



INVICTA

Topic 1 Transcript

Date: 14th November 2016

Document No.: MS418/969

Revision: 1.0

TOPIC 1 – PRESENTATION RECORDING TRANSCRIPT (PART 1)

Introduction

Hi and welcome to the first topic that is about Managing Process Improvement Projects and it will be covered by me, Stiven for the first part of this topic, and Alexandros for the second part of this topic. There are four different methods of managing process improvement projects. The most common are Lean and Six Sigma, but there is also Re-engineering (BPR) and EFQM (that stands for European Foundation for Quality Management). In the next coming slides you can see the different models.

First one, Lean, is all about strategy on how to optimise the flow and therefore minimize waste. It is all about map the value stream, establish flow, implement pull, work to perfection and specify value and to have respect for people. Lean production is originally a product from the company Toyota that later on became the product that we know today, Lean.

We want to go on with Six sigma. Six Sigma was originally an idea from an engineer working at Motorola and as you can see Six Sigma has two quite similar models. The main differences are that after the analysing step it is either a change of design or improvement. But it is also small changes in the steps as well. As I said, for Six sigma there is two models. The first one called DMAIC can be seen on the left. It is all about defining the problem so that you know what you want to achieve in order to improve the things. It is important to measure them and also to analyse the process so you know how inputs and outputs effect each other. The last two steps are about improvement and control, first implement the improvements and then control them regularly so that the improvements can be sustained. For the other one seen to the right called DMADV, they are pretty much similar but small changes in the categories as you can see in the box to the right. It is about defining the goals that the customer has for the design, to know what needs to be done. To achieve the right quality in all the steps a measure needs to be done. Also analyse so that different design alternatives are available in order to decide the best one. Then it is important that the design is optimized and that simulations are done. The last step is to verify the end design and to do this you can implement the process for the production and also set up so called pilot runs. And as we will hear later on in the lecture, Lean and Six Sigma is often used together.

As my friend Alexandros will talk about later on, there are more Process improvement models like I mentioned earlier. EFQM that is a non-profit organisation about quality. And Re-engineering (BPR) is about describe the current processes. Create vision, values and objectives. Redesign business process and tools. Evaluate concept, plan for implementing the solution,



INVICTA

Topic 1 Transcript

Date: 14th November 2016

Document No.: MS418/969

Revision: 1.0

implement the redesign and transitions to continuous process improvement in other word measure the results. And lastly plan for implementing the solution.

Definitions

Okay so now you have learned that there are four models for improvement. But what is the definition of Lean, Six sigma, Business Process re-engineering and EFQM?

Lean

More value for less work is the reason why Lean is used. Did you find a factor in the production that doesn't create value for the customer? Then the step will be eliminated and you will therefore be more efficient.

Six Sigma

You can say that Six sigma is sort of a method to improve. The things that you want to do is to save resources, this can be done by making defects and differences when manufacturing to decrease and also reduce defects in the business process. Larger manufacturing companies such as the automotive industry uses this Six Sigma method since they want to be more cost efficient.

Re-Engineering (BPR)

You can look at this as a Business Process Re-engineering and it is about to look at the business processes in an organization, basically, to look at the workflows and analyse them. You want the company to be the best competitor in its segment by rethink how the work is done and therefore improve the service to the customer and to reduce the costs.

EFQM

EFQM is a framework that provides an overview of the organization and it doesn't matter how big or small the company is or in what segment it operates in, how long the company have been on the market or how the structure looks like. EFQM provides different models and methods that suits the company and the end product is specifically made for your company with all the tools EFQM provides that will make your company really competitive.



INVICTA

Topic 1 Transcript

Date: 14th November 2016

Document No.: MS418/969

Revision: 1.0

Six Sigma

But now when you know a little more about this four improvement models it is time to dig in on the two models I am going to talk about, Six Sigma and Lean. Firstly, let's dig in on Six Sigma. Like I mentioned earlier Six Sigma has two methods and here you can see them in a more detailed system.

DMAIC that you can see at the left hand side of the slide is for projects that handles if you already have an existing business process that you want to improve and DMADV, that you can see on the right hand side of the slide is if you have a project that the goal is to create a new product or a new process design.

