Optimization of the processes in the banking system

ANDREEA BEATRICE MARINESCU
Industrial Engineering
Polytechnic University in Bucharest
313 Splaiul Independentei, sector 6, Bucharest, postal code: Ro-060042
Romania
Andreea.marinescu09@yahoo.com

Abstract: - This paper aims to analyze the fundamental principles of Six Sigma methodology and the way of applying this methodology by using the DMAIC process (acronym for the process used to Define, Measure, Improve and Control) in the banking sector. Although the method has been created for the manufacturing industry, by this study I will demonstrate that it applies very well in the financial field, and this idea is sustained by concrete examples from the banking system in Romania. The need to implement a quality development methodology lies in the need of the banking institutions to develop qualitative processes which to meet customer needs and to reduce the response time to their requests.

Key-Words: - Six Sigma, quality, process improvement, ISO certification , DMAIC, banking system

1 Introduction
Given the fact that we live in a world which is in a continuous development and competition, many of the companies in Romania as well as across the world have started using the Six Sigma methodology along with other methodologies aimed at continuous improvement of performance within the organization. The fundamental objectives of this methodology are based on reducing costs which will aim an increase in the profit margin. Also, this concept is based on continuous improvement by an increase in quality of the products and services provided, increased customer satisfaction and at the same time their increasing confidence in the products or services used.

The aim of this research is based on analyzing the arrangements for implementing the Six Sigma methodology in the banking sector and the steps taken for implementing a quality process by using the DMAIC process.

The history of Six Sigma methodology
The starting point for the development of this methodology goes back in 1980, and its occurrence aimed to reduce the defects in the manufacturing industry. These methodology has known a continued development, currently being used in the services sector aimed at improving the quality of the services provided.

City Bank is the first bank in the world to consider analyzing the possibility of implementing a new methodology for improving quality that was used only in the manufacturing system. The reason that has been the basis for the decision to use the Six Sigma methodology starting with 1997 was the bank's desire to become the most important financial institution in the world. Therefore, the objective of the bank to improve quality of the services provided to its customers has led to the decision to review the arrangements for the implementation of a method that has proved very effective in the manufacturing industry. Another important bank which is to begin to use Six Sigma starting with 2001 is Bank of America, initiative taken by CEO Ken Lewis. The interest in this methodology on behalf of Bank of America targets the customer directly, and aims to analyze the number of complaints made by these, as well as the time of analysis, processing and completion of a loan. In Romania there are many banks that use the Six Sigma methodology. We can lists the largest banks in Romania: Romanian Commercial Bank (BCR) Erste Group, BRD - Groupe Société Générale, ING Group, etc.

In the specialized literature it is specified that Six Sigma represents a quality management program which is aimed at improving performance of the process, based on continuous and innovative improvement of the quality of products, services and processes in the various fields of activity such as finance, development of new products, manufacturing, marketing, sales, etc. Therefore, Six Sigma has been created and perfectly suited to the needs of the services industry, which develops its activity according to the needs of its customers.

This methodology has two approaches: a statistical approach and one that is related to the
As regards the statistical field, the term Six Sigma is supposed to have less than 3.4 defects per one million products designed, or if it is considered the process average variation is defined as having a success rate of 99.9997%. A higher value for sigma suggests a stable process (minimum risk for mistakes, and reduced costs), specification as shown in figure 1. With regard to the business environment, Six-Sigma is considered to be a methodology used in order to increase the profit level, in order to develop new effective strategies that will lead to compliance with the needs of a larger number of customer and their loyalty thereon.

The International Organization for Standardization concerning Six-Sigma (ISO 13053 - 1, 2011), highlights the fact that knowledge management is a major factor contributing to the successful implementation of Six Sigma methodology.

Therefore, financial institutions will use this methodology to manage as much as possible the response time to customer requests, to the achievement of an efficient organization of the working system, the settling in due time of a larger number, as possible, of complaints made by the customer which will lead to the growth of the satisfaction degree of the users of services, as well as to an increase in quality of the services provided.

Six Sigma methodology used in the banking sector uses the DMAIC process (an acronym used to Define, Measure, Improve and Control), process which is based on the use of data which will be employed for the development, optimization and organization of the business processes. The DMAIC process is a basic tool used to implement the Six Sigma methodology, but it is applied in other methodologies as well. It is a good idea to clarify that all stages of the DMAIC process must be noted and necessarily in the order specified as shown in figure 2.

ISO standards are those sustaining the idea of implementing the stages in the DMAIC process in the correct order. Therefore, systematic organization of the DMAIC phases will lead to effective implementation of the quality improvement project through efficient use of the Six Sigma methodology. In the following we will describe the steps to be followed in the DMAIC process used in the banking sector.

