Haaga-Helia
University of Applied Sciences

Implementing Continual Service Improvement Process for Aberdeen Standard ITSS Division

Sebastian Ruostesaari

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Haaga-Helia
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Abstract

Author(s)

Sebastian Ruostesaari

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The thesis is about process implementation theory and the start of a real-life case study. It describes the needs of new process implementation in the Aberdeen Standard Investments Information Technologies Support Services (ITSS) division. The theory part presents how continual improvement process can be implemented by using best practises. It describes all critical steps that need to be followed to have successful process implementation.

The study presents three well-known continuous service improvement frameworks such as Six Sigma, Lean and ITIL CSI and why one of them was selected over the others.

It gives responses to two major questions: how teams in the division are currently managing improvement work and how to create and implement global improvement process for the ITSS division?

It contains the start of real-life case how process implementation was managed in real life and what were the differences from theory.

The thesis works as a case example how to do a successful implementation by following best practises.

The work contains the following main areas: presenting the company, team and the current situation, introducing well-known continuous improvement processes, highlights the selection of the right method to ensure best approach, taking step-by-step point of view to implementation stages, presenting the start of the real life project, highlighting major risks in the process, summary of the best practises during the implementations work.

The best practices are based on Six Sigma – the define, measure, analyse, design and verify (DMADV) approach. By using the DMADV approach possibilities are created to success in the process implementation because the DMADV framework is designed to support implementation of new processes and activities.

Keywords

ITIL, Lean, Six Sigma, DMADV, Method, Continual Service Improvement, Service Now, Process.

Table of contents

1 Introduction 1
1.1 Aberdeen Standard Investments 1
1.2 Investment Technology Solution Support (ITSS) 1
1.3 Service Improvement Team 2
1.4 Background of the thesis 2
1.5 Aim and purpose 3
1.6 Business case 3
1.7 Global strategy and change team 5
1.8 Levels of training in the strategy and change team 5
2 Research problem and questions 7
2.1 Scope of the study 8
2.2 Plan, Do, Check Act (PDCA) wheel phases and benefits in high level 10
3 Methods 13
3.1 Known improvement process methods 14
3.2 Six Sigma 14
3.3 Lean 18
3.4 ITIL CSI 20
3.5 Method for implementing new CSI process 23
4 Using DMADV approach to implement CSI process 25
4.1 DMADV Define 25
4.2 Failure Mode Effects Analysis (FMEA) 26
4.3 DMADV Measure 27
4.4 Voice of Customer (VoC) 28
4.5 DMADV Analyse 29
4.6 DMADV Design 30
4.7 DMADV Validate 31
4.8 DMADV Accreditation 32
5 Project study case 33
5.1 Analysing interviews 36
6 Summary and conclusion 38
6.1 Other conclusions 40
7 References 43
8 Appendices 45
8.1 Appendix 1. Global office locations for Aberdeen Standard Investments 45

8.2 Appendix 2. Leadership team for Investment Technology Solution Support (ITSS) 2/2019 46
8.3 Appendix 3. Structure of the Service Improvement team (2/2019) 47
8.4 Appendix 4. Process Improvement team (2/2019) 47
8.5 Appendix 5. Process Improvement charter 48
8.6 Appendix 6. DMADV reference guide 49
8.7 Appendix 7. Example of FMEA table 51
8.8 Appendix 8. Fishbone (Six M's) - elements affect by CSI process 52
8.9 Appendix 9. Storyboard master slides 53
8.10 Appendix 10. Interview log 55

1 Introduction

This thesis will focus on theory level how continual service improvement process could be implemented in operational information technology environment within Aberdeen Standard Investments. The theory is built around a given CSI strategy. It introduces Aberdeen Standard Investments as a company and the teams that have critical role in the continual service improvement process implementation. It will study in high-level well-known improvement methods to the point that helps to understand which of them would suite best in the actual implementation process. The thesis will contain a start of a real-life project to illustrate how things where done by the project team to the point where stakeholders were engaged. It summarises at the end how a real-life project diverges from theory suggestion and highlight risks involved.

1.1 Aberdeen Standard Investments

Standard Life Aberdeen plc is one of the world's largest investment companies, created in 2017 from the merger of Standard Life plc and Aberdeen Asset Management PLC. Operating under the brand Aberdeen Standard Investments, the investment arm manages £557.1bn, €629.9bn, $735.5bn* of assets, making it the largest active manager in the UK and one of the largest in Europe. The company has a significant global presence and the scale and expertise to help clients meet their investment goals.

As a leading global asset manager, Aberdeen Standard Investments is dedicated to creating long-term value for our clients. The investment needs for clients are at the heart of what the company does. Aberdeen Asset Investments offer a comprehensive range of investment solutions, as well as the very highest level of service and support. *as at 30 Jun 2018 (Aberdeen Standard Investments who we are) To see global office locations please see appendix 1. (Appendix 1. Global office locations for Aberdeen Standard Investments.)

1.2 Investment Technology Solution Support (ITSS)

Solutions Support is accountable for supporting all implemented Technology solutions globally across Aberdeen Standard Investments (ASI). The goal is to help ensure

colleagues, clients and partners are as productive as they can be by delivering a peerless 24/7 technology service. The division wants to provide a consistently excellent service worldwide, whilst ensuring local needs in the regions where it operates. To see leadership organisation please see appendix 2. (Appendix 2. Leadership team for Investment Technology Solution Support (ITSS) 2/2019.)

The ITSS division has multiple important activities to carry out and one of those activities is Continual Service Improvement (CSI). Hundreds of IT specialists in application support, service delivery, service design & change and service operations are doing improvement work around the globe in the division.

1.3 Service Improvement Team

The reason why the topic was selected is because my work is around Problem Management and Continual Service Improvements. The team that is presented in appendix 3 (Appendix 3. Structure of the Service Improvement team (2/2019)) have responsibilities on the global level and most of the team are located in Scotland Edinburgh. The team is relatively new and does not have burdens from an old organisation, as it did not exist before. The team has also other responsibilities to manage certain budgets and an Information Technology Services (ITS) operational system called Service Now.

Service Now is the main application for all IT staff in the company. It contains all information about customers, incidents, requests, changes, knowledge and assets. Service Now is a modern tool in the IT world and is widely in use globally. For this study Service Now is essential because it is likely that all improvement reporting will be managed in the system.

1.4 Background of the thesis

I started my role in the team in 2017. At the time we did not have processes created for Problem Management or Continuous Service Improvements. For Problem Management process, a process is now in place but for Continuous Service Improvements we don’t have any processes in place. Because we don’t have a process for SCI there is needs to start looking at the situation and create one. For this reason, the team needs to get a clear

understanding of the current situation how improvement work is done in the teams. Once the situation has been mapped, the next step is to see what kind of process would work the best for the division. The final step is to create one improvement model for all ITSS teams. Creating a process model supports teams in simple ways to manage their improvement activities and ensuring the model encourages teams to do improvement work it is expected that customers will get better user experience. How this all get done will be explained with details later on.

1.5 Aim and purpose

The goal is to generate one common CSI model for the ITSS division. This will help management to create understanding of all improvement work that is done in the division. It should be supported by relevant reports and therefore work as a tool pack for management to steer all improvement work.

It is expected that currently in the ITSS division teams have multiple ways to do CSI for the activities they manage. This leads to a situation where centric control is lost. It is very hard to track activities and report them to the management team because they are spread out. The study will provide status of the current situation for all ITS teams how CSI is currently being done and create guidelines how process implementation could be done.

Expected benefits from the study are:

- How to implement Continuous Service Improvement process
- Gain understanding how improvements are done today in teams
- Enable discussion in the division of the benefits of one common process.

1.6 Business case

The business case is built around improved customer experience as primary goal. Improved customer experience is the justification why the process should be implemented. The business case is dependent of the success factors such as easy process model and practical reporting. In the centre of the process are customers' needs and staff needs. If the process can successfully support both parties, it has good possibilities to create value for the company.

There are other elements that will be needed, such as know-how from the implementation team of the proper process tools, enough time to complete the actual work and studies. Well integrated process model will have reduced cost implications as well by removing waste and optimising operational work but at this stage it is impossible to give any estimations of cost savings. Therefore, the goal is only to focus on improving Information Technology Services operational work.

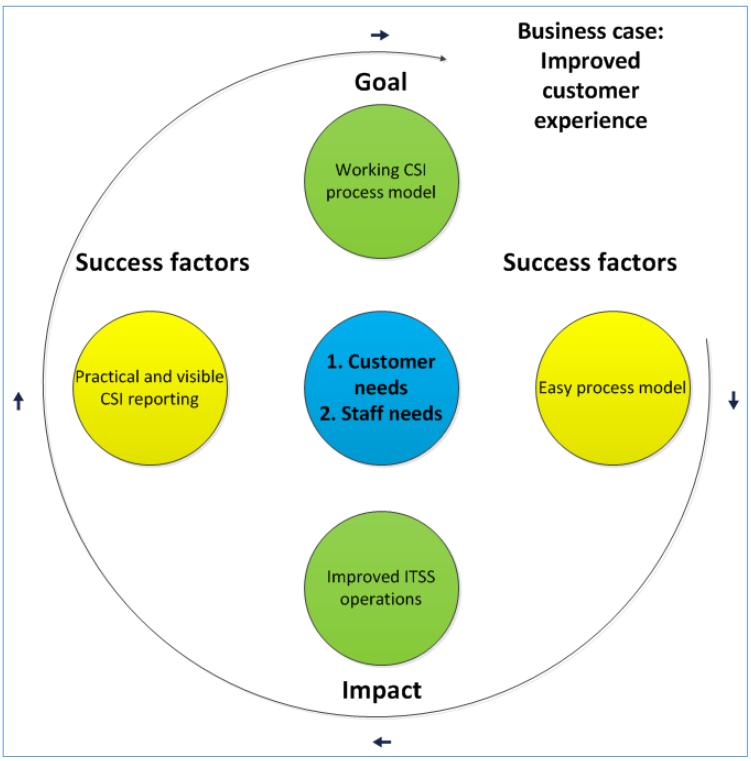


Figure 1. Business case (Ruostesaari, 2019.)

Time schedules 2019 Project High level plan

Feb – Apr	Create picture of current situation
May – Aug	Create CSI model for the teams
Sept – Nov	Communicate, train model to all teams
Dec	Implement new CSI roadmap for the ITS teams

Time schedules 2018 – 2019 Thesis High level plan

April	Study well-known continual service improvement process
May	Create a survey for the teams of current situation CSI situation
May	Study and analyse survey answers
June	Create CSI roadmap based on the theory and survey
August	Release first draft
October	Make corrections to the thesis draft
May	Return final thesis.

1.7 Global strategy and change team

The company has currently in use a general continuous process improvement model that is owned by the strategy and change team that is presented in appendix 4. (Appendix 4. Process Improvement team (2/2019.) This team is working with process improvements for any internal divisions in the company. The team uses Lean Six Sigma as a base to all the improvements they support. The team provides training for yellow belts, green belts and black belt champions who have different improvement work that they need to carry out. Coaching and supporting for internal staff start with accepted topic by the improvement team. The strategy and change team helps different divisions with selected topics leaving small agile improvements out of scope. It is a heavy process with comprehensive documentation and training sessions.

1.8 Levels of training in the strategy and change team

In yellow belt training the CSI team trains just the very basics of the process and how to do simple improvement tasks. The course takes one day to complete. After that, the trainees will start to work with the improvement topic and are supported by the CSI team to ensure the process is followed. In green belt courses, the training takes a deeper dive

to the CSI topics lasting up to five days before all training material has been completed with trainees and usually lasts six months from start to end. These trainings begin by filling in charter form that is presented in Appendix 5. (Appendix 5. Process Improvement charter.). Project charter needs to include approvals from line manager as the improvement might involve costs.

I participated in the green belt training to gain a better understanding of Lean and Six Sigma. During the training, we got an overview of all objects that are important for the two frameworks. This was supported by different training sessions and a certification exam.

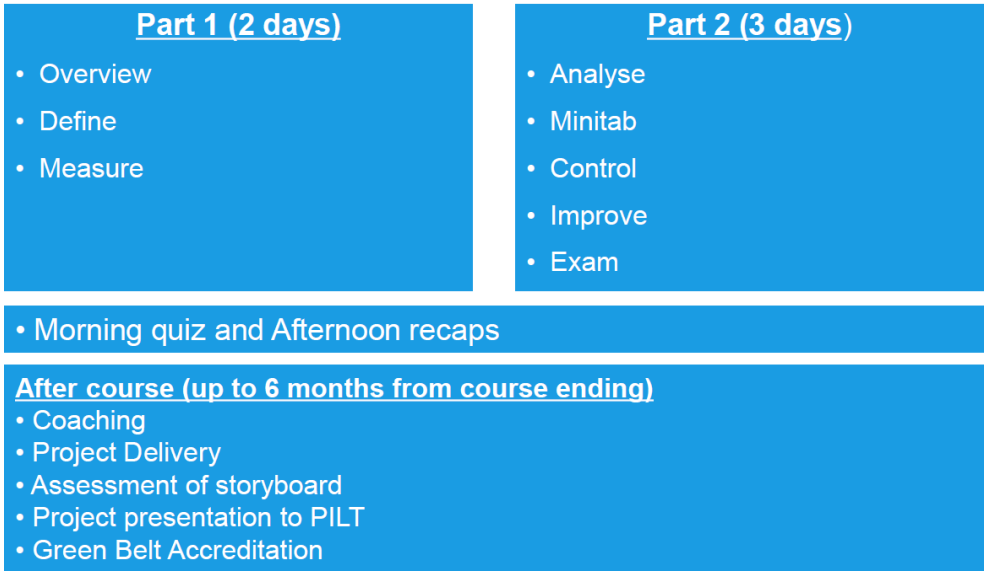


Figure 2. Schedule for Green Belt training (ASI Green Belt training material 2018.)