For DMAIC it is especially important to define the goals of the project. But it is also important to have the definition of the system clear, to know the customers' requirements and listen to what they want to achieve. The reason being is to know what needs to be done to improve the business process. It is also a good idea to measure the important aspects of the process already used and collect data that is relevant. Because then it is possible to know what the problem or problems with the process are and you are also then able to analyse this data to further investigate how things affect each other. When these steps are done it is possible to look at improvements. To optimize or improve the process that already is in use, based on the analysing you did on the data collected, can now be done by creating a new process. If this is done successfully the new business process should be better than the previous. But in order to verify this, it is important to control the new process to be sure that any problems are corrected before they could potentially result in defects.

For the other one DMADV that I mentioned, is if you have a project that the goal is to create a new product or a new process design. It is important to first define the goals of the design that is exactly what the customer wants. When this has been understood the next step is to identify and measure the risk, critical to quality's and how much products that can be made. When that data is collected it is possible to analyse this in order to develop and design alternatives. To verify the design, it is important to implement the production process and to set up pilot runs. The last step is for the process owner to take over.

Six Sigma - Case Studies

I will now show shortly two case studies of what implementing six sigma did for these two companies, the companies being Samsung SDI and LG electronics. They were the first companies that received the Six Sigma national quality prize. The year was 1970 and Samsung

**INVICTA**

SDI was founded, they started to produce black and white Braun tubes. By the year 1980 they changed to start making colour Braun tubes. After implementing Six Sigma, Samsung SDI is now the main company for producing Braun tubes in the whole world, the company has subsidiaries in countries like Germany, Malaysia, China, Mexico and Brazil. And for Goldstar that was founded in 1965 that later become LG Electronics in 1995 received the price by the year 2000. It was the Digital Appliance that got the price first and they manufacture washing machines, air conditioners, microwave ovens, vacuum cleaners, refrigerators, air compressor and motors. Turkey, Mexico, China and England are just a few of the 30 different subsidiaries that LG Electronics have.

For Samsung, as you can see in the slide, shows how it was a good idea to implement Six Sigma. They had problems with the cost of having high quality in their products, they had not enough information about productivity and did not use advanced scientific methods. And the solution for this was obviously to do those scientific and statistical steps for the quality of the products. Delete the waste for process innovation and educate the people continuously with different learning systems.

For LG, they had not enough people that wanted to work for them and had financial problems because of a competitiveness in the international market that was not good, they also had price cutbacks and many strikes. The solutions were to adopt the sigma idea and they did it in steps and wanted to develop this idea from being a 3 σ level in the beginning on 1990 to be on a 6 σ level in all departments, including manufacturing, research and development and transactional in the end of 2002. As I mentioned earlier, by the year 2000 LG Electronics received the first Six Sigma quality price.

Now when you know a little bit more about Six Sigma and why it is a good idea implementing it in a business, you could always have a look at the material provided in the next slide. Here you can see a Six Sigma software to use or why not take a look at the videos provided. Just click the link and it will redirect you to the videos. And to conclude Six Sigma.

DMAIC is for projects that handles if you already have an existing business process that you want to improve and sometimes, DMAIC is used combined with another method called Re-Engineering. DMADV is if you have a project that the goal is to create a new product or a new process design. When managing a new product development, DMADV is often used. Six Sigma (DMAIC) is often used with another method, the most common one is Lean which we will learn more about in the following slides.



INVICTA

Topic 1 Transcript

Date: 14th November 2016

Document No.: MS418/969

Revision: 1.0

LEAN

The main LEAN principles is first to specify the value in order to define the value from the customers' perspective and express values in terms of a specific product or service. Secondly we need to Map all of the steps, see the value added and non-value added. This will bring a product or service to the customer. It is also important that the continuous flow of products, services and information from end to the end throughout the process is good. The implementation of pull is done because nothing is done by the upstream process until the downstream customer signals the need. Actual demand pulls products/services through the value stream. The hardest and last part is to work to perfection, it is key to complete elimination of waste such that all activities create values for the customer by breakthrough and continuous improvement in the projects.