To define:
The starting point in this step is to define as concisely as possible what is the problem to be solved, which is the objective to be attained and what resources we have for achieving these objectives. Normally, the objective consists in removing the disruptive factor in order to achieve a high level of quality and to increase bank profits. Usually, the objectives are set out by employees as well as by people with decision-making role, and are based on customer feedback that results from the number of complaints filed.

Measurement:
The starting point in the 2nd step consists in establishing the work steps that will lead to an improvement in the process. Therefore, shall be collected the necessary information, these shall be analyzed, and at the conclusion of the project it shall be established whether a process improvement was achieved. The team that will be in charge with the analysis and development of the quality process is the one that will establish what coefficients are to be analyzed and how they are going to be measured in order to verify whether the objectives set out at the previous point were achieved. Therefore, measuring the impact resulted from the implementation of a business process helps banks to concentrate their efforts on those processes which have a favorable and noticeable impact on the satisfaction degree of the customer. A method of measuring a process that is intended to reduce the waiting time of customers within branches of banks aimed at satisfying customers' needs, is to hire an observer which to provide details at the end of a day on the activity
during the day or, another possibility is suggesting customers to complete a survey of four or five relevant questions which will have the purpose of highlighting the degree of customer satisfaction.

**Analysis:**

During this stage, team members are responsible for analyzing the data collected in the defining stage, and then to determine how and where the process can be improved to costs as reduced as possible, but also to obtain a maximized degree of customer satisfaction. To exemplify such a situation we will explain briefly which are the stages covered by a loan contracted by the customer: the customer's personal data are entered in the loan application, these data are sent to the back office for analysis of their truthfulness, as well as for loan approval, and the last stage is providing the money to the customer in the event that the feedback is positive, or rejection of the loan application. In all three stages must be analyzed all work steps, the time allocated to each stage, with the possibility of reducing the waiting times that will lead to process improvement and to meeting customer needs in due time.

**Improvement:**

Subsequent to the analysis performed at the previous points, at this stage, team members as well as the bank management have the responsibility to establish the corrective measures aimed at increasing quality of the services provided and by default development of the work process. The measures taken are based on statistics compiled as a result of the acts analyzed. Prior to implementing the changes of process improvement at global level, it is considered a clear analysis on the possibility of occurrence of a failure. Therefore, it is best to implement a pilot project that will affect a small number of respondents with a view to establish a feedback that will provide the basis of taking the decision of implementing the project at the level of the whole bank.

**Control:**

This is the monitoring stage of the project. The role of team members as well of the managers with decision-making role is to analyze whether the changes implemented give the performance rating expected, if this is not the case, if problems occur it is better that the project to return in the defining stage and then to follow again the steps described above in order to correct the errors and improve the flow. Also, at this stage may be used a control diagram for evaluating the progress in time and will be used both as a guide for further monitoring of the process, as well as as a method of information at the occurrence of negative phenomena, so as to intervene at the appropriate time.

---

### 2 Objectives of the financial institutions

Any bank seeks to implement a business process that will generate performance rating on both the elapsed time, as well as in the long term. By implementing a process that will generate substantial improvements of the banking activity, financial institutions have the following objectives as shown in figure 3 and detailed in the following:

![Fig.3 Objectives of the financial institutions](image)

**- Improvement of the satisfaction degree of the user of banking services.**

Given the fact that in the financial sector there is a considerable number of financial institutions that offer similar services to customers, the banks must use in a manner as effective as possible the Six Sigma methodology so as to attract a more larger number of customers, to satisfy the needs of an increasing number of people and also, to reduce any unnecessary cost. Therefore, it is aimed at reducing the waiting time for the services requested, as well as the development of some services that are to be applied as well as possible on the needs of applicants.

The use of an adequate and well implemented performance process will help the bank to solve in due time customer complaints, so that problems will be taken over and analyzed in time, and that the solution will soon occur.

**- Improving the profitability coefficient as well as minimizing costs.**

Given the fact that people are different and by default have different needs, banks need to use the Six Sigma methodology in order to understand the needs of each respondent, to examine them, and following the results obtained to provide services which to apply for a higher number of customers, securing their loyalty through the quality services provided and to attract new resources (customers) in order to increase the profitability degree. By providing services that accommodate the needs of a larger number of users as possible it is aimed at reducing the costs in the long term due to the fact...
that the products become more efficient for a greater number of people.