After the training, the work with the projects was meant to be kicked off. It was expected that all participants will work around 30% of their time with the projects. My project at the time did not get funded and for that reason the project was stopped.

2 Research problem and questions

Aberdeen Standard Investment as a company has expanded dramatically over the years and now, as it has more than 6000 employees globally. There is a need to have more structured ways for all functions where service improvement is one of the many.

The issue is that there has not been any structured ways to do service improvement in the past. It is unknown for the team and management how all teams are doing their improvement work. It is expected that they do improvement work but the ways are unknown. Therefore, I have created two critical questions that need to be answered.

- How continual service improvement is being done in the ITSS division currently?
- How to create a global continuing service improvement process for the ITSS division?

There is a need to know the current situation for the teams how they are doing their improvement work. The service improvement project team will investigate this as it will help to understand how service improvement team can help other teams with their improvement work and how we can get that reported to the management. The most troubling outcome would be if the findings showed that there is no improvement happening in the teams. In this situation it would become critical to implement improvement process for the teams and support those teams so that they would start doing improvement work. This scenario however is very unlikely in the IT world. Once it is known how the improvement work is done the next important question is what kind of improvement process we should have.

Improvements can be done in many ways and therefore it is not an easy task to create one process that fits all. It is likely that whatever the process will be it will not capture all improvement work and it probably will not fit in 100% of the cases. It can however work as a guideline and give direction to the teams where to get help when there is need for that. As the scale of the work is wide it is recommended to use Fishbone to create picture of all elements involved. (Appendix 8. Fishbone (Six M’s) - elements affect by CSI process.)

2.1 Scope of the study

As it is critical to improve business processes constantly, an improvement process should be adopted in all business functions to ensure they are fulfilling their objectives in effective ways and to avoid waste where possible. In last years the improvement work has become more important because work is changing constantly. The new norm is that there are ongoing changes all the time in the companies. GCHQ describes the change in the following terms.

“The pace of disruption and radical change used to be measured in decades. If a business knew what it was going to do for the next 10 to 15 years, then focussing on efficiency and predictability made sense. However, the pace of disruption is accelerating, and as it does so focussing on efficiency and predictability actually becomes detrimental to an organisation’s health. Business agility and delivering new business value become the only game in town.” (GCHQ Boiling Frogs, 2018, page 6)

This is one of the many reasons why the improvement team was created. To ensure the ITSS division is modifying their ways of working to respond to customer needs. The ITSS division has its own improvement strategy but it has not been implemented. The aim is to ensure this strategy will be adopted in the division as normal working routines and improved during its life cycle. The strategy is created by my line manager Head of Service Improvements.

Strategy needs to be in place before any actions can be started. It works as operational guidance. Forbes described strategy as follows.

“A strategy is a framework for making decisions about how you will play the game of business. These decisions, which occur daily throughout the organization, include everything from capital investments to operational priorities to marketing to hiring to sales approaches to branding efforts to how each individual shuffles his To Do list every single morning. Without a strategic framework to guide these decisions, the organization will run in too many different directions, accomplish little, squander profits, and suffer enormous confusion and discord.

A strategic framework must establish what the organization will do to deliver value for which customers are willing to pay and how it expects to hit target revenues and profits. The strategy doesn't answer all the questions required for implementation--that's planning, but it clearly establishes the game you are playing and how you expect to win. It also

identifies the games you aren't playing — the things you have no intention of delivering, even if your best customer begs you.

Identifying products, services, and target markets is only the beginning. The strategic framework must also establish the business model used to profitably create sufficient volumes of value”. (Forbes, Latham, 2017)

The strategy is based on the Information Technology Infrastructure Library version 3 (ITIL) Continual Service Improvement (CSI) model where core method for improvements is done by Plan, Do, Check and Act known as PDCA. It is also known as the Deming circle/cycle/wheel or Shewhart cycle method. PDCA has several different variations such as Plan, Do, Study and Act (PDSA) or Observe, Plan, Do, Check and Act (OPDCA). PDCA can be backtracked to 1920 where statistics expert Mr. Walter A. Shewart introduced it for the first time. PDCA will be introduced later on 11. (Mind Tools)..

Strategy is presenting the operational system called Service. This tool has a major role in the ITSS divison and it will be introduced later on in the study. Vision is introducing where the division is currently and where it should be in the following years. As the environment is constantly under major changes it is likely that the vision needs to be revisited and valuated in the next six months to ensure it is still relevant for the customers. On the figure 3 (Figure 3, 10) most critical aspects of the CSI strategy is presented and therefore it was studied to be able to create process actions and flows.

Figure 3. Strategy for continuous service improvement for ITSS division (Aberdeen Standard Investment CSI Strategy 2018.)

2.2 Plan, Do, Check Act (PDCA) wheel phases and benefits in high level

PDCA can be used in various different environments but in this study it will be tied to information technology only. Below is presented what the different phases mean and what kind of benefits PDCA can be expected to give. For the ITSS division all following statements are not relevant but most of the benefits can be useful for the division. Benefits

like problem solving, project management are relatively large areas and therefore those have own process models and teams to manage the work.

It is likely that many organisations are using PDCA without knowing that it is a specified process model. It is natural to try to improve work so that it makes more sense as there is no point in obvious cases to do something in wrong order or ways. In cases where an organisation sees issues they will try to improve the situation if it is doable. For some of the cases even if there are ways to do some operations in more effective ways it may contain reasons like different policies or laws why the situation cannot be changed. More problematic are the cases where the organisation does not see issues directly but suspects that something could work better but doesn't have an understanding how to improve the situation. This is one of the reasons improvement process would help organisations to raise awareness and train staff to improve daily work as business as usual.

The diagram below is shows the order and high level phases for the different stages.

Figure 4. PDCA cycle. (ASQ. 2018.)

Explanations of stages are the following:

- **Plan**. Identify and analyse the problem or opportunity, develop hypotheses about what the issues may be, and decide which one to test.
- **Do**. Test the potential solution, ideally on a small scale, and measure the results.
- **Check/Study.** Study the result, measure effectiveness, and decide whether the hypothesis is supported or not.

- **Act.** If the solution was successful, implement it. (Mind Tools. 2016.)

Benefits of the PDSA/PDCA “cycle:

- Daily routine management-for the individual and/or the team
- Problem-solving process
- Project management
- Continuous development
- Vendor development
- Human resources development
- New product development
- Process trials”. (I Six Sigma. 2018.)

3 Methods

Methods section describes the most common continuous improvement frameworks such as Six Sigma, LEAN and ITIL. I found it interesting during the study that most of the used frameworks are LEAN and Six Sigma tools. ITIL is an exception in this case as it is a wider framework that contains other sections that don't directly relate to improvements. In general all processes can be seen as they are about improvements but that would be generalization of the topic and not correct as the scope for the processes are quite different even if the aim is to improve.

As a company is using ITIL processes in all operational ITS teams it is very natural that ITIL CSI process will be adopted in this area as well. By doing this the frame of the processes are much more in line with each other's. ITIL processes are also one of the best-known processes in the ITSM world. "Over the years ITIL has evolved and, arguably, is how the most widely adopted approach in ITSM" TSO, Best Management Practice, 2011 edition, ITIL Continual Service Improvement. Introduction to the ITIL framework is presented in the next section.

To implement ITIL CSI strategy CSI team needs to create an implementation plan. To create the plan some best practise guidelines need to be followed. For this reason I have compared ITIL, LEAN and Six Sigma frameworks to see which of them would suite best for actual implementation of the strategy.

The ITSS division is a complex division with around 250 staff members and multiple different responsibility areas so it makes sense to spend time to think how the implementation of the process will be done to mitigate negative impacts. The division is very busy with the activities they run because of all migration-related work, changes, incidents, requests and projects. Therefore it is likely that even in case where the implementation plan is supporting the division's efforts well there will be resistance for any new processes. To minimise the resistance from the groups and individuals it is important that they will be heard to pick up the relevant criticism for the roll out to come. Planning should be based on implementation framework so that it will be easier to cover the main areas of successful roll out. If the team would just try to implement the strategy by creating notification to the division of the new process and not plan it, it would fail from the start. Management level support for this is secured as the continuous improvement strategy is approved.

3.1 Known improvement process methods

As the company strategy was introduced the next step was to create understanding of the implementation and current situation by answering the question “where are we today?”. The CSI team started to review the current situation and how to implement the CSI process. The work started by looking at the given strategy.

The CSI strategy contained high level guidelines where the division is currently and where it should be in the next few years. By reviewing the strategy and understanding the key points the team could start to see how this can be achieved by the process. The “road” of continued service improvement was then fitted to high level process. Process should be easy to follow and simple to report. These two key factors need to be kept clear all time during the project.

Now when some of the very basic factors where set the next step was to look at the frameworks and to see which of the frameworks would suite best for implementing the new process.

3.2 Six Sigma

Six Sigma was created in Motorola company in the 80s. The roots of Six Sigma as a measurement standard can be traced back to Carl Friedrich Gauss (1777-1855) who introduced the concept of the normal curve. (History of Six Sigma, 2018).

Six Sigma is a problem-solving methodology that is said to be one of the most effective problem-solving methodology available for improvement work. Six Sigma has four major areas in the framework; performance, improvement, deployment and toolsets. Six Sigma is often combined with Lean methods as hybrid practise according to Craig Gygi, Bruce William Six Sigma for Dummies. Six Sigma is built on experience hierarchy that has different levels of know-how roles.

The levels from highest to lowers are:

- Executive Leadership
- Champions
- Master Black Belts
- Black Belts

- Green Belts
- Yellow Belts
- Project members. (ASI Green Belt training material 2018.)

Six Sigma is one of the best known CSI frameworks and it is widely used in Aberdeen Standard Investment. Because of this it needs to be presented and explained on high level. Figure 5 shows how this framework as evolved during decades.

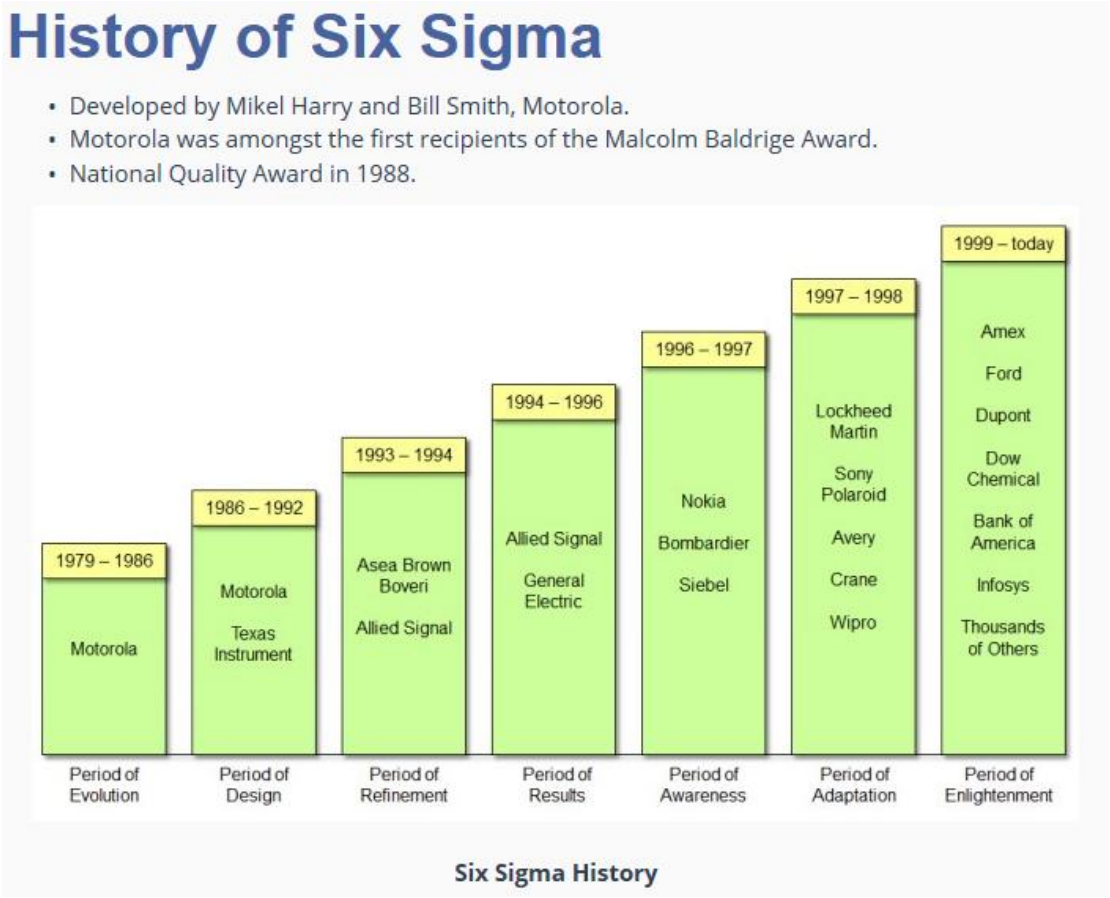


Figure 5. History of Six Sigma (Six Sigma-Institute. 2018.)

As mentioned before in Aberdeen we have an improvement team who are providing the training internally in the company from yellow belts to black belts. The improvement team members have roles from back belts to higher levels.

In Six Sigma you can use three different process approaches DMAIC, DMADV or DFSS. They all can be used in combination or as hybrids where Lean framework has been used at the same time.

DMAIC is mostly used in existing processes that need to be improved because they are broken. DMAIC stands for (examples):

- Define (problem and customer needs)
- Measure (gap between current performance and customer requirements)
- Analyse (root cause of the gap and the priorities)
- Improve (how to close the gap)
- Control (how to ensure gap stays closed).

DMADV is used new processes that need to be implemented. DMADV stands for (examples):

- Define (create team and time plan, manage risk and stakeholders, complete cost benefits analysis)
- Measure (determine customer wants and needs, convert to requirements and specifications)
- Analyse (design options and produce a conceptual design to meet requirements and specifications. Define architecture, manage interfaces and create detailed requirements for architectural blocks)
- Design (experiment with the design, test it out and optimise to meet detailed requirements.
- Validate (validate entire design through testing and optimisation, before handing over to operational management.

Design for Six Sigma (DFSS) is acronym for Design for Six Sigma. It does not have similar formal defined model and usually modified by the company needs to fit the purposes. It is a variant of the Six Sigma methodology. The most common usage for the process is when something new needs to be implemented or something is very broken and cannot be fixed. Well suited for designing products, processes, operation models, departments and organisations.

To select a suitable methodology in Six Sigma, the following flow diagram can be used, (Figure 6, 17).

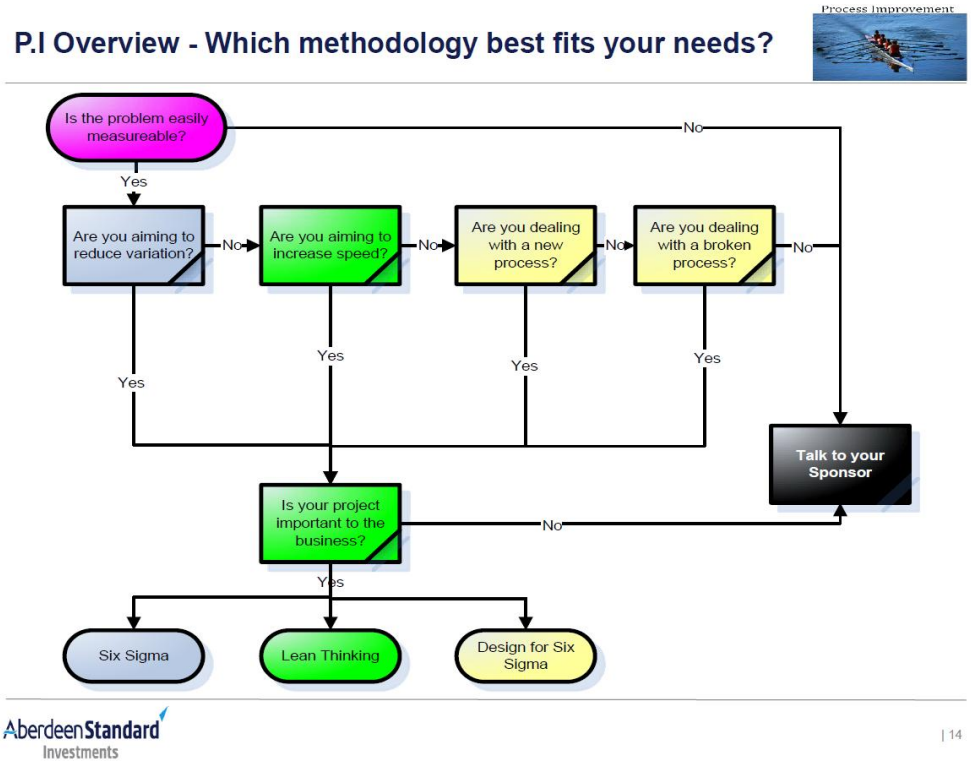


Figure 6. Methodology selection for improvement (ASI Green Belt training material 2018.)

Differences in Lean and Six Sigma according to Aberdeen improvement material.

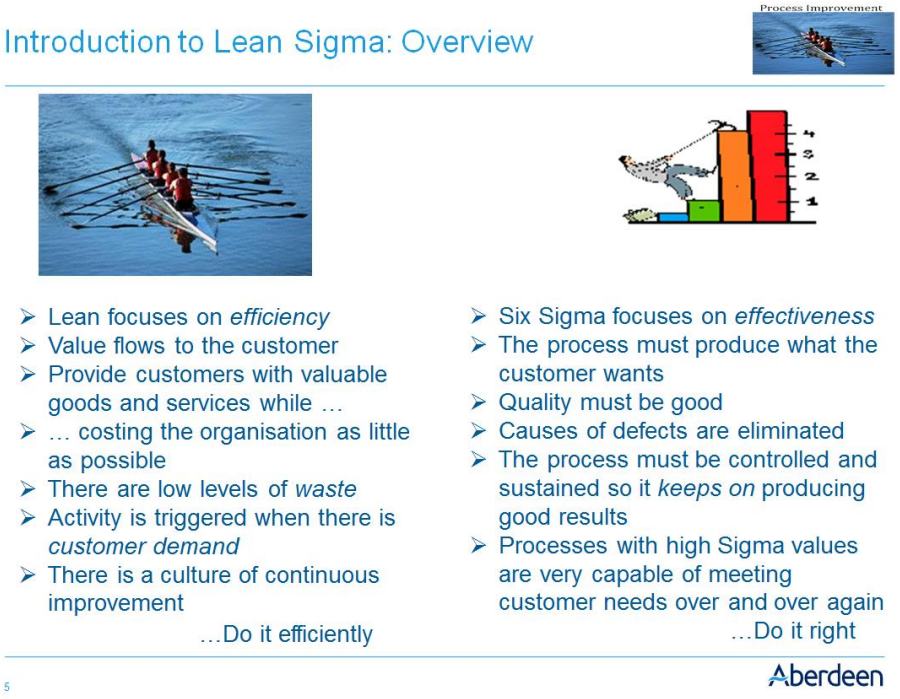
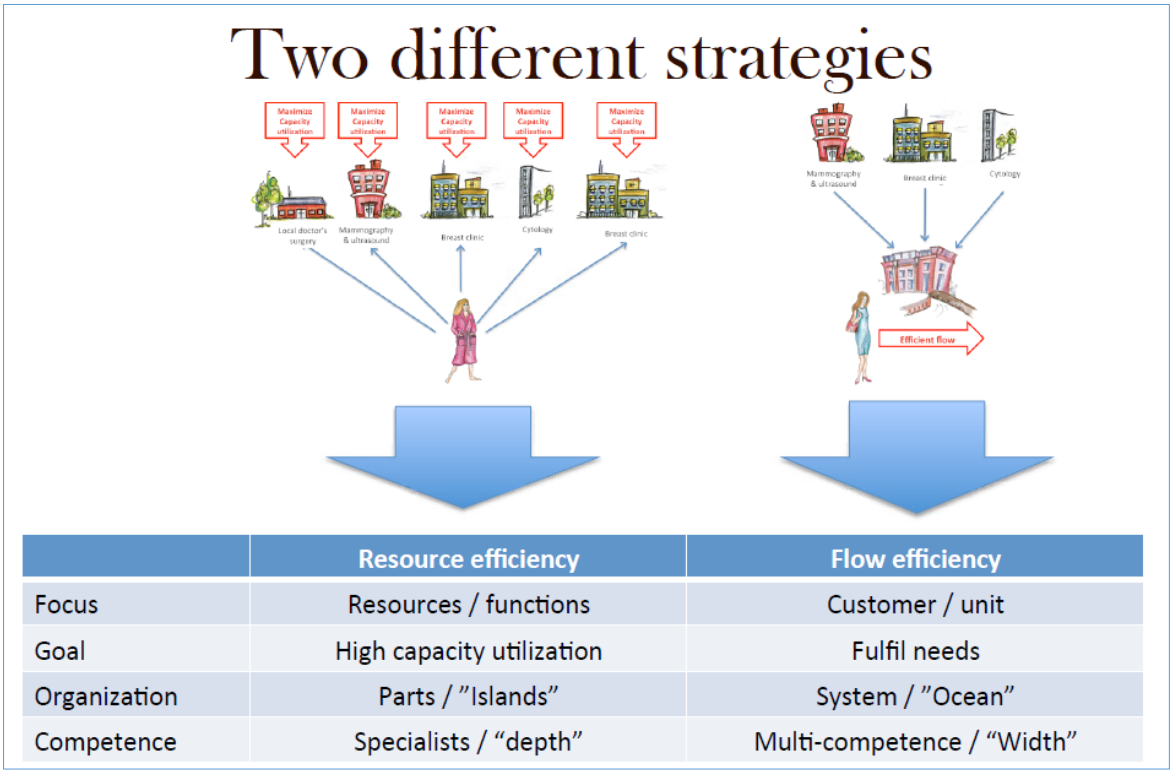


Figure 7. Overview of Lean Six Sigma differences (ASI Green Belt training material 2018.)

3.3 Lean

Early stage Lean thinking can be backtracked to process thinking in manufacturing arsenal in Venice in 1450s. It is said that the first person to use modern Lean method was Henry Ford in the early 1900s. During the 1930s Japanese car manufacturers as Kiichiro Toyoda, Taiichi Ohni matured the Lean process and invented the Toyota Production System.



	Resource efficiency	Flow efficiency
Focus	Resources / functions	Customer / unit
Goal	High capacity utilization	Fulfil needs
Organization	Parts / "Islands"	System / "Ocean"
Competence	Specialists / "depth"	Multi-competence / "Width"

Figure 8. Flow and Efficiency differences (This is Lean Niklas Moding & Pär Åhlström, 2013.)

The purpose of the Lean methodology is to create value to the customer by removing waste. Lean has two main concepts; create value and people. In both cases the efficiency is the strategy.

Resource efficiency and flow efficiency. Usually companies are using resource efficiency views to utilize workforce in best ways. In flow efficiency, the focus is more on customer needs and waiting time. Usually if the focus in more on flow efficiency the waiting time for customer is reduced. (Modig & Åhlström, This is Lean, 2013).

“In value creation there are seven major areas to review.

- Overproduction
- Waiting and delays
- Unnecessary transportation
- Defect in quality
- Unnecessary stores
- Over processing
- Unnecessary move during the work” (Kouri 2010, 10.)

“These two concepts should not be mixed to cost saving programs, minimise dependency to workforce, move to assembly line production, reduce meaning sense of work or cut from everything.” (Kouri 2010, 7.)

In Gemba frontline workers are providing information of the customer and by respecting frontline workers they have strong standpoint in the organisation to improve value for the customers. Lean works best in situations where the process is already in use but have need for improvements.

Pillars of Lean: Continuous improvement and Respect for People.

Figure 9. Cycle of CSI (Planview Lean Kit. 2019.)

3.4 ITIL CSI

ITIL was invented by British Government initiative in the 1980s. The first publication of ITIL was done in the 1990s. In 2000 ITIL was matured to version 2 and currently there is version 3 in use. In 2019 version 4 will be released.

“The purpose of the CSI stage of the lifecycle is to align IT services with changing business needs by identifying and implementing improvements to IT services that support business processes. These improvement activities support the lifecycle approach trough service strategy, service transition and service operation.

CSI is always seeking ways to improve service effectiveness, process effectiveness and cost effectiveness.” (ITIL continual service improvement book 2011, 4.)

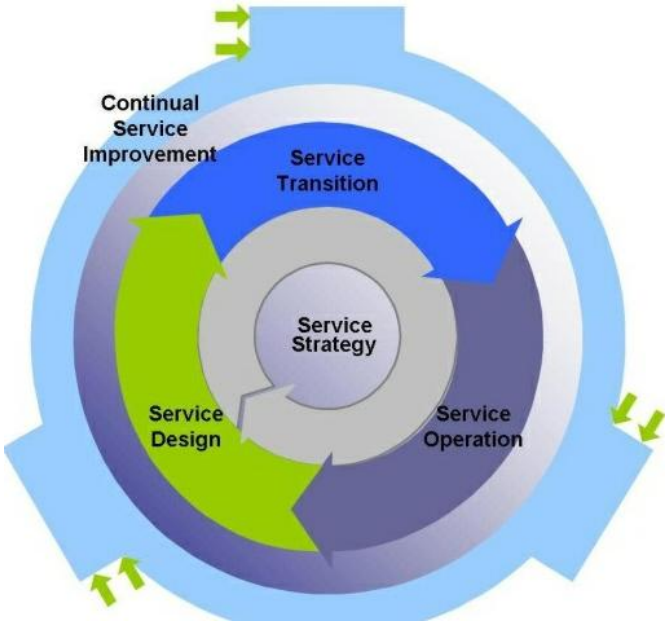


Figure 10. ITIL lifecycle (ITIL continual service improvement book 2011, 3.)

ITIL framework is divided into 5 core models where CSI is one of the frameworks:

- ITIL Service Strategy
- ITIL Service Design
- ITIL Service Transition
- ITIL Service Operation
- ITIL Continual Service Improvement. (ITIL continual service improvement book 2011, 6.)

ITIL CSI is based on the Deming Cycle as presented in the CSI strategy section (Figure 4). Six Sigma, Lean and ITIL CSI frameworks are all in some way utilising Deming Cycle.

The grouping of the stages may vary but the basic structure is always the same.

Deming Cycle Stage	DMAIC Stage	Definition	Action	Tools
Plan	Define	What is the problem	Identify Opportunities Scope the project	Problem Statement, Charter/TOR, A3
	Measure	How are we doing?	Analyse the process Define Outcomes	Process maps, Data, Capability Analysis,
	Analyse	What is wrong?	Identify Root Causes	5 Whys, FMEA, Gay Analysis, Pareto
Do	Improve	Fix it	Prioritise Refine Implement	
Check **Act**	Control	"Hold the gains" Celebrate	Measure Outcomes Acknowledgment	Control Charts

Figure 11. Comparing PDCA to DMAIC. (ASI Green Belt training material 2018.)

The PDCA cycle is used in cases where a process exist and has a need for improvements. The framework could be used for new processes but as it does not have the same kind of tool sets as Six Sigma has the accuracy and the critical factors may be missed.

"Continual service improvement must focus on increasing the efficiency, maximizing the effectiveness and optimising the cost of services and the underlying IT service management (ITSM) processes. The only way to do this is to ensure that improvement opportunities are identified throughout the entire service lifecycle." (ITIL continual service improvement book, 2011, 35.)

The approach for continual service improvements can be summarized to six major steps:

- embrace the vision
- assess current situation
- understand and agree the priorities
- plan the CSI details
- verify measurements and metrics
- maintain the quality of improvement.

Figure 12 shows usual CSI approach for improvement work.

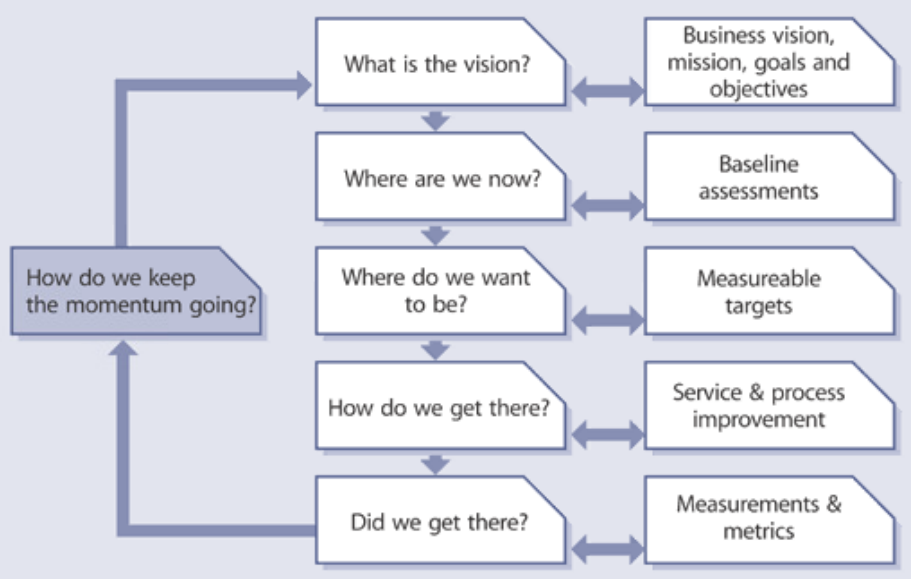


Figure 12. Continual service improvement approach (ITIL continual service improvement book, 2011, 35.)

3.5 Method for implementing new CSI process

Based on the studies in the methods sections the suggestion is to use the Six Sigma DMADV approach to implement a new CSI process for the ITSS division. It has the best process and toolsets for new processes that have not been used before. The second best fitted would be DFSS. Rest of the methodologies are unfitted for this purpose. Reason to this is because they aim to improve existing processes or to create value to customers which is usually the reason for all actions in the company but does not offer good structured ways to implement new functions.

DFSS could be used for the purpose but because it is not used in the company widely it would require further studies how to use it in best ways. In this case, the studies would be waste because there is available methodology that fits the purpose well. Reason why DFSS would require further studies is because it does not have a clear structure as DMADV has and therefore more studies would be needed to ensure it fits for implementation needs. In some cases, however, DFSS and DMADV are seen as the same process but as there is an option to choose the methodology it is more logical to choose DMADV where all components are well known and fit the purpose. Therefore, Six

Sigma DMADV that is presented in appendix 6 will be selected as the methodology to this case. (Appendix 6. DMADV reference guide.)

4 Using DMADV approach to implement CSI process

In this section it will explained how DMADV could be used for this case. DMADV can be used as guidance for any new process implementation to complex environments. The following steps below helps to understand what kind of actions will be needed for successful process implementation.

4.1 DMADV Define

In define phase opportunities needs to be described to explain why the topic was selected. For this case it was because our team is responsible of service improvement but we did not have any process in place for the given strategy. The strategy needs to have a working CSI process to support the strategy in best ways. If process is not created strategy cannot be implemented properly.

Stakeholders need to be identified on high level to gain a better understanding for whom the process will be implemented. Mapping the stakeholders will help to ensure all parties will be attached to the process and to gain their approvals for the process that will be implemented. The benefits of the process needs to be presented to the stakeholders to get their support to follow the new process. The commitment from stakeholders is a critical factor. If they don't see the value in the process or they do not understand it there is higher risk of process failure. To create a better understanding of all major objects that are involved fishbone mapping can be used. (Appendix 8. Fishbone (Six M's) - elements affect by CSI process.)

Basic risk mapping can be done by using the Six Sigma tool Failure Mode Effects Analysis (FMEA). This will help to identify all known issues with the new process and therefore they can be managed in better ways. By using FMEA and discussing the risk areas properly the project team can manage issues better.

In this case all members of the project team have gone through the Lean Six Sigma greenbelt training in the company and should have good understanding how Six Sigma tools such as FMEA, Fishbone and others can be used.

Timing is always a relevant question when starting new projects. If the project was directly mapped to Aberdeen business and there was demand from business side of a specific need, the timing part would be easy to justify. In this case when talking about the support

function and process that has not high demand from the business side the time is question of the essence. For the improvement team used hours for the project is easier to justify as that is one of the main work for the team but for other teams hours that can be used for supporting the new process will be more difficult question because there is much of other work that needs to be managed. Therefore, timing will be a critical question in the beginning of the project how much of stakeholders time can be spent to support the initiative to make most valuable for the time spent.

It is recommended that the following questions be answered properly:

- “Why did you choose DMADV as the roadmap to follow for your project?
- What is the product, process or service to be designed or replaced?
- How does it align to the business strategy (e.g. core, strategic objectives)?
- Does your process already exist?
- Who are your key stakeholders and how are you going to engage with them?
- Are there other people that you need to involve in your project? How committed are they?
- What risks currently exist in your process?
- How are you going to manage / build on these throughout your project?
- Does designing a new process fit with timings for business?”

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

4.2 Failure Mode Effects Analysis (FMEA)

FMEA is a tool that can be used in most of the DMADV steps (Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018). It is a generic tool that allows measuring critical factors to ensure success of the process. The model can be used to quantify and prioritise risks within a process, product or system. Therefore, it helps to keep track of most relevant items that must be addressed or improved. It is recommended that FMEA should be used during the Define and Analyse steps but it can be used in other steps as well if it creates value to the process. Using FMEA it allows the project team to create a list of the most important activities and risks the process implementation will have. To see example of FMEA please see appendix 7. (Appendix 7. Example of FMEA table.)

4.3 DMADV Measure

Measure phase is very much about the customer. In the measure phase value for the customer needs to be ensured. In this case it means the process should improve the ITSS teams' daily work with small easy to do improvements following the CSI process and report the actions to the CSI database. It is possible to use multiple different tools from the DMADV tool pack to mirror customers' needs and expectations but the recommendation for this case is to use voice of the customer (VoC) to create understanding of the expectations and needs. VoC will be explained at the end of Measure phase.

If the Measure phase would be overlooked the risk will increase to have a process that is not ready for usage or has critical issues. This would lead to situation where process changes are done after the implementation which is not recommended. It would be best to have a working process from the start because lots of training, reminding, monitoring and supporting will be needed during and after the implementation. If the process model does not fit the needs, it will be confusing to stakeholders to change their working ways from process perspective after the implementation and the project would basically start from the beginning again.

In this case the customer is ITSS division and the teams in the division that are providing support for business customers. Their responsibility is to respond in best ways to business customers' needs. From that perspective, the primary goal is to provide services without disturbances for the business customers. The CSI project team has to do two surveys to confirm relevant information that will support CSI process implementation. Surveys can be seen as voice of the customers steps.

The best approach would be to map by survey the current situation in the teams how they manage CSI. By doing the survey it will be possible to determine how well they are able to respond to the second survey which should be about customer needs. If the first survey showed that there is not enough information around CSI currently it may indicate that the success of the second survey is low because of lack of knowhow and therefore it is hard to describe the needs. In this case the team must take more efforts to understand the situation by creating assumptions of the customer needs. This is always risky because the information may not be relying on facts and therefore creating increased risk of the process failures in the concept phase. In situations where it is clear that customers don't have a very good picture of the needs based on the first survey it is possible to create a short and targeted information package about the CSI to the teams. This could be then presented to teams as info packs before doing a survey of the needs.

It is recommended that the following questions be answered properly:

- what do customers care about?
- what are the critical success factors?
- what is the relative importance of these factors?

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

The questions above are the most important ones. They work as indications how likely it is that the implementation project will success and work as fundamental questions for the project.

In measure phase it is possible to use supporting questions to take a more detailed approach to the critical questions but these are not mandatory as they work in this case only as control questions and therefore don't play a major role. The DMADV framework contains more control questions but as they are irrelevant for this specific case they have been removed.

Supporting questions would be:

- "What does your design need to be?
- What designs ideas are you considering?
- Where did your design ideas come from?
- What risks are associated with each one?
- What measures will you use to assess the ideas' effectiveness?"

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

4.4 Voice of Customer (VoC)

"Voice of Customer is the customer's voice about expectations, preferences, comments, of a product or service in discussion. It is the statement made by the customer on a particular product or service. Customer Identification is where one who buys or uses your products/services and he/she is the one who receives the process output. Classification of customers are divided in two groups internal and external.

In the figure 13 (Figure 13, 29), can be seen the Customer needs and requirements can be captured by several ways such as creating surveys, interviews, working with focus

groups by creating suggestions and observations." (Six Sigma History 2018.)

Verbatim	Need	Requirement
"I want the pizza that I ordered"	Right pizza to right person	Accuracy
"I want my pizza when you said it would be here"	Pizza delivered on time as promised to customer	Timeliness
"I want my delivery person to be friendly"	Pizza delivery person is polite	Complaints
"I'm not going to pay a lot for this pizza"	Price is equal to or less than all other pizza providers	Price

Figure 13. Voice of Customer translated to requirements. (Six Sigma History.2018.)

4.5 DMADV Analyse

In the analyse phase it is most important to review and study the answers of the survey. Based on the answers the team is able mirror the answers to the created process and implementation plan and identify worst risks. It gives the team the opportunity to modify the process and implementation to fit the purpose in better ways to support successful roll out. It gives indications to the project team of the most important topics for the customers and therefore raises the reasoning why teams should adopt it. By analysing the surveys' answers and responding to the analysed DMADV questions the team can create an improved process that will be easier to implement for the ITSS division.

To create an understanding of the main priorities in the survey a scoring matrix should be created. To do this normal mathematic approach applies. Higher score means higher value. It will be enough to give points to different questions and rate the questions from 1 to 3 or 0 to 5 for example. Questions that have the highest scores are the most important ones for the team to look at. The questions can be categorised to different areas to help keeping the focus on the main topics.

It is recommended that the following questions be answered properly during the survey analyses:

- Have you considered any further risks as your design ideas have progressed?
- How are you going to manage these?
- What is the preferred design or hybrid?

- When will the solution be ready?
- What is the probability of success / failure?

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

Supporting questions would be:

- Are your senior stakeholders fully engaged in your project and fully committed to the design you are proposing?
- What could the design look like? What alternatives are there?
- Are there any technical specialists you need to get involved?

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

4.6 DMADV Design

Once the team has analysed answers from the key stakeholders it is time to have a look at Failure Mode Effects Analysis (FMEA) and ensure the design of the process is supporting findings from the surveys and create improvements to the process. After that the process should be tested to see if it worked in real life. During the testing there are very good opportunities to discover something that has not been identified before. It would be especially interesting if during the testing the team discovered any illogical stoppers that should be removed from the process.

It is recommended that the following questions be answered properly:

- Can you measure the design's performance?
- Have you started to prepare for the full deployment?
- Have you incorporated the feedback from the pilot into your design?

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

Optional control questions:

- Have you validated your measurement system?
- Have you successfully piloted, optimised, modelled and/or simulated the performance of each of your architectural elements?

Have you considered and managed any further risks that have been identified?
(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

4.7 DMADV Validate

When reaching the validation stage the process has gone through all important activities and steps to support successful process implementation. The team should at this point know what are the requirements and expectations from the customers, major risks, how to manage them, process tested with testing group as an user acceptance testing (UAT) and have a ready written process document. Now it should be ready for handover to the ITSS divisions' usage. There are several ways how to do the handover and depending on how the owner of the process wants the handover to be done. One way is simply to notify the teams of a new process. Another way would be to do a handover to the team heads and seek for their approvals for handover and join for example a team meeting to explain the new process. No matter how the process handover will be done, it is likely that the project team must be ready to give support and guidance to the process users.

Before doing the final handover, process terminology should be checked. Six Sigma as a framework is probably not going to be a well-known framework for all stakeholders who will use the process, it is important to pay attention to the terminology. It is important to avoid term jargon in the process that cannot be interpreted by the process users. This can be done by changing Six Sigma terms to a language process users will understand. It is possible to use Six Sigma terminology but it must be used together with terms that process users are able to understand correctly and therefore it will be much easier for them to use the process effectively.

One way to do this is to run final piloting with the UAT team members to check terminology and ensure that the process terminology is easy to understand. This can be done by reaching out to some of the key stakeholders that have done piloting before and ensuring the terminology in the process is supportive for the actions the process users need to take. Terminology should guide to taking certain actions and support users in best ways for smoother process usage so that terminology will not become a risk or bottleneck for using the process.

It is recommended that the following questions be answered properly:

- Have you put a plan in place for the new design going live?
- How did you manage the "go live process" through its early days?
- Have you completed any final acceptance testing? Have you been able to resolve all issues?

- Have you completed a handover to the business? Are the procedures clearly documented?
- Have you had final sign off from your sponsor to close the project?

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

4.8 DMADV Accreditation

The accreditation phase is about reporting and validating how successful the implementation has been. The team can use a story board approach to describe process implementation goals, phases and steps. (Appendix 9. Storyboard master slides.)

It is recommended that the following questions be answered properly:

- Does your storyboard tell the story of your project?
- Could anyone follow your storyboard?
- Are all of the acronyms, jargon and abbreviations explained?

(Aberdeen Asset Management Lean Six Sigma DMADV reference guide 2018.)

The accreditation phase can be linked to DMAIC or DMADV certification trials such as green belt certification but for this study case they have no role.

5 Project study case

The project team started to look at the given strategy. First the team needed to understand the strategy and how that could be transformed to a process. After the strategy was discussed and sliced to process actions that were needed to create process we started to discuss about process implementation methods and decided to use the Six Sigma DMADV methodology. DMADV is created to support implementation of the new processes or services and therefore it was best fitted for the purpose. The argument to use well-known methodology as a “working guide” makes the implementation much easier because it allows the team to keep focus on the key matters that makes the difference of successful implementation and to use more formal approach to the implementation.

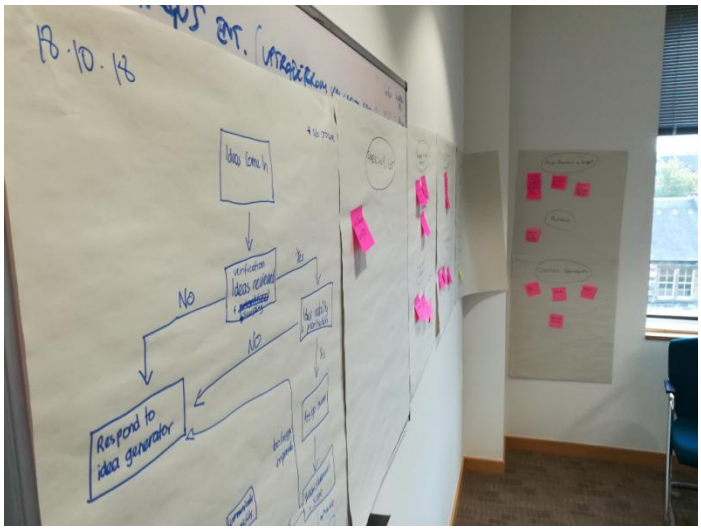


Figure 14. ASI brainstorming strategy implementation (CSI team 2018.)

In the brainstorming sessions all ideas where captured on whiteboards to visualise the current situation, what do we need to have and how that will affect the future. The aim was to get a better understanding of the process and how it should work.

Most of the brainstorming activities were about strategy actions and process flows. Project team did pinpoint the process to follow two flows; simple improvements and more demanding improvements. If the improvements were smaller they just would need to be registered to systems with the description of the improvement. Improvements that have costs and resources involved on wider scope the suggestions would need to go through the service continues improvement board to seek approvals for the work.

With the post it notes we tried to manage all known factors that need to be investigated and solved during the process.

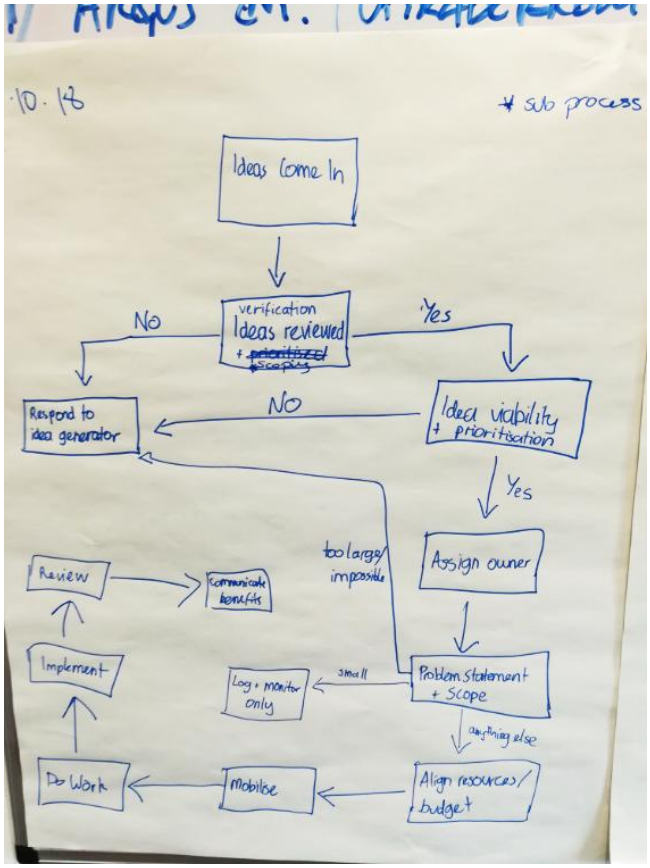


Figure 15. ASI brainstorming strategy implementation (CSI team 2018.)

The project team had an idea how improvements were done currently within the ITSS teams but to get more accurate information it was decided that relevant stakeholders needed to be contacted. As there was a need to get the voice of the customers, stakeholder mapping was created. The project team tried to scope and identify all main teams to cover most of the information that was needed to make progress.

Project team started to map relevant stakeholders to see where they are and who they are. To do this the team needed to think about the ITSS division structure and locations. The division was divided in four major locations (Americas, Asia, Europe, Nordics) and to three major functionalities. This helped to create a picture of who are the stakeholders and

who needed to be contacted to get started with the interviews. To map all the teams in the division, 20 – 25 interviews would need to be done based on the division structure.

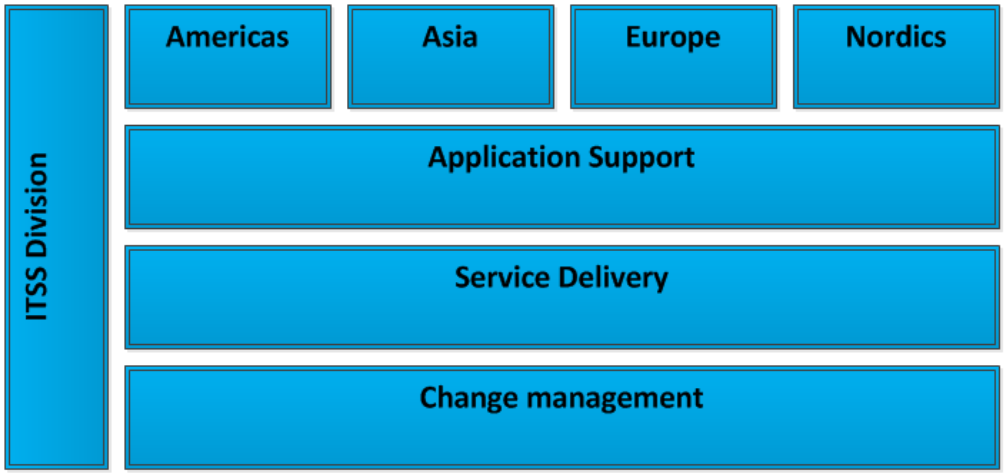


Figure 16. ITSS division mapped to interview areas (Ruostesaari 2018.)

The aim was to find out if teams have an improvement plan and how it worked for them if they were using any. Project team wanted to create questions that did not guide responders to any specific direction to ensure the best possible understanding of the situation and avoid any pressures from the responders. By doing this the idea was to get honest answers from the responders.

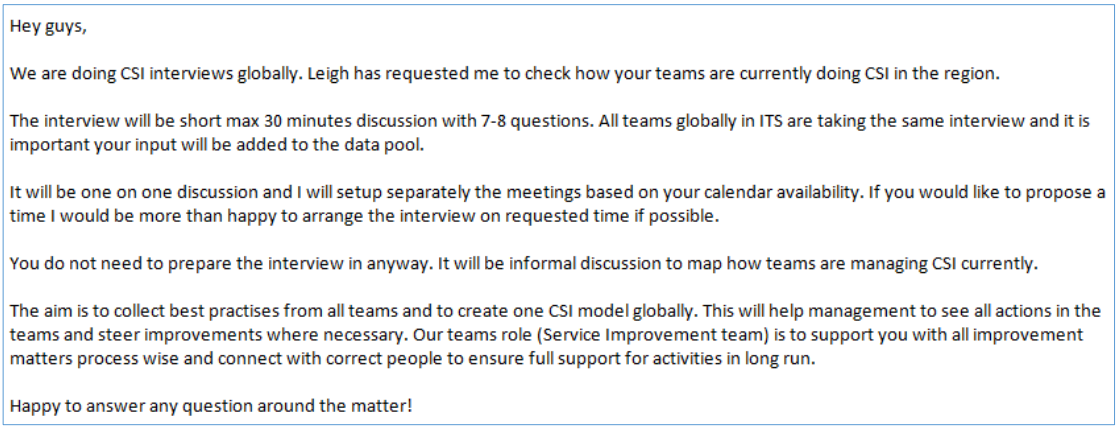
After this seven questions where created.

1. Do you undertake Service Improvement in your team?
2. Do you have a Continuous Service Improvement plan in your team?
3. What improvements do you do, can you give an example?
4. How do you carry them out?
5. Can you give examples of what works well for you/ doesn't work well?
6. Do you track/log your improvements and if so, how?
7. What are the blockers stopping you?

The project team had a discussion how to capture the current continuous service improvements processes and actions in the teams. The project team discussed about doing online surveys such as Survey Monkey, personal interviews and Outlook voting. Online surveys and voting were ruled out because it was expected that the answer rates would be low. It was also said that any mechanism that is faceless and relying fully on

stakeholders would not work. As the ITSS division is a relatively large and global division, sending surveys or voting probably would not. Personal surveys or interviews with some of the stakeholders were considered to be the best way to get responses and ensure they will be understood correctly. Therefore, it was decided that the team will do interviews with some key stakeholders.

Notification for stakeholders about the survey can be seen in the following figure 17.


Hey guys,

We are doing CSI interviews globally. Leigh has requested me to check how your teams are currently doing CSI in the region.

The interview will be short max 30 minutes discussion with 7-8 questions. All teams globally in ITS are taking the same interview and it is important your input will be added to the data pool.

It will be one on one discussion and I will setup separately the meetings based on your calendar availability. If you would like to propose a time I would be more than happy to arrange the interview on requested time if possible.

You do not need to prepare the interview in anyway. It will be informal discussion to map how teams are managing CSI currently.

The aim is to collect best practises from all teams and to create one CSI model globally. This will help management to see all actions in the teams and steer improvements where necessary. Our teams role (Service Improvement team) is to support you with all improvement matters process wise and connect with correct people to ensure full support for activities in long run.

Happy to answer any question around the matter!

Figure 17. Email to Swedish and German team leaders (Ruostesaari, 2018.)

5.1 Analysing interviews

This study will not analyse all interviews because of the given time schedules. The interview log can be found from Appendix 9. It will however focus on seven interviews done by the project team. Seven interviews means roughly 30% of all responders. They are collected from different teams that do not have a direct connection to each other in day-to-day work. It can be estimated that rest of the answers will be very similar as they are all from same division.

The team agreed on the following matters to ensure we have the same situation for all responders to ensure they are given the same information. Therefore, during the interviews there was no help to the questions given by the interviewer. This was considered as an important matter to have pure answers to questions presented. As all responders where IT professionals it was expected that the responders understood what continuous service improvement means in high level.

Interviews where scored to get a baseline between the answers. Six first questions were scored from 1 to 5 where 1 was weak and 5 was strong. As the last question is negative

the points were also given as negative from -1 lightly negative to -5 strongly negative. 0 was given if there was no answer to the question. Maximum score was 30 points. The best result was 18 points. Rest of the points were between 3 and 16. Based on the numbers it was easy to say that there is much that can be done to improve how the teams are doing continuous service improvements. From the seven responders no one was following any specific CSI process systematically.

Most of the responders were saying that they are doing improvement but not in ways as the ITIL CSI states. The PDCA method was not mentioned in the surveys by the responders and it is likely that the PDCA model is not well known and surely not used in the teams. As there now was information available about the current situation the recommendation would be to do another interview about expectations for the new CSI process by using Voice of Customer.

6 Summary and conclusion

The Six Sigma DMADV process offers a good way to implement the CSI process for the customers. In this case it is important to follow basic DMADV-related guidelines and keep in mind the case critical things that apply:

1. There is a strategy behind the project that must be implemented.
2. The teams don't have a working CSI model.

The DMADV is a natural choice because it is designed for situations where there is no existing models and the subject is new for the organisation. It provides good guidelines how to implement something new and you can choose the correct tools to be used for the purpose. There is a project team who can do the implementation, but the risk is that this is not the main focus for the team because of a heavy workload.

From an operational point-of-view there are low risks involved and more opportunities to be achieved as the division does not have a working model currently. To have a full picture of the risks, an FMEA table needs to be created to have all risk visible. The FMEA will show risks that at this stage are not clear even if they were there but they cannot be pinpointed. It is unlikely that any suggested process would make the situation worse but can create unnecessary work for the teams that raises resistance for the process. Therefore, VoC is a must. Awareness about coordinated ways to do improvement can be seen as a quick win to encourage the ITSS staff to do in structured ways improvements. This would also help the management to see what kind of improvements the teams are doing and if the improvements can be used for other teams. Gaps are more around the team and division level to implement and use the process. With strong support from management these gaps can be managed in more reasonable levels.

If the DMADV process or any best practises process will not be followed it is likely that something will go wrong during implementation and the risk of total failure is higher. To push out something that is not fit for purposes will increase the risk of failure from the start and therefore planning and following processes is a must.

In the definition phase it is important to execute and finalise surveys of the current situation in the teams to get the full picture. The current 30% gives a good trend about likelihood what other teams will probably respond but doing all interviews the project team would have absolute facts of the situation on the ground.

In the measuring phase the most important tool is to make sure the customers' voice is heard and understood. Therefore, the Voice of the Customer (VoC) tool needs to be used during the process. Other tools can also be used to support the Voice of the Customer tool but at minimum VoC must be used. This will allow the team to create a process that customers can see benefitting their daily work and will commit to using the CSI process for improvement work. To get the VoC, another survey must be created that will guide the project team to understand what is expected from the process once it is in place. By doing the survey, the project team can avoid the biggest mistakes that will only create resistance towards the new process. The questions of the survey play an important role in this, and therefore it is recommended to spend time and think carefully about the questions for the customers. With good questions and a short survey it is possible to identify the biggest needs and avoid things that will only make it harder to implement the process. In the analyse phase, the team should gather all the data they have from stakeholders and start to think about how the process should look like.

The design phase is all about creating a process that is supported by the customers. At this stage once the first process model is available the team should be presenting findings and next steps to the management to seek comments and approvals for the process to carry on. After that, the team should have a strong mandate to move forward with future planning and testing.

Validation is the last step in my mind that will be needed in this specific case. This should contain live testing and fine-tuning the process to fit as many customers as possible. As

said before, it is likely that everyone will not be happy with the process so the team must set success factors to levels that actually can be achieved to measure success. The division is huge and that is why success factors can be something else than 100%. In a normal ITS situation if targets can be reached at 80% - 90% the project has been quite successful. Through the whole process right players will determinate how deep a dive the project team can take and how good support and feedback they are able to get. As in any work people are the key and especially people that fit the purpose. A right attitude and willingness to support the process have a great meaning to the outcome.

I find it quite often that there is talk about success factors as objects but peoples' roles are not that clear. In general terms, many companies say people are the key but measuring that in real life is hard. It is easy to say what is the optimal for a server or service and do the measuring but with people that is much more complex. This is one of the reasons why I think right people doing right things is important to notice.

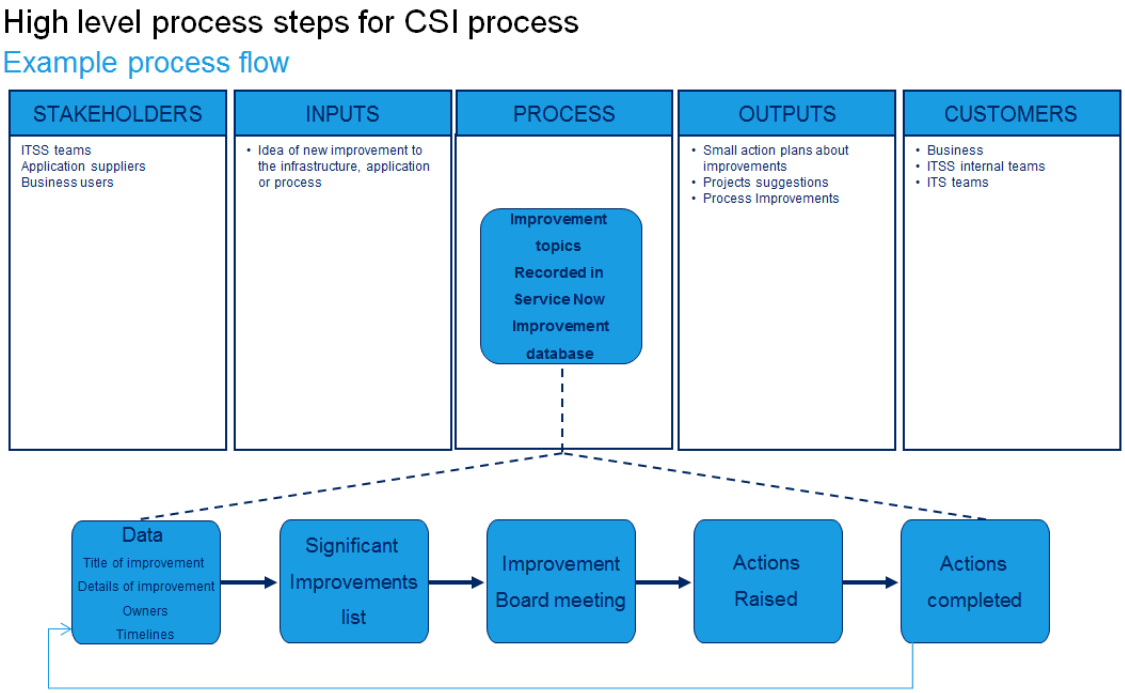


Figure 18. Proposal of process elements. (Aberdeen Standard 2019.)

The accreditation step in this case can be skipped as none of the team members are seeking for certification training and most of the team members have already done green belt level certification anyway.

6.1 Other conclusions

Continuous improvement best practise is to do improvement work in smaller groups in agile ways rather than trying to create one huge improvement project for all teams. Therefore, it is important to create a framework and process for teams to follow up in a simple way and with small adjustments to the services by demand.

“During stable times organisations are tempted to build big systems – multi-year projects of brain melting complexity, like the Death Star. Despite these large programmes and projects rarely working they’ve become the standard approach in many organisations. The technological environment is now moving too quickly for us to take years building big solutions. If we try we’ll get blown up.” (GCHQ Boiling Frogs, page 6.)

CSI process can be seen as an intimidating process because when creating something new or improving services there is always a need for extra energy and possibility of failure. Therefore, it is easier to keep doing what has been done in past without changing

anything. The problem in this is that services lose meaning or they become ineffective. To encourage the staff, the management must adopt two basic rules.

- Failure is not bad as long as the failing is happening relatively quickly
- Blame game does not help anyone and there is a need to look only forward and not backwards.

“Some organisations have a strategic focus on innovation: Employees are encouraged to think creatively and share new ideas. If the culture is aligned with innovation, employees are rewarded when their new ideas hit the jackpot, and they aren't penalised for constructive failures. In fact, “failing fast” is an encouraged behaviour.” (GCHQ Boiling Frogs, page 18.)

The thesis was a very useful exercise for me to understand better how improvement models work and what kind of modes are used. What was surprising for me was that Six Sigma is quite a detailed improvement framework that can be used in any improvement areas. ITIL CSI is based on the PDCA model which is in the Six Sigma too but has much more tools that can be used. Basically, if Six Sigma is something a person has been certified as yellow, green or back belt it is very likely that the person is able to run any improvement process within ITIL CSI.

Lean framework is providing idea set how to do things faster. The old waterfall model starts to be ineffective nowadays when information is moving fast and resolutions are needed fast. Therefore, Lean’s basic concepts with efficiency and resource flows are providing a very good demonstration how efficiency flow could work much better than the usual resource/waterfall model. The old industrial ways to work start to become problematic as it takes too long to solve things and the information can change too much. I personally believe that the ITSS division especially in the helpdesk area would benefit much about efficiency flow rather than resource flow.

The project was set on hold after December 2018. The project team did not come that far with the actual process but got a good start that should continue as soon as possible. The first survey was created and the second survey about expectations is needed. After the customer expectations are clear, the team should carry on and plan how the process should look like. After the process part is clear there needs to be a common agreement about where the CSI database will be. I personally think that Service Now is the best place for that because the application is a central operational system for the division with a long life cycle in the organisation. There have been some discussions to use Share

Point as a database too. Share Point is also a central system and has a long life cycle in the organisation but its basic function is to maintain documents. It is possible to use Share Point applications that are out of the box features in the system but I still think Service Now is something everybody uses every day because it is working as an operational system, whereas Share Point is more about documentation management. I see the document part as a problem because filling in information will not be as agile as it is in Service Now where you just add information to columns.

This can be done in Share Point too as templates and workflows but it just doesn't feel that natural to me. The division staff are also better aware of Service Now and how to use it so that too would support the use of Service Now as the CSI database.

It will be definitely interesting to see how much the real-life project will be different from the suggestion that this thesis gives. I would expect that the Six Sigma principles will be followed but they might not be that visible during process implementation.

Six Sigma green belt training and this thesis in combination gave me much more knowhow of this process and new tools and ideas that I can use in real life when running projects so it is easy to say these two matters support my professional skills in a way that I can use in my everyday work.

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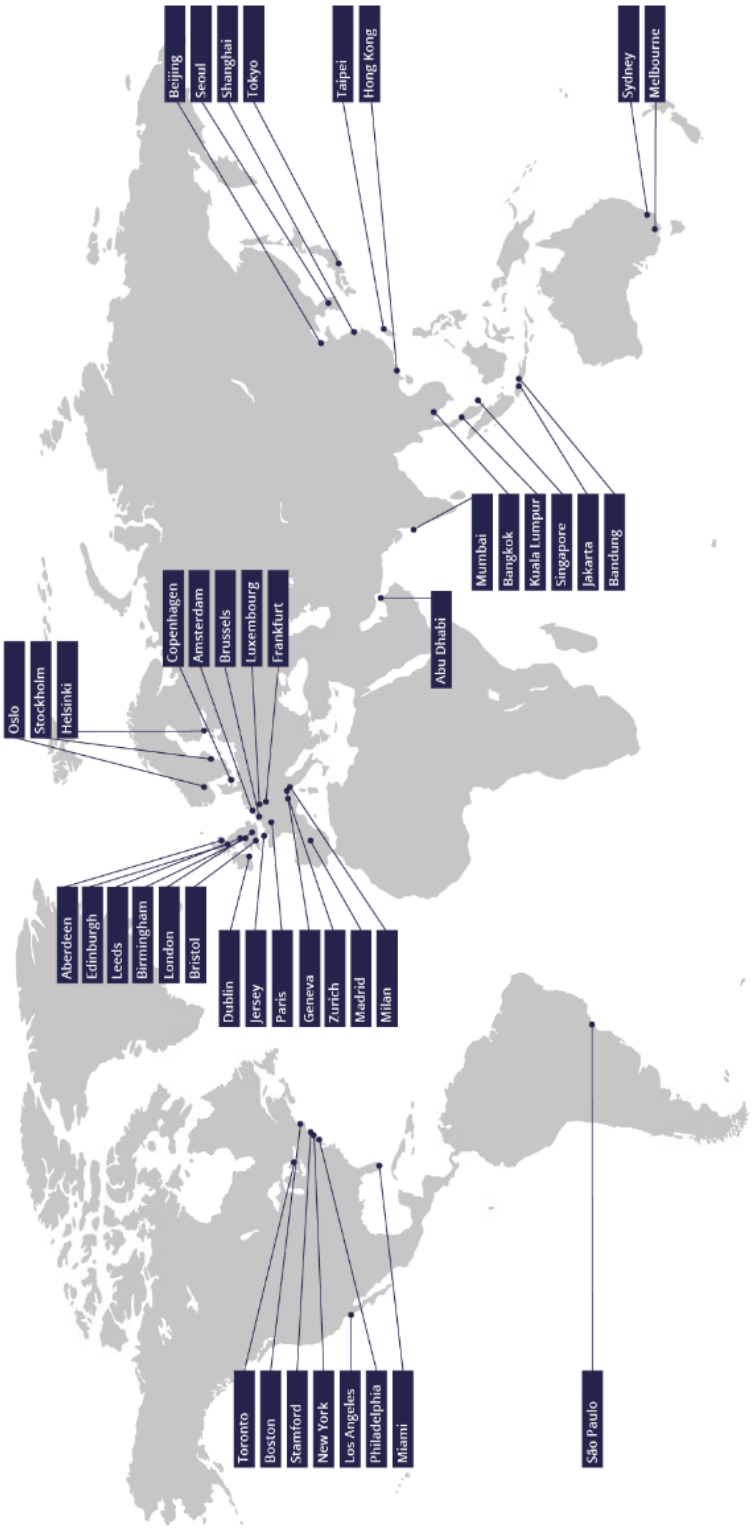
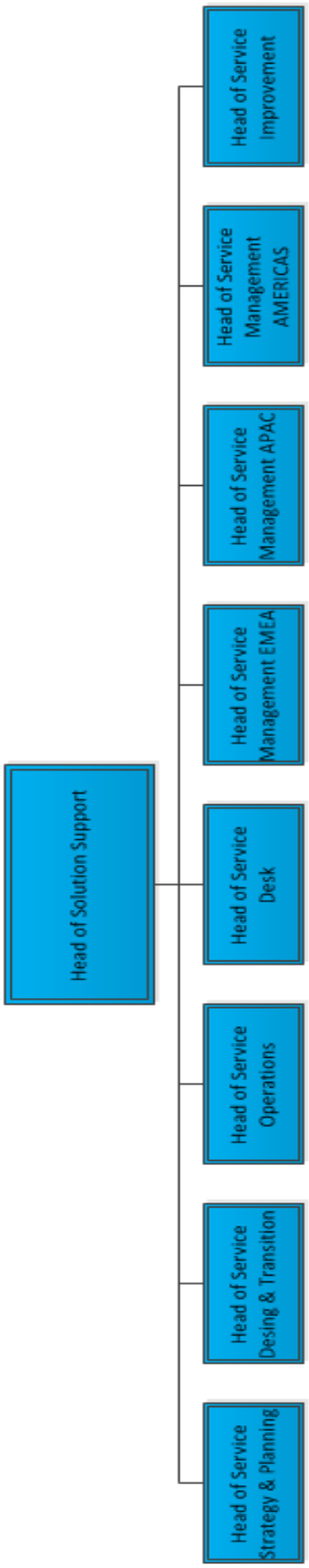
8 Appendices

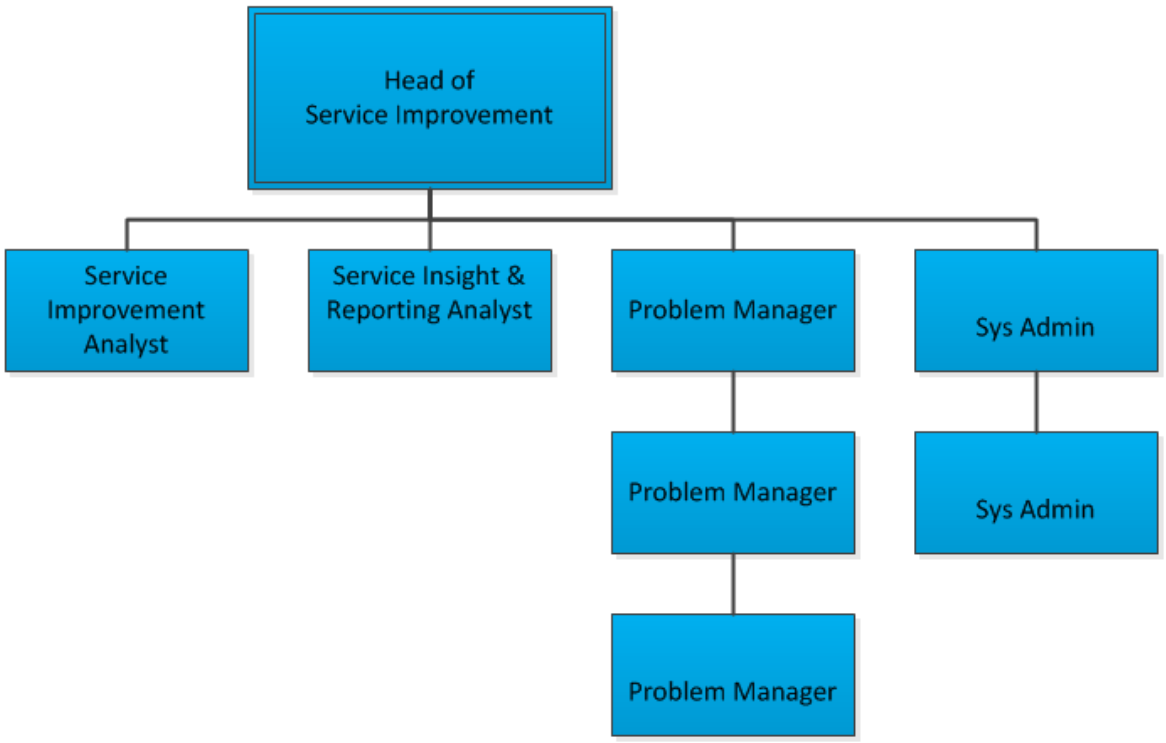
8.1 Appendix 1. Global office locations for Aberdeen Standard Investments



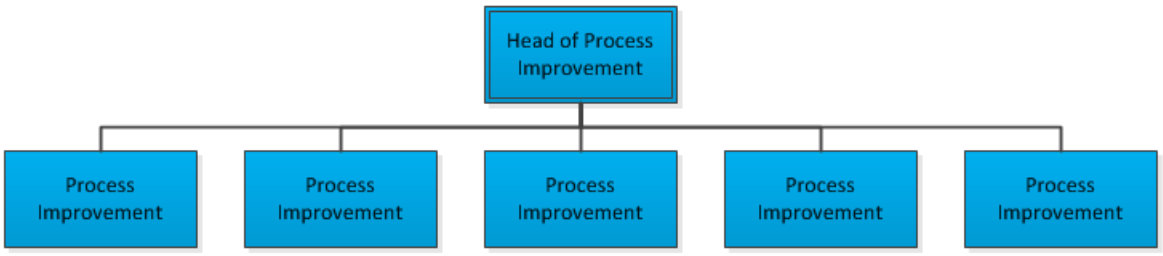
8.2 Appendix 2. Leadership team for Investment Technology Solution Support (ITSS) 2/2019



8.3 Appendix 3. Structure of the Service Improvement team (2/2019)



8.4 Appendix 4. Process Improvement team (2/2019)



8.5 Appendix 5. Process Improvement charter.

Project Charter

Project Title:	

Project Team		Stakeholders	
Role		Role	Name
Project Sponsor			
Project Leader			
Team Members			

Problem Statement	Goal Statement

Cost of Poor Quality Summary	Key customer requirements

In Scope:	Out of Scope:

Project Plan	Plan	Actual	Comment
Start of project			
End of Define			
End of Measure			
End of Analyse			
End of Improve			
End of Control/Project			

Assumptions/Constraints	Major Risks/Issues

SLA Undertaking by Sponsor	SLA Undertaking by Line Manager
• Demonstrate an interest in solving the problem which is being addressed • Be involved in chartering and scoping the project • Be an active sponsor, taking an interest in progress throughout the project • Champion the project with your manager and through your reporting line • Remove roadblocks for the team • Champion the improvements when it is time to change the process • Demonstrate an interest in measuring the benefits delivered by the project • Ensure that the improvements are sustained when ownership passes from the project team back to the business	• Support the Green Belt through their training and to dedicate 30% of their time to deliver their project over 4-6 month period • Include Green Belt project as part of year's objectives • Champion and support the improvements within the team • Demonstrate an interest in measuring the benefits delivered by the project (if relevant) • Ensure that the improvements are sustained when ownership passes from the project team back to the business (if relevant)

SLA Undertaking by Green Belt	SLA Undertaking by PI

DMADV Reference Guide

Tool usage will depend on what point in your project you determine that DMADV is the most appropriate framework to use. Please speak to your coach for further guidance

	Tools	Key Questions	Outputs
Define **Define** the opportunity, create the team and time plan, get resources, manage risk and stakeholders, complete cost benefits analysis	• Scope (In/Out Frame) • Project Charter • Opportunity Statement • Stakeholder Management • Project Planning • FMEA • Cost Benefit Analysis	1. Why did you choose DMADV as the roadmap to follow for your project 2. What is the product, process or service to be designed or replaced? How does it align to the business strategy (e.g. core, strategic objectives)? 3. Does your process already exist? 4. Who are your key stakeholders and how are you going to engage with them? 5. Are there other people that you need to involve in your project? How committed are they? 6. What risks currently exist in your process? How are you going to manage / build on these throughout your project? 7. What data do you have on existing similar designs? 8. Does designing a new process fit with timings for business / external market?	**Define** ☐ Completed Business Impact Assessment/Cost Benefit Analysis ☐ Signed off Project Charter including Opportunity Statement ☐ Project Plan ☐ Risk Assessment ☐ Stakeholder Assessment ☐ Commitment from business **Stage Gate Review – Go/No Go**
Measure **Measure** and determine customer wants and needs, convert them to requirements and specifications; benchmark competitors and the industry	• Data Collection / Requirements Gathering • Voice of the Customer • CTS Tree • Critical to Success Factors • House of Quality 1 (What does it need to be?) • Paired Comparison • High Level SIPOC • FMEA	1. What do customers care about? What are the critical to success factors? What is the relative importance of these factors? 2. How do the customers needs compare to the critical to success factors? Are there any needs that haven't been covered? 3. Which CTS do you need to take forward and can any be dropped? 4. What does your design need to be? 5. What designs ideas are you considering? Where did your design ideas come from? 6. What risks are associated with each one? 7. What knowledge / expertise would you need to leverage in the preferred design idea? 8. What measures will you use to assess the ideas' effectiveness? 9. What external benchmarking have you done?	**Measure** ☐ Completed Voice of the Customer ☐ Identified CTS's ☐ Prioritised CTS's ☐ External Benchmarking ☐ Customer Risk Assessed ☐ Measures of success agreed ☐ Identify Design Ideas ☐ Revisit risk assessment **Stage Gate Review – Go/No Go**
Analyse **Analyse** what the design needs to do, and produce conceptual designs to meet requirements and specifications. Address design problems. Evaluate concepts and select the best. Consider the design architecture.	• Functional Analysis • House of Quality 2 & 3 • Concept Generation • Morphological Design • Pugh Matrix • Design Architecture • Solution Generation e.g. Triz • Design Scorecard • FMEA	1. Have you considered any further risks as your design ideas have progressed? How are you going to manage these? 2. Are your senior stakeholders fully engaged in your project and fully committed to the design you are proposing? 3. What does the design need to do? 4. Do you know how you will overcome all design challenges? 5. What could the design look like? What alternatives are there? 6. What is the preferred design or hybrid? 7. How long will the build take and what resources are going to be required? 8. When will the solution be ready and what is the payback period? 9. What is the probability of success / failure? 10. Are there any technical specialists you need to get involved?	**Analyse** ☐ Completed Functional Analysis ☐ High Level process map ☐ Alternative design concepts developed ☐ Best concept agreed ☐ House of Quality 2, 3, 4 ☐ Morphological Design ☐ Design Scorecard ☐ Design requirements defined **Stage Gate Review – Go/No Go**

1

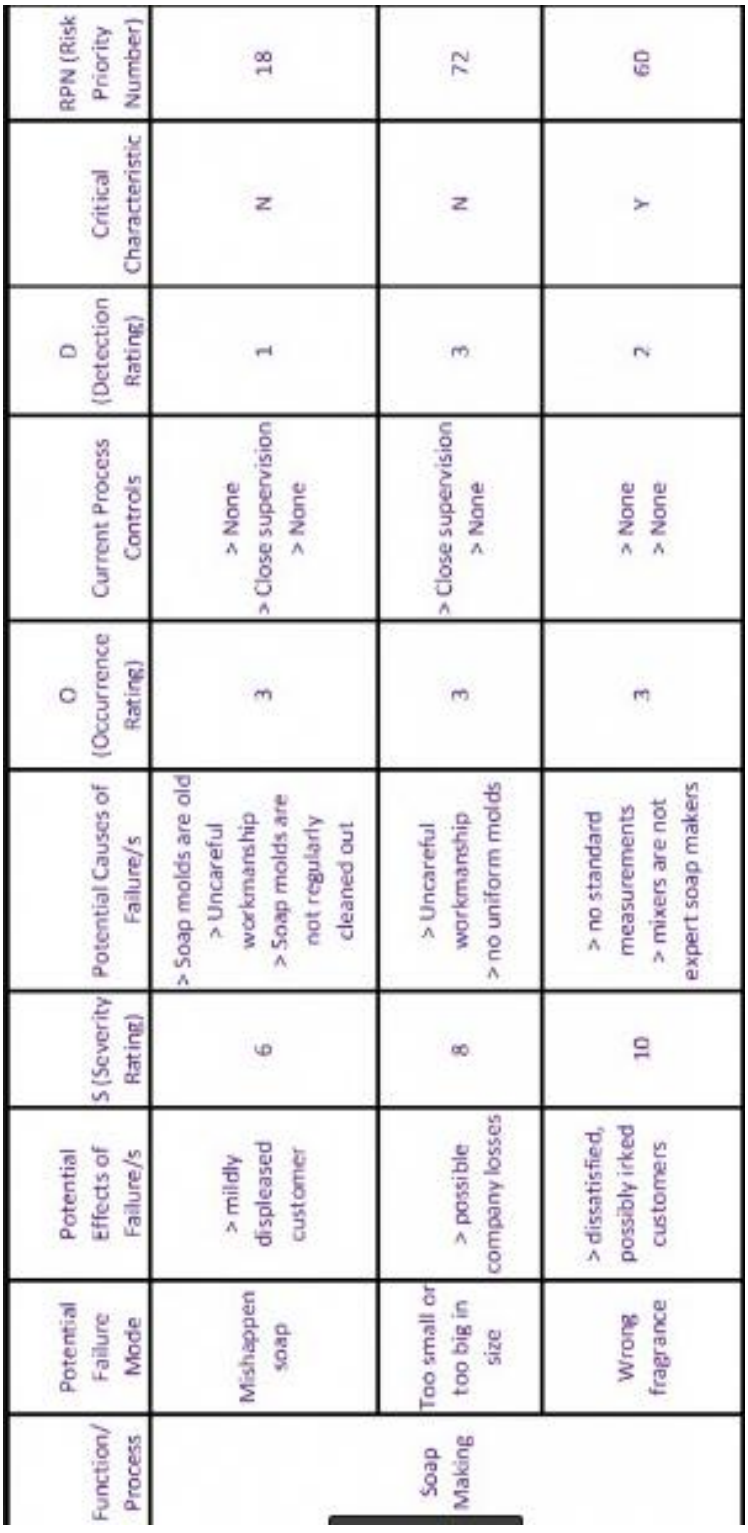
Aberdeen Standard Investments

DMADV Reference Guide

Use the tools as appropriate to the project. The questions are a guide to what should be asked by the Green Belt

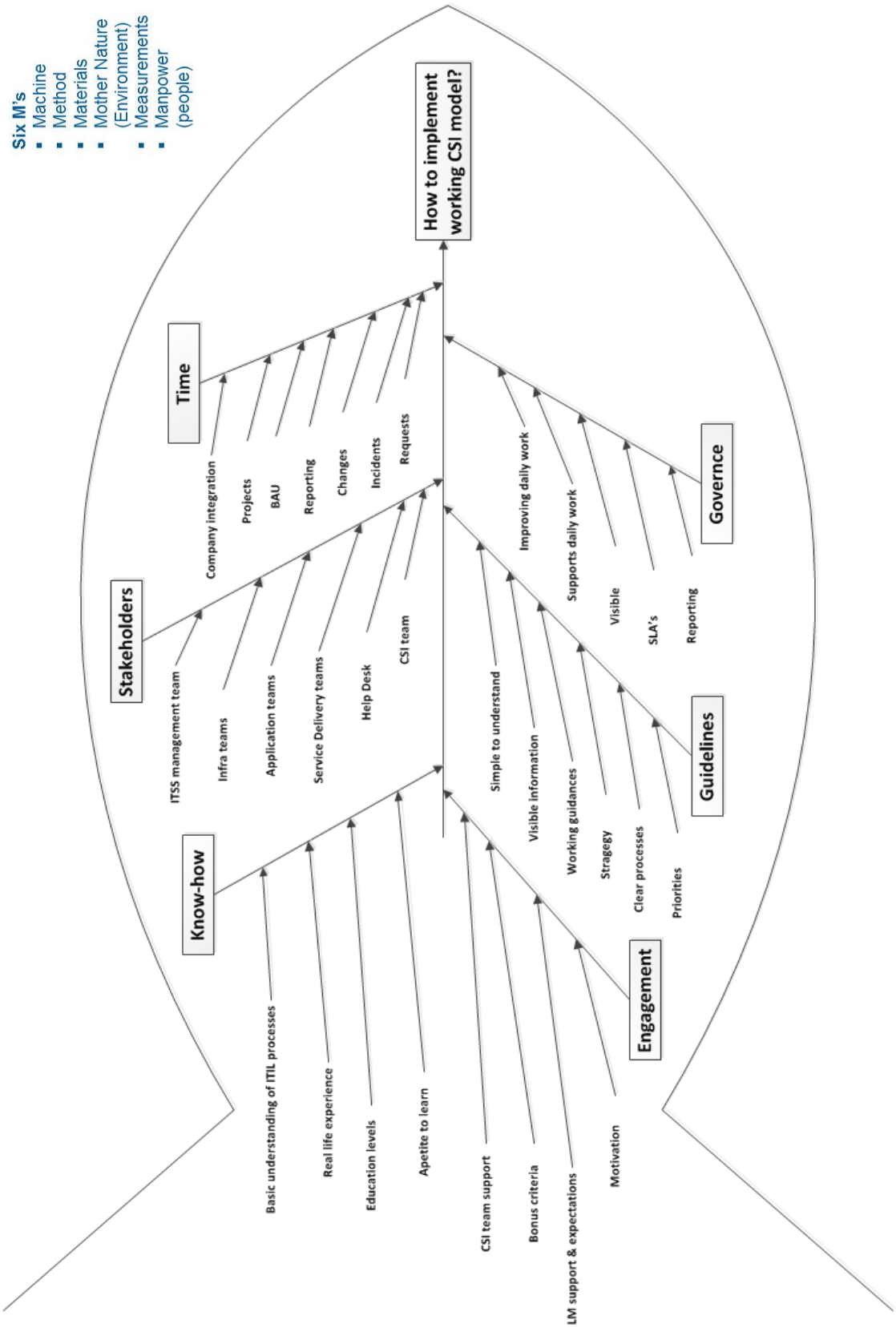
	Tools	Key Questions	Outputs
Design			
Design the physical solution then experiment, test and optimise until it meets your detailed requirements	• Architectural Elements Design and Build • Piloting (individual elements) • Test and Evaluate the Architectural Elements • FMEA	1. Have you finalised the design of each architectural element? 2. Can you measure the design's performance? Have you validated your measurement system? 3. Have you successfully piloted, optimised, modelled and/or simulated the performance of each of your architectural elements? 4. Have you incorporated the feedback from the pilot into your design? 5. Have you started to prepare for the full deployment? 6. Have you considered and managed any further risks that have been identified?	**Design** ☐ Detailed process or product definition ☐ Complete testing for each part of your design ☐ Improved the process or product based on the pilot(s) ☐ Clear measurement system in place ☐ Plan for launching new process – communications, training, rollout etc **Stage Gate Review – Go/No Go**
Validate			
Validate entire design through piloting and measurement, optimise, then hand over to the business	• Build and test the entire design • End to End Process Review • Pilot and optimise the whole design • FMEA • Go Live plan • Manage issues • Measure performance • Handover Plan • Project Closure • Control Plan • Benefits Monitoring	1. Have you completed testing on your finished design using one-off tests, stress tests, remediation tests, pilots? 2. Have you optimised the full design? 3. Have you put a plan in place for the new design going live? 4. How did you manage the go live process through its early days? 5. Have you completed any final acceptance testing? Have you been able to resolve all issues? 6. Have you completed a handover to the business? Are the procedures clearly documented? 7. Have you verified the project has delivered what is said it would? 8. Have you verified that the new design is performing as predicted? 9. Have you had final sign off from your sponsor to close the project	**Validate** ☐ Test and build full solution ☐ Design is optimised ☐ Fully documented procedures in place for the new design ☐ Monitoring / measurement in place ☐ Handover to business ☐ Project benefits validated by sponsor ☐ Project Closure **Stage Gate Review – Go/No Go**
Accreditation			
What is the accreditation process?	• Attend and pass DMAIC Green Belt course • Attend and pass DMADV Green Belt Bridge course and test • Project Delivery • Project Storyboard • Accreditation Meeting	1. Have you set up regular coaching meetings with your coach and sponsor? 2. Does your storyboard tell the story of your project? Does it flow? 3. Could anyone follow your storyboard? Are all of the acronyms, jargon and abbreviations explained? 4. Have you considered who should be present at you accreditation meeting? Line Manager, Sponsor, Customer etc.?	**Project Delivery** ☐ Completed project with benefits validated by sponsor **Completed Storyboard** ☐ Storyboard completed and agreed by your coach **End of project Accreditation Meeting**

8.7 Appendix 7. Example of FMEA table



Function/ Process	Potential Failure Mode	Potential Effects of Failure/s	S (Severity Rating)	Potential Causes of Failure/s	O (Occurrence Rating)	Current Process Controls	D (Detection Rating)	Critical Characteristic	RPN (Risk Priority Number)
Soap Making	Mishappen soap	> mildly displeased customer	6	> Soap molds are old > Uncareful workmanship > Soap molds are not regularly cleaned out	3	> None > Close supervision > None	1	N	18
	Too small or too big in size	> possible company losses	8	> Uncareful workmanship > no uniform molds	3	> Close supervision > None	3	N	72
	Wrong fragrance	> dissatisfied, possibly irked customers	10	> no standard measurements > mixers are not expert soap makers	3	> None > None	2	Y	60

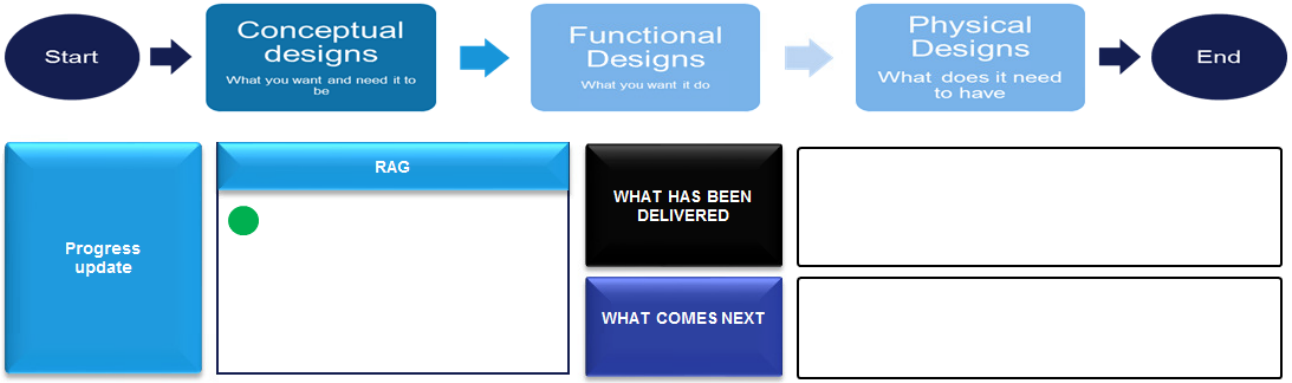
8.8 Appendix 8. Fishbone (Six M's) - elements affect by CSI process

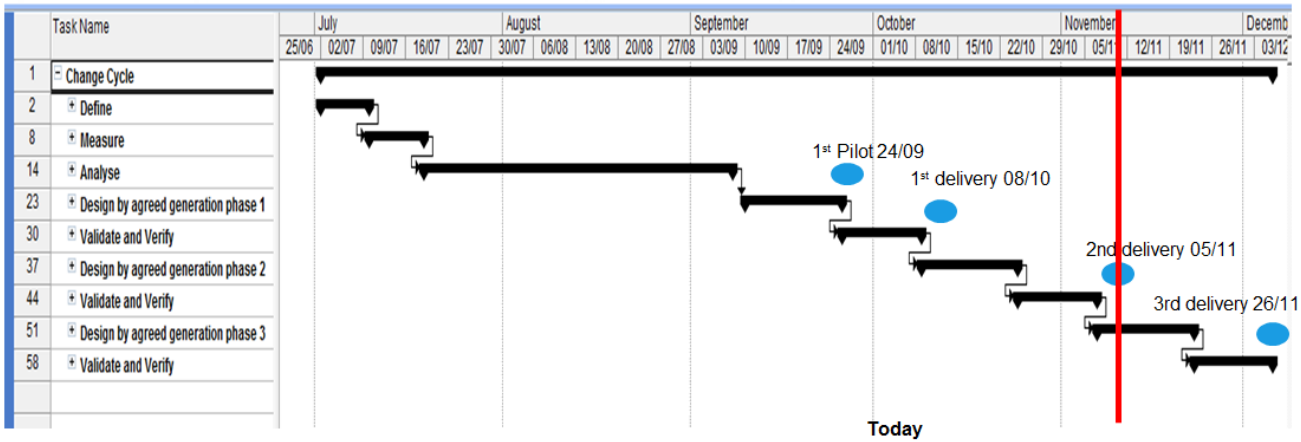


8.9 Appendix 9. Storyboard master slides

Detailed Plan of activity

The journey and plan





8.10 Appendix 10. Interview log

Name	Date	Format	Interviewer	Do you undertake CSI in your team?	What Improvements do you do?	Scoring (1-5)2	How do you carry them out?	Scoring (1-5)3	What works well / does not work well? Can you give examples?	Scoring (1-5)4	Do you track / log your improvements and if so, how?	Scoring (1-5)5	Do you have a CSI plan in your team?	Scoring (1-5)6	What are the blockers to CSI?	Scoring minus 1	Scoring (minus 1-5)7	Max	%
Responder 1	15/11/2018	Face to face	Interviewer	We try to make things faster and easier	4 An example would be changing the scorecards for Service Pegasus meetings to make it better for the customers	4	Someone in the team will have an idea of how to change things. They will document it and raise in their 1-2-1 or in a team meeting. The agreement will be given to make the change, and then the change will be made	4	We get everyone involved together to discuss the problem and agree a solution. It is documented and the change made	4		0	Individuals will record their improvements for their 1-2-1s, but no formal plan is in place	4	External factors such as the integration project	-2	18	30	60%
Responder 2	15/11/2018	Face to face	Interviewer	Steve is doing a green belt project on the Service Desk	3 If something isn't working then the team will try to fix it. Things are updated / documented / changed as the team has time to do so	4	The team will come up with ideas - there is a strong culture of improvement - and will makes the changes as they have time	3		0		0	There is a plan for specific changes as related to the green belt project, but no overall CSI plan / log. Most changes are very ad hoc and so are not documented	2	Time	-2	10	30	33%
Responder 3	05/12/2018	Phone	Interviewer	Good question. We have changed lots of things. We do that in smaller scale.	3 70%; is about the daily work. CE is different than UK. 30%; more about infrastructure and global desktop. We got lots of questions from the customer on how improve Global Desktop. Currently lots of questions around improvements in SL migration.	3	We do them as daily basis and discuss them in the team meetings and teamleader meetings. Everything usually is starting inside of the team.	3	Improvement discussions are working well in the team meetings. Like how to replace RSA token. Improvement discussion about migrations. Good awareness of the issues. No bad examples.	3	No	0	No	0	There is no time to think about improvements in larger scale because daily work is that heavy.	-2	10	30	33%
Responder 4	05/12/2018	Phone	Interviewer	Yes.	5 Operational and technical improvements.	4	Discussion in the team. Discussions with Fujitsu IWPM/change. We have open open dialog in the team and with Fujitsu.	3	Dialog with team and Fujitsu is working well. Not in steering position for all infra related matters	3	Not specifically as CSI log.	0	No.	0	-	0	15	30	50%
Responder 5	05/12/2018	Phone	Interviewer	Yes	5 The team carries out cosmetic and functional improvements. For example when a change is raised, and conflicts appear on the screen and the user is asked to review them. There is nothing to prevent users continuing without reviewing the conflicts. There is also nothing for users to complete that proves that they have reviewed the conflicts. The team are looking to change ServiceNow, perhaps by adding a drop down for users to complete to say if they have reviewed the conflicts.	3	The team have an open door policy for feedback for improvement. They discuss any suggestions as a team, work out if it adds value, implement it and communicate it to the customer as required. Everyone in the team can be involved, and they are all happy to take ownership of improvements and are empowered to carry them out as soon as they have been approved by Steven.	4	User expectations of what can be achieved may be unrealistic. Main positive is that the team all understand their roles and are very confident and comfortable in raising ideas and discussing them	3	Not at present, but going forward they will be created as Service Improvement Plan tasks on SharePoint. Steven sees CSI as an ongoing activity that the whole team should be involved in, as everyone can collaborate and make a difference.	1	See left. Steven feels that SharePoint site is a good way of managing CSI in teams. Benefits are that it is central, everyone can see it and update it, there are stages and approvals meaning people can be accountable for their change and if no action has been taken for some time it is possible to see this. You can add the Task facility to any SharePoint site	1	Nothing really so far. Would depend on how functional it was - if it was too big then chances are it would be a project, not a change. No-one has had the time to build a CSI plan as yet, lots of things they want to do, but just haven't had time.	-1	16	30	53%
Responder 6	07/12/2018	Face to face	Interviewer	No	0 The team is always trying to improve and offer a better service, but nothing formal. For example they are always trying to get the colleague migration engagement improved.	2	Eilidh had an idea to get Mario and the leadership team involved in high level engagement and has felt empowered to go to the PM to suggest this and to work to make it happen.	3	NA	0		0		0	Time	-2	3	30	10%
Responder 7	23/01/2019	Phone	Interviewer	There is an appetite for it, but we have to rely on others to help us with this. Staffing levels are quite low so we have to be in a	2 There were issues in Brazil with Global Desktop - we rebuilt PCs and brought in new kit. This improved the service for those in Brazil	2	It is certainly a team effort. The problem in Brazil touched all teams i.e. Networks and End User Compute so it was about getting together with the internal USA teams and global teams. Very reliant on global teams to assist as no End User teams in US for example	3	NA	0	Only through ServiceNow Problem Records / Incident Records.	0	No, mainly due to time constraints	0	Lack of time and resource	-3	4	30	13%