicked or evil. Most of his teachings were based on the premise that the human individual is naturally antisocial with so-called ‘antisocial instincts’.

Freud’s dynamic theory of personality, makes reference to the core of human nature is formed be an obscure ‘id’ which obey an inexorable ‘pleasure principle’ and demands the satisfaction of the antisocial instincts.

The observations that were made by Freud helped him to discover that an individual’s actions and behaviours are based on motivations which in emotional forces on the unconscious level of the mind and that neuroses. This allowed Freud to formulate his understanding of neurotic personality based on unconscious emotional drives or forces, which he claimed ‘were often in conflict’(Changing Minds, n.d.).
4.5.2 Main Theory

According to personality theory, mental conflicts of the neurotic are fundamental conflicts of human nature between ‘ego’, ‘id’ and ‘superego’. The core of human nature is an obscure ‘id’, which demands the satisfaction of the antisocial instincts and obeys an inexorable ‘pleasure principle’. Immediate satisfaction of the pleasure principle leads to conflict and destruction, so to control this principle Freud postulated that there must be a ‘superego’ to control the id(Changing Minds, n.d.).

The question that was of great theoretical importance was “When and how is it ever possible for the ‘pleasure principle’ to be overcome?” Freud believed that that self-actualisation and the healthy striving towards it was an expression of narcissistic libido.
4.5.3 Model

Freud’s model of personality structure

Figure 11: Freud’s Model of Personality Structure
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5. FR.E.S.H Framework Core

5.1 Erikson Skeletal Core

The Erikson skeletal core has been developed around the concept of a person still being able to trust and mistrust, and still undertake a process autonomously even though they may doubt. The Erikson skeletal core can be seen in all aspects of everyday life from the relationships formed, task and even activates that are presented in day-to-day life.

In everyday life we are faced with the following stages when presented with a new relationship, task or activity.

5.1.1 Trust Vs. Mistrust

On a daily basis a person is presented with a decision to trust or mistrust a relationship, task or activity that is to be undertaken. Should the person be able to trust, they are able to move forward with confidence. However, should the person mistrust this will still lead on the autonomy but will implant an air of doubt in the person’s mind.

![Figure 12: Trust vs Mistrust](image-url)
5.1.2 Autonomy Vs. Doubt

Following on from the trust and mistrust factors a person will lead onto either being autonomous or from mistrust will lead to doubt. However, even though a person will have doubt he or she shall still undertake tasks on an autonomous level.

Leading on from this a person will move on to the next stage of the development.

5.1.3 Initiative Vs. Guilt

From the stage above a person will still show the independent drive to undertake, plan and attack a task, even should they show doubt. However, should a person fail he or she will feel guilty over what has been done showing a doubt in whether it is right or wrong.

Leading on from this a person will move on to the next stage of the development.

5.1.4 Industry Vs. Inferiority

This stage will see a person develop a sense of competence within him or herself to be able to tackle a problem being more aware of the environment, increasing his or her efficiency. However, should this be hindered though suppression of external environmental factors (example company culture and acceptance), then an inferiority complex is created.
The skeletal core model even though a person may fail or be hindered during a stage, he or she are still able to move on to the next stage. However, through each time he or she may fail this is reinforced creating more doubt in their minds for future tasks, activities and relationships.

5.1.6 Model Link to BPMN

The Erikson Skeletal Core can be directly linked with the tasks, activities and the role relationships a company models for managerial, operational and organisational benefits (Indulska, Recker, Rosemann, & Green, 2009). The direct links comes from enhanced understanding of employee relationships, which in turn can increase
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employee productivity (Addison & Belfield, 2001). Through better understanding and
visualisation of a task or activity, with the increase of employee productivity a
company will be able to better fit a process model to the desired team or employee
(Momotko & Nowicki, 2003). The Erikson core will allow for an assessment of trust
and mistrust relationships in current business processes, assessing if there will be a
relationship breakdown. Through this assessment it would be possible to correct the
relationship before the breakdown affects other business processes.
5.2 Maslowian Core

In the Maslowian core humanistic model it has been depicted that two parts to the model are made up of primary needs and secondary wants of a human.