- **Ongoing assessment of performance.**

In order to verify that the process implemented is a healthy one, the banking activity must be monitored permanently. For this monitoring are considered the information related to the waiting time, the level of satisfaction and the quality of the services provided, the quality determined by user's feedback. As well, is analyzed also the expenditure incurred by the bank for providing its services, managing to determine thus which is the cost generated for each customer. This is the stage in which the implementation team members can identify the problems arising in the development process and may intervene in time for their improvement and for reducing unnecessary costs.

- **Removing the latency occurred during the activity of implementing the process of services improvement.**

Any improvement carried out in any activity, including in the banking activity, is based on sensing a problem or a latency. At the time when the negative factor has been identified, it is aimed at its removal. Any problem generated by the delay of the response with respect to a loan application, or increase of the time of performing a foreign exchange rate within bank branches, may lead to a noncompliance with customer needs and by default to a decrease of the customer retention rate. It is therefore beneficial the use of this methodology that is built to identify the negative phenomena, aiming at their removal and continuous improvement of the system.

- **Analysis and control of the performance obtained.**

This is the time to check compliance of the objectives set and their maintenance in order to increase in position on the financial market, for the satisfaction of a larger number of users and for an increase in the turnover.

Many banks in Romania have adopted this methodology in order to find success. One of the best-known banks in the country which have implemented such a methodology for the improvement of quality services is BRD Groupe Société Générale. One of the processes implemented by this bank will be analyzed later in a research study.

Therefore, in the light of the information detailed above, we find that the banks in Romania have proposed for themselves the following things by implementing this revolutionary methodology: business growth by attracting a larger number of customers, development of the banking services, decreasing the number of complaints made by the customer, as well as their settlement in due time, development of the work process so that the consumer will be rapidly given a feedback to the request made by the latter, removing errors occurring in the documentation provided and also improvement of precision, reducing the possibilities for human errors occurrence when entering data in applications by automating certain processes or implementing such processes to verify the accuracy of the information, reducing the possibilities for the occurrence of fraud by implementing a process of rigorous audit, development of the processes for collecting information relating to the customer, reducing the response time to customer requests (loan applications), as well as improving the workflow in order to obtain the loan desired, etc.

**Certifications in the industry**

As in almost all fields of activity, in the field of specialists dealing with the implementation of quality processes using the Six Sigma methodology there are also a few certifications which differentiates them depending on the knowledge held and experience in project implementation. Among them we mention:

1. **Lean Six Sigma Yellow Belt.** This certification is addressed to managers or heads of department which have responsibilities in maintaining the quality of processes that are involved. Holders of this certification have fundamental knowledge of Lean and Six Sigma, they understand the operating principles of the methodology and of the instruments used for its implementation.

2. **Lean Six Sigma Green Belt.** This certification is addressed to the project managers and heads of department which have responsibilities in maintaining and developing quality management processes. A Green Belt person certified will be able to implement the benefits of this methodology, will know how to apply the basic principles of this methodology as well as the work steps of each stage in the DMAIC process, to propose and to successfully lead projects using this methodology.

3. **Lean Six Sigma Black Belt.** Any person who wishes to hold such certification must first follow the Lean Six Sigma Green Belt training course and to hold the certification related. The Lean Six Sigma Black Belt certification is addressed to the people who will make changes across the company and will be involved in the development process of the organization. A person holding such a certification understands the application principles of this methodology and knows the instruments used to apply the Six Sigma methodology, is able to understand and to analyze the problems occurred.
and to provide viable solutions and durable in time, knows and uses at expert level the application for the advanced statistics MINITAB.

3 Case study: Integration of the human resources services within the subsidiaries of BRD Group in Romania.

In this case study I will present the takeover and integration process of the human resources activity, both in BRD, as well as in other business lines of Société Générale in Romania. Among the objectives of this implementation we will list: reducing the costs generated by the HR activity and optimization of processes within these activities. The starting point of the implementation process was in 2009, and the implementation was carried out for approximately 9200 employees. Therefore, Romania becomes the first country to integrate these services in its subsidiaries Groupe Société Générale and so far it remains the only one to do this.

BRD Groupe Société Générale is one of the highest rated banks in Romania, being the second bank in Romania by the number of assets owned and also has a second capitalization at the Bucharest Stock Exchange. BRD owns 930 branches located in all counties of Romania within which are employed 9200 people. The number of clients exceeds the figure of 2.5 million. The most important shareholder is Société Générale, one of the most influential group in the euro area, importance given by the large number of customers, amounting to 27 million, and by the work force employed, over 160,000 employees in the whole group. The activities undertaken by this group are focused on three areas: Retail Banking & Financial Services, Global Investment Management & Services and Corporate & Investment Banking.