In LEAN there is seven wastes categories, or actually there is eight since we include the underutilization of people. If we speak more about the eight wastes. I will quote: "Part of Customer Obsession includes pleasing the employee allowing him or her to shine and allowing him or her to use their skills and talents at work. If not, morale will decline and employees languish at work. When this happens the customer becomes the ultimate casualty".¹ It means that if the employee in your company is not happy they do not want to make a good job and therefore your customer will be the one suffering because the products may be not so good as if your employee was happy. In the end this will lead to fewer customers and your company will later fail if nothing is done!

I will now go through the eight wastes in the LEAN model. We have firstly the defects, efforts caused by rework, scrap, and incorrect information. We have overproduction, that is when we overproduce products, we do not need this amount of products. Waiting, you know time is money and wasted time by having to wait for the next step in the process is really bad. Having non-utilized talented people in the company is bad, let people show their skills and knowledge and make them want to improve themselves. The transportation is key for delivering the products and if there are unnecessary movements of products and materials you have a problem. To have a big inventory can be seen as a good idea, but it is not efficient since it is expensive. To excess products and materials not being processed is not a good idea. To have unnecessary movement by people is time consuming and should be reduced (e.g. walking between working areas). Doing unnecessary work that does not do anything or add something valuable to the customer is also not good, if the product has higher quality it should be something that the customer pays for.

¹ See reference list



INVICTA

Topic 1 Transcript

Date: 14th November 2016

Document No.: MS418/969

Revision: 1.0

LEAN - Case Study

I also wanted to include a case study from Toyota since it was them that invented the modern way of looking at Lean. It is important with continuous Improvement, meaning having challenge in long-term vision. And make the business better continuously which means more innovation and to evolve. Have respect for people by giving opportunities of development, maximizing individual and team performance together with stimulating the personal and have professional growth. Having Long-term philosophy and make management decisions based on a long-term philosophy and also Sacrificing short-term goals if it is needed. To have the correct process that will bring the correct results. Use Process flow to make problems clearer, avoid overproduction. Distribute the workload equally, perfectionism culture, tasks that are consistent and optical control. Also have technology which helps the processes. It is also important to Develop peoples and partners' skills, some example is to build leaders and create unique people who share the company's philosophy.

Now you know a little more about LEAN and to learn more you could click on the two links in this slide or use the Software SAP. And to conclude: The following steps should be implemented to create the ideal lean manufacturing system. Design a simple manufacturing system. Recognize that there is always room for improvement. Continuously improve the lean manufacturing system design.

And there is 8 Wastes of LEAN and can be remembered as: TIM WOODS where: T – Transport, I – Inventory, M – Motion, W – Waiting, O – Over production, O – Over processing, D – Defects and S – Skills. Okay that is it for me and in the next part of this lecture about Managing Process Improvement Projects Alexandros will go over how to use lean and Six Sigma together and also clarify more about Re-engineering (BPR) and EFQM. Thank you.



INVICTA

Topic 1 Transcript

Date: 14th November 2016

Document No.: MS418/969

Revision: 1.0

References

- [1] ASQ (2016) *Six Sigma Definition - What is Lean Six Sigma?* Available at: <http://asq.org/learn-about-quality/six-sigma/overview/overview.html> (Accessed: 13 November 2016).
- [2] EFQM (2016) *The EFQM Excellence Model*. Available at: <http://www.efqm.org/the-efqm-excellence-model> (Accessed: 13 November 2016).
- [3] KUBIAK, T.M. and BENBOW, D.W. (2009) *The Certified Six Sigma Black Belt Handbook*. 2nd edn. ASQ Quality Press.
- [4] NGUYEN, T. (2016) '*Productivity Series 32 From: Six Sigma for Quality and Productivity Promotion*'.
- [5] SHMULA (2007) *The 8th Type of Muda*. Available at: <http://www.shmula.com/the-8th-type-of-muda/309/> (Accessed: 13 November 2016).
- [6] WIKIPEDIA (2010) *Lean Production*. Available at: https://sv.wikipedia.org/wiki/Lean_production (Accessed: 13 November 2016).
- [7] WIKIPEDIA (2016) *Business Process Reengineering*. Available at: https://en.wikipedia.org/wiki/Business_process_reengineering (Accessed: 13 November 2016).
- [8] WIKIPEDIA (2016) *The Toyota Way*. Available at: https://en.wikipedia.org/wiki/The_Toyota_Way (Accessed: 13 November 2016).