The primary humanistic needs of a human are biologically set within the cognitive patterns of the brain, allowing for human and animal alike to survive in any environmental setting.

The secondary humanistic wants are the psychological humanistic desires of a human, which develop over a humans life span, or as he or she attains a new level on the Maslowian core pyramid.

The Primary Needs and Secondary Wants can be broken down in the following areas:

**Primary:**

**Physiological** - The necessary requirements to sustain one’s life

**Safety** - The desire to feel safe no matter what the person is doing or no matter where they are. The main primary function that is a basic human survival desire is ‘Safety of Body.’

**Self – Actualisation** – The primary function that is shown is ‘Problem Solving’ in which a person will always call upon unconditionally to help with tasks, as it is a basic survival instinct.
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Secondary:

Safety – Same as above definition

Love and Belonging - This is the desire to be loved and accepted by other people

Esteem – The desire to gain high self-esteem and respect from other people

Self – Actualisation – In its secondary form is a humanistic desire to become ‘the best you can be’, these are the finalising factors that will allow for a human to finally attain completeness.

Bridging – Safety

Safety is the bridging between both primary needs and the secondary wants of humanistic desires. The security of body in the primary column of the model is directly answered in today’s society. To achieve this security a person desires employment, resources, family, health and property although these are not all important to have they do reinforce for someone their own security.
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5.2.1 Maslowian Core Model

<table>
<thead>
<tr>
<th>PRIMARY</th>
<th>SECONDARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Solving</td>
<td>Lack of Prejudice, Acceptance of Facts, Morality</td>
</tr>
<tr>
<td>Self-Actualisation</td>
<td>Self-esteem, configure, achievement, respect of others and by others</td>
</tr>
<tr>
<td>Esteem</td>
<td>Relationships (Professional)</td>
</tr>
<tr>
<td>Love / Belonging</td>
<td>Employment, Resources, Family and Health Property</td>
</tr>
<tr>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>Breathing, food, water,</td>
<td>Physiological</td>
</tr>
<tr>
<td>sex, sleep, homeostasis,</td>
<td></td>
</tr>
<tr>
<td>excretion</td>
<td></td>
</tr>
</tbody>
</table>

Figure 16: Maslowian Core pyramid

The above Maslowian Core Pyramid Model is a depiction of both humanistic primary needs and secondary wants, by which are bridged at Safety. The primary needs and secondary wants will arise in variance with the environmental factors surrounding an individual and/or group. The humanistic desire to fulfill each stage of this pyramid will be shown as environmental factors in sociological, technological and ecological changes occur.

These current environmental factors dictate how a human will interact within the environment around them, underpinning all humanistic needs and desires.
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5.2.2 Model Link to BPMN

The Maslowian Core can be linked to the performance of people and the addressing of needs the person requires to fulfill to be a productive member of the process.

These needs vary from being at the forefront to playing a secondary role. Some primary needs are problem solving, security of body and the physiological needs (Breathing, food, water, sex, sleep, homeostasis and excretion). This needs link to process modelling as follows:

**Problem Solving** - If a person can solve a problem faced (life and career), he/she gains the feeling of accomplishment and purpose.

**Security of body** - Refers to the safety net against accidents/illness and the adverse impacts. This is key for the person to feel that their life is not in danger.

Physiological needs all need to be met as well for the human as this is the ability to complete basic bodily functions.

**Secondary needs** - Reinforcement of secondary needs (self actualisation and esteem) enhances process learning and willingness to participate and contribute to a positive outcome.
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5.3 Skinner’s Behavioural Core

Skinners behavioural core is used to identify behavioural indicators to help evaluate the behaviour of any one particular human in a particular event surround the environmental factors. Through the reinforcement of stimulus this creates a learning interaction with the current environment.

These interactions that therefore occur create new, reinforce current and also can extinguish old behavioural partners through creation of new or reinforcement of differing behaviour patterns.

Through scheduled and continuous reinforcement of either existing or new environmental factors, this creates the ability for people to become more operationally efficient and more complex factoring can be introduced.

The main process stage of behaviour theory occurs as below:

**Structure** - Collection on surrounding factors

**Motivation** - Pursuit of motivational reinforces to come up with judge evaluative

**Development** - Development of cognitive plan of execution

**Disorder** - Development of mental analysis and barrier identification

**Change / treatment** - The changes to approach, change-to thinking
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Through each of these stages above it is possible to eliminate and to structure new metal behaviours to address particular situations, or undertake new tasks or activities.

5.3.1 Model Link to BPMN

Skinners Behavioural Core will be directly linked to the business process model through both the behaviour in current and future processes. The main implementation of Skinner’s Behavioural Core will allow for the identification of any process knowledge and individual process alteration (training may need to be redone and the behaviour altered to approach of process). A Training Needs Analysis (TNA) could also be conducted to identify the training that needs to be undertaken for the additional understanding of the process chain or model that an employee works in.

Other links to the business model are that with the Skinner Behavioural Core can be used as an analysis tool to help identify differing employee behaviours and then allow for correction. This identification and correction would allow for the business process model process to be both flexible and give an employee an enhanced knowledge of the surrounding issues should there be a variance of what could happen, if this process is altered (safety critical processes).
5.4 Freudian Personality Core

The Freudian sectors of ego, superego and Id and the missing link to the complete foundation blocks to the FR.E.S.H Framework

Freud’s Theory has been deemed the completing layer of the FR.E.S.H framework due to the theory being the base cornerstone of human understanding. Freud broke the theory into three main functions of the human psyche. The basis of the human psyche is the basis for personality theory is underpinned by one principle “the pleasure principle” derived as the core demand of human nature in which humans demand the satisfaction of his or her antisocial instinct that is craved by one’s inexorable emotional unconsciousness.

The ego

The ego of a person is a psychological component in which the reality principle becomes present for a human to understand his or her reality. This is where a person’s reality is tested through the secondary thought process and where all pre-conscious interaction occurs.

The Superego

The superego is the basis for a person’s moral judgment (or right and wrong functionality). The superego also contains a person’s conscience and also their EGO-Ideal.
The ID

The human ID is the biological component of the human consciousness in which wish fulfilment becomes apparent through the primary processing. This is where human’s instincts of both EROS (Life Instinct) and THANATOS (Death Instinct) become associated with the unconscious mind and the id.

Under the Freudian Personality Core the ability to link each of the different core layers though both the ego and superego for the Maslowian Core and the Skinner Behavioural Core and for the ID, the direct link to Erikson’s Development Core. Due to these direct correlations the support functionality of the Freudian Personality Model.

However, in the Freudian core one major difference is that the ID can be seen as being readily accessible to the human consciousness as it can be seen that the different wish fulfilments can be change on a mental note. This can be conscience and unconsciously done through the differing environmental factors.
6. FR.E.S.H Framework Amalgamation

The FR.E.S.H framework is the basis of seven possibilities of a human's comprehension of the world around them, drawn through beliefs and values which he or she have gathered though natural cognitive correction. The male or female development occurs daily through fulfilment from surrounding environmental factors in which they cover the basic psychological elements of needs, cognitive development and understanding, seeking to better one's self to address personality deflects.

The framework’s four key principles have been built upon the four layer core based model to reflect:

1. A person’s rationality is based upon his or her trust/mistrust relationships with their present environment.

   The rationality which is sought through trust & mistrust based environmental influence the ability for a person to both adapt and broaden their own rational understanding of the environment around them so their own trust/mistrust evaluation can substantiate if a decision is justified by their own rationalism.

2. A person seeks to attain what they already do not understand

   All humans of all ages seek to better understand the environmental factors around themselves. Each person will seek different aspects of their
A FR.E.S.H Idea:
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environment to understand so they can associate, project and interact with
differing environmental factors.

3. **A Person’s physical & cognitive projection is based upon their own self-actualisation.**

A person will perceive him / herself on the way they interpret their own surrounding environment and interactions, this will be based further more on areas such as moral, creative ability opportunities, achievement, and respect of and by others. Through this a person will start to reflect upon themselves trying to correct their assumed deflects, in which if this is not corrected, a possible confusion can occur, leading to stress and anxiety complications.

The way in which a person see’s oneself in the mirror is reflected in physical projection. A human will seek self – actualisation and esteem from differing environmental conditions and interactions.

4. **Each person is an individual who will always control environmental factors in their own way.**

Humans and animals alike will always control their environments based of situation association, evaluation and interpretation to allow for a favourable outcome. Each individual human or animal will always differ an approach to a similar task, activity or even relationship.
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Through these four principles, the core structure of the FR.E.S.H framework is exposed and is readily accessible for the use of analysis and correction. The use of both the four principles in conjunction with the four separate core layers allows the user to implement the use of the four principles:

1. A person’s rationality is based upon his or her trust/ mistrust relationships with their present environment.
2. A person seeks to attain what they already do not understand
3. A Person’s physical & cognitive projection is based upon their own self-actualisation.
4. Each person is an individual who will always control environmental factors in their own way.

The use of the above four principles will allow for users to look at a person and to take into consideration these factors, when third layer modelling occurs, an analysis is conducted for training, employee management, operational management and also for process model understanding.

The FR.E.S.H Cores allow for the process model analysis to ensure process flexibility, understanding and improvement. The core functions that are presented are:

1. Erikson Skeletal Core - Trust / Mistrust Functionality
2. Maslowian Core - Needs Functionality
3. Skinner’s Behavioural Core – Behavioural Functionality
4. Freudian Personality – Personality Function

Through these differing cores it is possible to both better understand and adapt process models to both external people as well as internal employees of a company.
7. Performance Analysis Tool

Implementing a new framework into any model is not a simple process. The framework must be robust and flexible enough to fit immediately into an existing modelling notation. As such, a set of Key Performance Indicators (KPI) was derived. Only when all of these KPI’s are met, can a framework be ascertained to fit best practices.

![Diagram of Key Performance Indicators (KPI)](image)

To arrive at the KPI’s, 3 main categories were created to ensure that the framework met the robustness and flexibility required. These categories were:

1. Concept,
2. Performance Management
3. Modelling Success

7.1. Concept

To ensure that the concept was sound, the following questions were asked:

1. Does the FR.E.S.H Framework address all human freedom issues in process?
2. How did it improve/ the current business model enhance?
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A FR.E.S.H Idea:

3. Does the BPM model allow for significant number of human decisions or is it restrictive?

4. When an employee follows the process does it become naturally cognitive?

5. What are the cost reductions and the value that has been added to the?

6. What has the company received by implementing human factoring into process models?

7. Was the framework accepted or unaccepted?

7.2 Performance Management

Performance Management refers to “a technology (i.e., science imbedded in applications methods) for managing behaviour and results, the two critical elements of what is known as performance. Performance is the sum of behaviour and results, and cannot be viewed as independent of either component. It is an outcome of effective management”.(Daniels, 1986)

There are many ways of measuring performance measurement. This study has adopted a method used by Queensland Rail called the PPR method. This method stands for Plan, Perform and Review.

Essentially, a superior measures the subordinates’ performance by planning his or her tasks. The subordinate performs the tasks and the superior review the performance.

This manner is a fair manner of performance management as the point of actions are logically separated and easily measured.
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7.3 Modelling Success

Success is difficult to measure. It is often ill defined and there exists no standard measure that applies across all. This suggests the need to follow a clearly defined and planned process, when deriving success measures for any given context (Sedera, Rosemann, & Gable, 2002). Sedera et al (2002) defines a Process Modelling Success Measurement Framework consisting of 6 dimensions. These dimensions are listed below:

1. **Modelling success** refers to the “extent to which all desirable properties of a model are fulfilled to satisfy the needs of the model users in an effective and efficient way”

2. **Modeller satisfaction** refers to the “the extent to which the modellers (those who design the process models) believe process modelling meets the fulfilment of the objectives that underlay the modelling project and the extent to which they believe that process modelling was efficient and enjoyable”

3. **Process model quality** refers to the “extent to which all desirable properties of a model are fulfilled to satisfy the needs of the model users in an effective and efficient way”

4. **Model use** refers to the “the extent of comprehensive application of the models.”

5. **User Satisfaction** refers to the “The extent to which information requirements are met”
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Introducing Human Factoring into Business Process Modelling

6. **Process Impact** refers to the “measures the effects of process modelling on the process’ performance”

7. **Organisational Impact** refers to the “measures the effects of process modelling on the process’ performance”
8. Practical Application of FR.E.S.H

8.1 The Scenario

To provide assistance to customers reaching their requirements, organizations have used diverse approaches of customer service in different degrees. Baines (1996) states that organizations’ aim to provide customer service is to understand the customers’ perspective and use then as a reference point to make improvements. Nowadays, there are basically two different ways of customer service face-to-face and electronically; this performed through landlines, emails, fax, MSN, social networks and so on. For each of these approaches, a special degree of human interaction and to maintain a high customer satisfaction rating is a challenge to the majority organizations. This paper illustrates three different levels of process modelling aiming to improve the quality of human interaction in the scenario of customer service call centre.

Process Model Level 1

The first level of process model illustrates the main processes of call centre scenario, as illustrated in Figure 18. They are associated each other as chain and conforming these processes are been executed each process receives intrinsic value. Such model is called process value chain.

![Figure 18: Value Chain](image-url)
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Process Model Level 2

An As-Is model of a fictitious call centre adopted by the group as a second level of process model, as illustrated in Appendix C. The following assumptions were made:

1. All processes are been executed without any problem.
2. The customer’s complaint is regarding to products delivery.
3. The employee reaches all required skills and has age bracket between 20 and 50.
4. The employee received properly training and is well knower of company’s standards and culture.
5. The work environment provides to employee all necessary structure.
6. The calls quality is satisfactory and the company’s information system is running properly.

The call centre scenario is based on an order status inquiry whereby the customer triggers the process by calling the call centre service and the process of check query /complaint is (are) handled by call-agent. There are three conditions for the process be finalised. The first condition is when the customer waits for more than 4 min to be attended by a call agent. In this situation, the customer will receive an automatic record mentioning that the service is busy. The other two circumstances are after the call agent log the query/complaint made by the client. Although the service provided by the call centre company is considered effective, the outcome of the call does not guarantee the satisfaction levels of the customer.
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Following a robust process does not mean reaching the highest levels of customer satisfaction considering that human interaction critical success factor to reach the desired levels of customer satisfaction. The advantages obtained by developing an As-Is model are innumerable. Through analysing of the As-is model(s), it is possible identify the organization’s weaknesses and bottleneck process that are been executed in wrongly or wrong use of resources, cut the cost of production/execution and decrease the process time and increase company’s revenue. However, it is not the purpose of this assignment to approach such area of knowledge but illustrate the second level of process model abstraction for the selected scenario.

8.2 The Concept Application to the Scenario

Robust process does not always lead to higher customer satisfaction. Human interaction plays a far more crucial role in providing higher levels of customer satisfaction than just a process. Processes are important and must to be followed but they have to be coupled with human interaction in order to be more effective in delivering higher standards of service to customers. The third model was developed with the aim to illustrate and highlight human interaction behaviour based on the same previous scenario.

The third level of process modelling combines company’s process with human behaviour. There was a lot of emphasis placed on the behaviour displayed by the call agent. Although creating a situation with an irate customer, the call agent should follow the standards created by the company; the staff member can easily identify these in the psychological process model. This not only pacifies the customer but also makes them feel that they are being listened to. Although, there was a robust
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process in place, the agents take it upon themselves to deliver the highest level of customer satisfaction and also following the process.

Most organizations encourage their employees to “go the extra mile” and “think outside the box” to help the customer to achieve their desired outcome. The customers not only look to have their problems fixed but also look forward to have a feel good factor after the call. They like being listened to, been given importance and to feel valued.

The psychological model, in the Appendix C, shows how the call agent should approach the customer. Furthermore, it shows the different behaviours from customer and staff interaction such as respect, positive thinking sincerity, understanding, rapport and commitment. All of these behaviours are directly linked with the four FR.E.S.H principles.

8.3 The before and after models of Concept Application

Refer to Appendix C
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9. Future Work

The models developed in this study included a human behaviour layer in between the pools. In the future, further notations should be introduced to further enforce the human interaction. These notations could be:

1. 

![Figure 19: Human Thought Symbol](image)

This notation would depict the human thought within the process as an activity.

2. 

![Figure 20: Human Interaction Symbol](image)

This notation would depict human interaction within the process as an activity.

To enhance this notation further, deriving a set form of metric to supplement this notation. This would mean deriving a manner of measuring human behaviour. Achieving this would result in the process being flexible enough to cater to any person and any form of human interaction.
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This would enable an organization recruit a person specific to the process needs and
improve overall worker performance thus improve process quality in terms of ROI
(Return of Investment).
Concluding this report, a number of findings can be derived from the knowledge obtained from literature research and practical experience. A human, whilst possessing unique individual characteristics, is similar in many psychological characteristics. Acknowledging this fact can enable an organization to better their process, as they are aware of how a person can react to any different situation.

This study also explored the possibility of including human behaviour into the process model and also the future possibility of expanding this to make the process both transparent and flexible. Achieving this would enable the organization to view the entire process before it actually happens.

This study is not without its limitations. Firstly, the idea was a conceptual one and was approached with the idea of incorporating human behaviour as a straightforward possibility. To further enhance this study, actual implementation with human participants would be needed to fortify the theories discussed.

Secondly, 6 university students conducted the study. Whilst, this should not hinder any outcome, if the study had been conducted by experienced academics with proper funding a more concrete study with a more defined outcome would have been obtained.
11. References


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Appendix A: Glossary

Amalgamation

The action, process, or result of combining or uniting

Business Model

A working description that includes the general details about the operations of a business.

Business Modelling

Outlining business practices, processes, systems and restructuring the activities to achieve its business goals.

BPMN

The Business Process Modelling Notation (BPMN) is a standard for business process modelling, and provides a graphical notation for specifying business processes.

Cognitive

The study of mind or the study of thought.

Cognitive BPMN

Pertaining to the ability to create graphically notational business processes around human mental processes of perception, memory, judgement and reasoning.
A FR.E.S.H Idea:
Introducing Human Factoring into Business Process Modelling

Concept

A general idea derived from specific instances or occurrences.

Environmental Factors

These are any ecological, technological, sociological,

Framework

A basic conceptual structure used to solve or address complex issues

FR.E.S.H

Acronym stands for Freud, Erikson, Skinner and Humanistic (Maslow)

Guideline

A principle that aims to streamline particular processes according to a set routine.

Human Factoring

Human Factors deals with the psychological, social, physical, biological and safety characteristics of a user and the system the user is in. It is a discipline of study that deals with human-machine interface that is a science of understanding the properties of human capability (Human Factors Science).

Initial Sensory Cognition

A baby’s first period of awareness of the surroundings.
Key Performance Indicators

Provides the most important performance information that enables organisations or their stakeholders to understand whether the organisation is on track or not.

Organisational Impact

The impacts on the organisation are areas that need to be addressed by the project through its planning process. They may be internal projects risks, but they can impact the success of the project’s implementation.

Outcome Realisation

This ensures that the final stages of the project are managed in a satisfactory manner; the utilization of the project's outputs are linked to the planned project outcomes; the success of the project’s outputs are assessed and corrective action performed if required; and the planned project outcomes are achieved prior to formal project closure.

Performance Management

A set of management processes, often supported by technology that helps to improve the strategic decisions people in organizations make every day. It includes activities to ensure that goals are consistently being met in an effective and efficient manner.
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**Process**

Series of logically related activities or tasks such as planning, production, sales performed together to produce a defined set of results.