Project presentation

Given the fact that this bank has experienced a continuous and sustained development on all lines of business addressed, it was only natural for the management to be willing to obtain an operational development and of course an improvement of the operational processes. As a result of certain analyses performed on the activities undertaken within the bank it was decided to improve the process that targets a larger number of respondents, and the activity that it is intended to be optimized is the activity of human resources aiming at it to be included in the activities undertaken by this bank.

The objectives of this process were set out at the beginning and have been generated by the desire of continuous development of the group. Among the most important objectives we will list: minimization of the costs generated by the activity of human resources, by creating a single team that will have the responsibility to manage the activity of human resources at the level of all subsidiaries of Groupe Société Générale, a more effective management of employees career and by providing professional growth within the group, improving the human resources activities in the whole bank by making the best decisions that take into account the needs of employees as well as their knowledge.

Implementation stages of the process for integrating the human resource activity in the bank using the Six Sigma methodology and DMAIC process by default.

In the defining stage are set out the bank objectives, namely: integration of the human resource services in the banking system, concentration of the services for the payment of wages, the use of a new IT system which will aim at efficient management of the human resource in both BRD, as well as in branches of Société Générale in Romania, mapping the processes of human resources management, reorganisation and integration at central level of the human resources activities for a better management of the services provided. These objectives have been generated by the bank's need to reduce costs with the services of human resources, the necessity of increasing quality of the services relating to its personnel administration, as well to reduce the response time to employees requests.

In the measurement stage, members of the team responsible for the implementation process have the responsibility to identify and analyze the factors that will lead to the successful implementation of the project. In this case were analyzed the costs carried out for the human resource management incurred by the bank before implementing the project, as well as costs generated by the costs for commissioning the new process. Six Sigma methodology is used to help identifying the problems occurred that may generate additional costs. Also, in this stage is analyzed the response time to employees requests relating to personal documents which they need, as well the time spent in order to calculate the monthly wages and bonuses.

In the 4th and 5th stage of DMAIC process shall be considered the analysis of all previous stages and checking accuracy of the information specified above. This stage is covered in order for team members that are in charge with the implementation project to ensure that there is no possibility of a failure, and in the case in which negative aspects are
detected, these to be examined and corrected by repeating the previous steps. BRD Bank has noticed a problem slipped in the implementation process. This problem refers to the identification of an increased response time to employees requests with regard to the need for certain documents. Employees requests were made via email, and their management was cumbersome. Therefore, the work mode has changed by implementing a platform to which all employees have access and through which they could launch requests. This change has led to halving of the response time.

Following this project, BRD has managed to integrate all human resource activities within the bank: has integrated the recruitment process, the payroll process, the specialized trainings for employees and their professional development, evaluation of employee activity, insurance management, internal communications, providing regular occupational health and safety training, etc.

The results obtained by implementing the integration process of the human resources services

Following this process have been integrated the human resource services for approximately 9200 employees, the staff used for the human resource activity has halved without performing layoffs but professional reorientation, the costs of managing the information relating to staff were reduced by implementing a platform dedicated to this activity.

Advantages of the reorganization or implementation of a project that aims to increase quality of the services rendered has a real benefit on a bank considering we discuss about reducing costs, of the response time to requests, streamlining information management and optimization of the processes used.

This project was implemented over a year but will generate positive effects until company managers will wish to re-improve the process. Therefore, increasing service quality will have effects both in the medium and the short term.

4 Conclusions

Using this methodology has known a real success due to profit growth by attracting new customers, retaining them, decreasing the response time to customer requests as well as vis-a-vis of those of internal employees. Development of the banks that apply this methodology was one progressive and continuous, as opposed to the one of the banks that do not use this principle, and that have lagged far behind the leading competitors. Six Sigma methodology has the power to organize the entire banking system if applied effectively and whether members of the implementation team are experienced and hold the certifications needed.

This methodology holds reliable and powerful tools to increase quality, but it is important to be implemented correctly. According to the information described throughout this paper and especially in case study carried out, implementation of the methodology should be made gradually, by ensuring compliance with all steps of the DMAIC process and especially the order in which they are covered. Although it is a methodology that requires sufficient time in order to be implemented properly, it brings benefits to both general level, and in the medium term and the long term. Given the fact that a banking institution is represented by a large number of employees, all of them are required to participate to a certain extent to the implementation process: some only with feedback, others with decisions and general changes.

The conclusion of this study is that this methodology is able to shake up even the services industry provided to be implemented effectively and responsible, and to take into account the fundamental criteria defining it.

References: