Abstract - Six Sigma is considered to be an important management philosophy to obtain satisfied customers. But financial service organisations have been slow to adopt Six Sigma issues so far. Despite the extensive effort that has been invested and benefits that can be obtained, the systematic implementation of Six Sigma in financial service organisations is limited. As a company wide implementation framework is missing so far, this paper tries to fill this gap. Based on theory, a conceptual framework is developed and evaluated by experts from financial institutions. The results show that it is very important to link Six Sigma with the strategic as well as the operations level. Furthermore, although Six Sigma is a very important method for improving quality of processes others such as Lean Management are also used. This requires a superior project portfolio management to coordinate resources and projects of Six Sigma with the other methods used. Beside the theoretical contribution, the framework can be used by financial service companies to evaluate their Six Sigma activities. Thus, the framework grounded through literature and empirical data will be a useful guide for sustainable and successful implementation of a Six Sigma initiative in financial service organisations.

Keywords - Six Sigma, Framework, Financial Services, Qualitative Research, Expert Interviews

I. INTRODUCTION

Six Sigma is getting popular in banks and insurance companies. This holds true especially in European countries. However, many financial service institutions have problems in applying Six Sigma. Beside basic problems on the project level a major challenge is the implementation on an organisational level [1]. The consequences are immense as the idea of Six Sigma is not the execution of single projects. It should be used as an initiative, i.e. as a continuous, long-term application, to establish a quality philosophy in the whole company [2].

A major reason why companies fail to implement a companywide Six Sigma program is seen in the absence of a theoretical approach how to do this effectively [3]. The challenge is to establish Six Sigma on an organisational level in a sustainable way. Thus, the aim of this research is to explore how financial service companies can implement a Six Sigma initiative on a company level. [4] argued that a sound implementation plan should define what an organisation does, what it is trying to do and how it is going to do it, ensuring that each step builds on the previous one. Consequently, we aim at setting up a framework based on theory and empirical evidence from the financial sector. Thus, our goal is to translate Six Sigma theory into practice through some systematic means. The framework will enable organisations to introduce the elements of Six Sigma in a more comprehensive, controlled and timely manner [5].

Next we discuss briefly about the initial conceptual framework. Then research method is discussed followed by the development of the framework through empirical data. Finally, we conclude by discussing the implications and future directions.

II. THEORETICAL FRAMEWORK

In literature there are several frameworks available related to Total Quality Management (TQM), most of them are assessment frameworks such as the one discussed by [6]. Concerning Six Sigma there is limited framework development in manufacturing. The literature search revealed one framework based on business process change theory [7]. For the service industry no framework so far exists.

The focus of our framework is on the implementation process from organisation level to project level, i.e., Critical Success Factors (CSFs) and Key Performance Indicators (KPIs) along with Critical to Quality (CTQ) characteristics and portfolio management. Given the nascent stage of Six Sigma implementation in financial service organisations, our framework is more academic-based. Academic-based frameworks are developed by researchers mainly through their own research and experiences in the field [8].

Based on theory, the framework presented in Figure 1 was developed. The proposed framework aims at defining the elements which should be considered when implementing Six Sigma in a financial service company.
Starting point for the framework development is the so called CSFs. The idea of identifying CSFs as a basis for determining information needs of managers was popularised by [9]. Narrowing the focus to financial service companies there is little empirical evidence. [10] is the only one specific to service organisations whereas [1] are unique in analysing CSFs for financial service companies. Within their survey, the following six CSFs could be identified: (1) Top management support, (2) Sufficient staff, (3) Sufficient data concerning quality and quantity, (4) Focus on customer requirements, (5) Continuous monitoring of goal achievement and (6) Integration of the Six Sigma initiative within the overall business strategy.

The CSFs for Six Sigma identified for financial services are reflected in the design of the framework. Core is the portfolio management which is based on KPIs. KPIs are measurements of a performance such as asset utilisation, customer satisfaction, cycle time from order to delivery, inventory turnover, operations costs, productivity, and financial results [18]. Thus, the relevant KPIs for Six Sigma should be measured and form the basis for the benefit management. The core of the framework is the project portfolio management. Aim is the coordination of the different projects competing for resources within a company [11]. Therefore, projects cannot be managed independently from each other [12, 13].

The first task of portfolio management, the planning of the project portfolio, is grounded on CTQs as well as Critical to business aspects (CTBs). This includes selection, prioritisation, continuous monitoring and allocation of resources [14]. These tasks are mainly influenced by the strategic goals and the methodology used for conducting the projects [11]. Concerning the strategic consideration, [11] highlight that external and internal business factors should be taken into account. For the second task, the project execution, <own work> developed a framework for Six Sigma in service organisations based on surveys and case studies. This framework highlights the same critical issues on a project level and thus fits perfectly into the proposed framework on an organisational level. The execution of projects follows the common method DMAIC with the project phases Define, Measure, Analyse, Improve and Control [15]. The third task, benefit management, should be conducted qualitatively as well as quantitatively. However, an evaluation should be done in the same way for each projects to ensure a comparability [11]. Such a benefit management can take place using various methods like Return on Investment (ROI) or Net Present Value (NPV) [16]. However, many service companies struggle with this task having different methods for evaluating and comparing projects [17].

The whole implementation of Six Sigma should be embedded in the organisational conditions as these are crucial for the success of a Six Sigma program [18]. Major cornerstones are the motivation of employees, a structured change procedure and a clear integration in the structural organisation of the financial service company. To ensure a continuous motivation of employees they have to be educated continuously using incentives for an active participation [2]. Beyond direct Six Sigma related incentives, the whole culture, structure and processes of a company have to change [18]. Consequently, a supporting training, management and salary system is necessary [19]. Concerning the structural organisation, theory suggests that a Six Sigma initiative is lead by a champion or a (master) black belt leading to a parallel-meso structure [20]. Including these supporting tasks in the framework a sustainable and successful Six Sigma initiative is likely to be expected.

III. METHOD AND DATA

A. Method and survey

For evaluation purposes expert interviews with responsible persons for Six Sigma in financial service organisations were conducted. To question the experts a structured survey with open questions was used. The survey incorporated questions regarding the framework as a whole and the respective elements. The participants were asked to evaluate these and to provide details about the situation in the respective financial service institution.

B. Demographic Data

In total eleven experts working in financial institutions were questioned. To ensure different perspectives employees with various roles of Six Sigma were incorporated. Among the participants there is one sponsor, one champion, five Master Black Belts, one Black Belt, two Green Belts and one responsible manager for Belt resources. The size of the financial service institutions the participants are working in ranges from 500-999 to over 10.000. Thus, the participants represent medium-sized as well as large organisations for which it makes sense to implement Six Sigma. Also the experience with Six Sigma reveals the full spectrum.
organisations are at the beginning (10 to 20 projects), two have conducted between 20 and 30 projects, one between 30 and 40 and five companies are quite experienced with over 50 projects so far. In average the success rate of these projects is round about 90 per cent with regard to the respective defined project goals.

IV. REVISED FRAMEWORK

The revised framework based on the empirical evidence of the expert interviews is depicted in Figure 2.

The framework highlights according to the empirical evidence that Six Sigma is only one approach among other process improvement initiatives. An initiative has to be integrated in the whole management of the company. This is seen as a very important foundation for the improvement of processes in financial service institutions. The detailed insights are reported in the following sections.

A. Strategy

Starting point for any process improvement initiatives are the strategic objectives. Although there is a close link to the KPIs (as these are the operationalised measurable strategic objectives) the experts highlighted this issue. From their point of view, this is the basis for every step in the evolution of an organisation. Typical KPIs mentioned to operationalise the strategic business objectives are productivity, quality and the achievement of service level agreements.

Based on the data collected from the interviews the majority of the respondents were of the view that CTQs and CTBs should be attached to KPIs. The reason behind this proposition is due to the non-existence of KPIs in some cases. In those scenarios CTQs and CTBs can help in deriving the KPIs. This can be viewed from the quote of one of the respondents

“…often KPIs are not existing......then CTQs are used.”

CTQs are usually asked directly using questionnaires or conducting telephone interviews. One organisation even applied a structured approach by applying Hoshin-Kanri - a management system for long term improvements. Overall CTQs are closely connected to CTBs and for some institutions CTQs are dominating.

CTBs are linked to financial, strategic as well as regulatory topics. To gather CTB aspects a variety of methods is used in financial service institutions. The range is from key measures of the company, utility value analysis, cause-and-effect-diagrams to benchmarks with other companies. One company even monitors and reports operational KPIs daily. Some experts also mentioned that the voice of the employees is included in the analysis. To indicate the importance of business processes typically a performance matrix is set up. However, CTBs are often driven by regulatory requirements as the financial sector is highly regulated.

B. Line management

The section on line management is derived from the empirical data. As one of the participant mentioned:

“Link of KPIs to line organisation and from project portfolio to line organisation......”

The execution of processes in the line management is the basis to continuously measure whether improvements are necessary or not. The measures are in line with the defined KPIs. If there is a deviation from planned values the first step is to aim for a continuous process improvement (CPI). Here, the understanding of the experts is that such a CPI is conducted in incremental steps. These do not require the set up of a project such as it is done using Six Sigma. This should not be confused with Six Sigma being a method for continuous also termed as evolutionary improvement. However, the literature is divided on inclusion of Six Sigma as continuous improvement process (e.g. see [6, 18]). Given this ambiguity but based on the findings we felt Six Sigma is a part of continuous improvement initiatives in organisations. Nevertheless, we included the view of the
experts that there is a lower level of continuous improvement not requiring projects.

C. Project portfolio management

All experts reported that Six Sigma is an important initiative but there are other methods which are used to improve the processes. Typically, a Six Sigma initiative is part of a process excellence program. A very prominent method is Lean management applied by nearly all financial service institutions. Others applied are quality assurance, quality control and even some use business process reengineering as a radical method. Total Quality Management and Kaizen were only mentioned by one expert.

To ensure a selection of the adequate method for an occurring problem, the experts predominantly described the usage of a fixed procedure. The reason behind is to distinguish between projects which fall under Six Sigma and the projects which are part of other process improvement initiatives.

Typically the planning of the portfolio takes place by setting up a project portfolio matrix. The matrix is based on indicators such as financial benefits through cost reduction, operational stability, cycle time reduction, gaining productivity for growth, urgency, risks, probability of success, consequences if not done, strategy and qualitative utility. A major factor is also the availability of a project sponsor who is willing to provide budget and resources. Once the measurements have been identified a prioritisation takes place. Some decide rather on “gut feeling” but the trend is clearly in the direction of assigning scores to the projects. Such a quantitative scoring is based on the weighted individual measures.

During this process also the best fitting method for process improvement is assigned. This leads to a separation in portfolios after the selected projects are defined.

D. Six Sigma initiative

Once a project is assigned for Six Sigma a typical procedure is to have a talk with the sponsor, select the necessary employees and to conduct a kick-off meeting. Afterwards the typical approach follows theory in applying the DMAIC as described in the theoretical framework.

Concerning the organisational conditions, the integration of the Six Sigma initiative in the company is mostly twofold. On the one hand employees are selected and trained for the major roles within Six Sigma. Although external partners are used for training purposes the aim is to conduct training mainly internal. To ensure a close connection and exchange of experiences, meetings are held regularly on different levels of responsibility. On the other hand, the “normal” employees are informed about the initiative. Some institutions limit this to the employees affected by projects, some generally inform about the initiative.

A promising approach is to train employees and to put them in the line management after having conducted several projects. In their new position they are aware of seeking for possible projects and to spread the idea of Six Sigma. Another approach reported, is to link the line management and the Six Sigma initiative by using a business partner model. Following this idea, a black belt is assigned to every functional department, i.e., he acts in the way of a contact person or consultant with regard to process improvement issues. Overall, financial service institutions try to connect project and line management with regard to Six Sigma.

E. Benefit management

All experts agreed with the importance of a sustainable benefit management of projects. However, some do not apply a structured measurement so far but aim at implementing a net-benefit analysis.

An important factor is the linkage to the financial or controlling department. The project management is responsible for investing their expertise to solve a specific project in a defined time phase. The impulse is coming from the line management and afterwards the experts for measuring the success achieved should take over. Thus, controlling should be responsible to monitor the improved processes and compare the performance with the relevant KPIs. In an ideal case the potential of the project should be linked directly with the annual budget of the process. This is already applied by some financial service institutions. As a result, the specific monitoring is conducted for a limited time period only. Having calculated the impact to the regular budget the responsibility for the process should be handed over to the process manager in the line management as soon as possible. Potential problems can thus be detected in the usual process measurement during process operations. Some experts also mentioned to include human relations department to consider employee related aspects.

IV. CONCLUSION

Six Sigma is a methodology which can be seen as a toolkit to be adapted very flexibly by companies in order to enhance process quality. Within literature a lot of effort is put in identifying CSFs to ensure a successful application of Six Sigma. What is missing so far and picked up in this research is the question how to cope with the CSFs identified. The results of this research show that Six Sigma in financial service institutions requires a lot of organisation to be applied successfully. The revised framework based on the empirical results shows that Six Sigma is even more embedded in other structural elements of a company. However, the experience of the experts showed that such an implementation leads to quite considerable success.

Beside the theoretical contribution, the framework can be used by financial service companies to evaluate their Six Sigma activities. The framework will deliver the
overall picture helping to identify which relevant aspects have been considered and which are missing. Thus, the Six Sigma initiative can be made more successful.

Future work will concentrate on broadening the empirical evidence. The idea is also to have a look in other service sectors to identify critical issues and integrate them towards a framework for Six Sigma initiatives for service companies.

REFERENCES