**Project Scope / Scope of a Project**

It refers to all the work involved in creating the products of the project and the processes used to create them. It defines what is or is not to be done.

**Project Objectives**

The project objective consists of the business benefits that an organization expects to achieve as a result of spending time and exerting effort to complete a project.
Appendix B: Project Management

Meeting Minutes
7/9- 8/10
Minutes of Meeting No: 1
Mode: In person
Date of Meeting: 7th September 2009
Time: 12- 2pm

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<td>Shyam Doshi</td>
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<td>Attendees</td>
<td>Matthew Bennett, Ravi Kumar, Shyam Doshi</td>
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Agenda topics
Assignment 2 for the unit

Discussion
Meet the other group members
Topic selection for Assignment
Division of tasks
Group expectations
Confirming method of communication

Conclusion
The topic was selected and tasks distributed fairly and agreed by all members
The group expects to do well in the unit and will strive to put in a good effort.

Action Tasks

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A FR.E.S.H Idea:
Introducing Human Factoring into Business Process Modelling

| aspects of FR.E.S.H subject. Model | Ravi Kumar Gilson, Matthew |
Minutes of Meeting No: 2
Mode: In person
Date of Meeting: 12th September 2009
Time: 12-2pm

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**Agenda topics**

Initialisation of Assignment 2

**Discussion**

Topic selection for Assignment
Understanding new subject.
Discussion on scope of topic
Creating common understanding of new topic.
The models were discussed in greater detail.
The status of the literature review was discussed.
Confirming method of communication

**Conclusion**

The process model was agreed upon. New approach was discussed to create a common understanding. The approach of the literature review was discussed.

**Action Tasks**

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A FR.E.S.H Idea:
Introducing Human Factoring into Business Process Modelling

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Date of Meeting: 19th September 2009
Time: 1-3pm

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**Agenda topics**
Ongoing discussion on the FR.E.S.H Framework.
Looking into Main Theories.

**Discussion**
Looking into Main Theories.

**Conclusion**
Improvements were decided upon.

**Action Tasks**

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Minutes of Meeting No: 4
Mode: In-Person
Date of Meeting: 26th September 2009
Time: 1-3pm

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**Attendees**
Matthew Bennett
Ravi Kumar
Shyam Doshi
Pramilla Manikam
Malathi Madavan

**Agenda topics**
FR.E.S.H Framework Core
Review Progress to date.

**Discussion**
It was agreed that there would be ongoing discussions on the amalgamation

**Conclusion**
The process model was investigated and conflicts were discussed. The final report was also discussed.

**Action Tasks**

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A FR.E.S.H Idea:
Introducing Human Factoring into Business Process Modelling

Minutes of Meeting No: 5
Mode: In-Person
Date of Meeting: 3rd October 2009
Time: 11-2pm

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**Agenda topics**

Previous meeting deadlines discussed.
Progress to date.

**Discussion**
Theories, Conclusion & Limitations discussed.

**Conclusion**
Team to be engaged in the research.

**Action Tasks**

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Appendix A| vi
Minutes of Meeting No: 6  
Date of Meeting: 10th October 2009  
Time: 10-2pm

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**Agenda topics**
Report Finalisation  
Amalgamation discussed  
Presentation slides will be discussed

**Discussion**
To be carried on in next meeting

**Conclusion**
The final report was agreed upon.

**Action Tasks**

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<th>No.</th>
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## Gantt Chart

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<td>Wed 7/10/09</td>
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<td>Mon 7/9/09</td>
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<td>Mon 7/9/09</td>
<td>Tue 8/9/09</td>
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<td>Concurrence &amp; Limitations</td>
<td>5 days</td>
<td>Mon 14/9/09</td>
<td>Fri 18/9/09</td>
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<td>Thu 1/10/09</td>
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A FR.E.S.H Idea:
Introducing Human Factoring into Business Process Modelling

Work Breakdown Structure
A FR.E.S.H Idea:  
Introducing Human Factoring into Business Process Modelling

**Appendix C: Practical Application**