

Lean 6 Sigma to motivate staff to improve processes

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Abstract

In 2014, Statistics Netherlands adopted Lean Six Sigma as the new standard method for process improvement. One of the first projects started in my division. In this project, we successfully reduced processing time and it gave us a motivated head start for further implementation of the Lean Six Sigma method. In this paper, I would like to share how we implemented Lean Six Sigma at our office and how we succeeded in motivating the staff to apply it.

Keywords: Lean Six Sigma, Lean Six Sigma Implementation, Quality, Efficiency.

1. Introducing Lean Six Sigma at Statistics Netherlands

In 2014, Statistic Netherlands started off with Lean Six Sigma because a structural way was needed to improve our processes. There is also the pressure exerted by the Dutch government to accomplish as much work as possible with the fewest possible resources. As a result, we needed to work as efficiently and effectively as possible, using high-end processes. For these purposes, we found Lean Six Sigma to be a useful tool: see [Visschers et al. \(2017\)](#).

Lean Six Sigma is a synergised managerial concept combining Lean enterprise and Six Sigma. Lean traditionally focuses on the elimination of the seven kinds of wastes classified as defects, overproduction, transportation, waiting, inventory, motion and overprocessing. Six Sigma seeks to improve the quality of process outputs by identifying and removing the causes of defects and minimising variability in (in our case statistical) processes. Synergistically, Lean aims to achieve continuous flow by tightening the linkages between the various process steps, while Six Sigma focuses on reducing process variation (in all its forms) for the various process steps, thereby enabling a tightening of those linkages. Lean Six Sigma uses the DMAIC ('Define, Measure, Analyse, Improve and Control') phases similar to that of Six Sigma. Lean Six Sigma projects comprise aspects of Lean's waste elimination and the Six Sigma focus on reducing defects, based on critical to quality characteristics. The DMAIC toolkit of Lean Six Sigma comprises all the Lean and Six Sigma tools.

Due to the systematic quantitative approach of improving processes with Lean Six Sigma and its statistical background, it fits well with Statistics Netherlands and its employees. When is Lean Six Sigma applicable to Statistic Netherlands? The Lean Six Sigma method is deployed in existing processes if: (1) current performance clearly differs from the desired

situation, (2) there is a deviation for which solving is urgent, (3) both the cause and the solution are not yet known, (4) the project is executable within a period of three months. This means that we make a pre-selection of where and when to use Lean Six Sigma.

2. Starting implementation in a statistical production process

One of the first Lean Six Sigma projects at Statistics Netherlands started in the summer of 2014 in our division. We had a team with many difficulties in managing its workload and work fragmentation. This created a so-called 'burning platform' which emphasises that immediate and radical change due to the circumstances was necessary. It was an ideal basis for the introduction of a new method like Lean Six Sigma.

The first Lean Six Sigma project we performed in my division concerned deliveries to Eurostat. It was a difficult and very time-consuming process. Both regulations regarding the "Unified Demographic Data Collection" are mandatory and require annual delivery at the end of the year. The complete process for this delivery was not streamlined at either end, Eurostat nor Statistics Netherlands. As a result, requests for data collection are different every year and our employees are often surprised by the precise and actual content of Eurostat's questionnaires. At the same time, depending on the person who started the collection, a different statistical program and method was chosen.

All this combined led to the conclusion that the Unified Demographic Data Collection (UniDemo) delivery cost too much processing time, and there was no time left to improve the process nor the method. Especially at the end of a calendar year, this produced a great deal of work-related stress. When we went ahead with Lean Six Sigma, initially for UNIDEMO, it was embraced by the team. They really wanted to implement change here and at the same time, they were in charge by solving their own issues.

We got a head start with this Lean Six Sigma project. Two important root causes identified were (1) that the current toolset was a patchwork of different programs that are not flexible and thus not suitable for Eurostat's changing annual questionnaires, (2) by waiting for the migration delivery for the October file, a peak will be achieved in November and December. As a result, there was no time to improve business matters and respond to changes. Both root causes were analysed and addressed using the following solutions: In conjunction with an IT specialist, we introduced improved software. In addition, one of the staff members took SQL training to be able to work with this software. At the same time, the whole process was made more effective. Migration delivery has now shifted to working with the September file, which has reduced peak volumes in work. As a result, the problems with the UNIDEMO project have been resolved by applying the Lean Six Sigma method, which reduced processing time from 375 to 75 hours. This really was a huge improvement. The goal of the project, to reduce processing time by 25%, was abundantly achieved. For other statistical agencies, this has created a benchmark for inspiration. As the implementers, the team members and I are all very proud of this result.

3. Continuous implementation

Once you have completed a successful Lean Six Sigma project, it is important to sustain momentum. This was the perfect time to introduce more teams to the method. There was enthusiasm within the team and this could be spread. In our regular division meeting, we identified projects which could benefit from Lean Six Sigma. This formed the basis for a long list of potential projects. The next step was to search for the right resources to put into place before launching these projects. Then, to start the new project as soon as possible using the power of the employees who had already worked with this method.

In a span of three years, at least ten Lean Six Sigma projects have been completed successfully in my division. These projects also have different scopes. A couple of projects aimed to reduce the run-through of processing time. Other projects focused on sharing of knowledge, rescheduling and making better arrangements.

Examples are:

- The UNIDEMO project mentioned earlier went from 375 to 75 hours of processing time for data delivery to Eurostat;
- Reducing the time necessary to archive one of our biggest registers (the so-called “Polis”) from 2 weeks to 4.5 days;
- Reducing lead time to create StatLine tables from the “Polis” register: from two months to two weeks lead time;
- Reducing processing time by 30% (119 hours less time required) for creating StatLine tables concerning demographic figures on mortality;
- Processing time quality checks for social security tables reduced from 3 to 2 days;
- Efficiently handling support questions at “SSB office”: better scheduling and management of expectations.
- Knowledge sharing, advance delivery and reproducibility of process institutional households: processing time -68 hours, lead time shortened by one month from 6.5 to 5.5 months, better scheduling and knowledge sharing is guaranteed.

The beautiful thing about Lean Six Sigma is that the improvements in results are also measurable. You can continuously measure whether your actions are successful or not. All these results create enthusiasm among team members and lead to new projects identified by the employees themselves. This enables a flow of continuous quality improvements using Lean Six Sigma within the team themselves.

4. Bringing the methodology to life

Implementation of a new method requires the proper skills. When we began implementing Lean Six Sigma, we therefore immediately started to train people in my division to become so-called Green and Orange Belts (see e.g. Project Management Institute (2017) for an overview of the various Belts and their knowledge and skills). Also a champions training for management was held in which I participated. In the beginning, we all had to get used to each

other.. Of course, there was sometimes a bit of resistance from people who need to take the training in addition to their busy job. The scepticism becomes less when people realise that with LSS the work pressure just decreases. Another benefit of the training is that people in the programme immediately get a project that they can apply within their division. A particular advantage of Lean Six Sigma is that it is a method which very much involves input from people themselves. It is not something I commission as an executive, and so it provides an intrinsic motivation.

In addition to training people, it is also very important to choose the right human resources to join the project. Employees identified for Green Belt training should share the organisation's vision and be fitting for the programme. But also, the team manager as a process owner should have a major interest in the method and show that he or she finds Lean Six Sigma a good way to tackle the problems. As a champion, you should have time and make time available for the project to join the so-called 'Tollgates' as well as to keep an open door for your Belts. If the project is fun to join and the results matter, you will in the end create enthusiasm among most of your employees.

Is it all that simple? No, it still is a complicated organisational change which needs leadership from management. At Statistic Netherlands this is well organised at management level. Our Director General is the principal, all Directors have Champions Belts and at the start, chief executives themselves have done Lean Six Sigma projects as champions. Now all divisions have a Lean Six Sigma steering group. Setting targets and monitoring progress are standard parts of the agenda.

Nevertheless, right from the start, we experienced a great deal of scepticism among employees and managers and thus resistance. Just accept that this resistance exists. Embrace it and talk about it. Show enthusiasm and tell them why you believe in the method. Motivate them to join and try it out. The scepticism becomes less when people are engaged in the projects themselves and create their own experience. I am also fortunate to have an employee who completely adopts the Lean Six Sigma method in her working environment and spreads the word. She is now my main Green Belt. Together with her enthusiastic team manager she gave the Lean Six Sigma in my division the drive needed and I recognised both of them for this contribution.

5. Keep going

With ten successful projects completed, my division is a forerunner within Statistics Netherlands using the Lean Six Sigma method. It's a powerful method which can be applied in various projects, but of course not everywhere. It's a bottom-up method which means that people who are close to the process come up with the solutions. So the problems they face can be solved by themselves. As a manager, make sure you join and listen to your employees and their solutions. That is important to make your staff feel optimistic, to perform, to be motivated and to enjoy their work.

The next step is to let Lean Operational Management (see [Visschers et al. \(2017\)](#)) also become part of our daily work. All my teams have started working with this operation communication using short-cyclic sessions. In these sessions, staff look back and forward together to improve team performance in statistical production. I'm curious to see how this goes on in the near future.

It is still work in progress, but Statistics Netherlands has made a good start in adopting Lean Six Sigma and is continuing this process by integrating Lean Operational Management.

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