PhD THESIS

SUMMARY

INTRODUCING LEAN SIX SIGMA METHODOLOGY TO ROMANIA’S CLINICS AND HOSPITALS

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INTRODUCING LEAN SIX SIGMA METHODOLOGY TO ROMANIA’S CLINICS AND HOSPITALS

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SUMMARY

Despite the different economic crises and austerity measures imposed, the European healthcare system starts slowly to produce better and better results. However, the multiple cases of precarious diagnosis, like stroke or cancer, are still increasing. Also, despite the many advertisements, the Europeans continue to consume, in a rather high percentage, bad food, and also tobacco and alcohol, which sensibly increase the risk for obesity and cancer.

Still, regarding the past years, Europe remains on a better position regarding the infant mortality rate. In a recent study made by the World Health Organization (WHO), the infant mortality rate is decreasing, this trend being observed especially in the Baltic States, which have strongly been affected by the financial crises. Moreover, the study emphasizes that from all the European countries, only 9 countries obtained a score over 800 points from a total of 1000, regarding the quality of the medical services (there have been analyzed the healthcare systems of 36 countries, including Scotland).

In a study presented at Brussels, in January 2015, our country is placed on the 35th position, in the European Index of healthcare systems, with a total of only 453 points (out of 1000), being
placed on the 35\textsuperscript{th} place. This result was mainly generated by the old medical equipment, the limited access at the medical services for some people, but also by the bad quality from the healthcare system.

Thus, once Romania joined the European Union, the Romanian healthcare system has been under the closer surveillance of the other member countries, and the clinics and hospitals become more and more criticized for the many shown deficiencies. Unfortunately, the Romanian healthcare system is still unable to cover the deficit regarding the accessibility at the medical services, the constant migration of the medical staff, the old equipment, the lack of medical staff, etc.

The Romanian healthcare system annually treats millions of people, in the same time, saving lives of more than 90\% of the total population. However, financial, social and economic disputes constantly appear, throwing the sanitary system into a black hole.

Over the years, different innovations tried to rescue the medical system from the collapse. Before the revolution from 1989, the medical system guided after some procedures, in order to, at the end of the revolution, change its way, applying different rules, more or less adopted by the consumers.

Even if in Romania there are deficiencies on the services’ market, the healthcare system must be “refreshed”, so that it will be able to align at the European healthcare systems.

A first step for realizing this fact might be possible by improving the quality of the medical systems. In this sector we include actions like:

- Decreasing bureaucracy;
- Decreasing medical fraud (especially the financial fraud);
- Equal access to medical services;
- Avoiding/decreasing the migration process;
- Providing clinics and hospitals with modern medical equipment;
- Improving the quality of the medical process;
- Elimination of any kind of waste (time, movement, financial resources etc).

Once these minimal first requirements are accomplished, the Romanian sanitary system could get close to (in qualitative terms) the European healthcare systems. But, for approaching these criteria, the Government’s and medical staff’s implication is mandatory.
If the Romanian state does not cover these minimum needs, Romania will not have any chance to change.

The Romanian sanitary system must be capable of helping its citizens, to offer them healthy perspectives, in modern clinics and hospitals. This is why the healthcare system must have the capacity of folding on every citizen’s needs, so that it can offer the treatment that the customer needs. This thing could be accomplished by an efficient organization of the medical system, and socially, by the free movement of information, by gaining people’s trust, continuous improvement and financial responsibility.

The main motivation for the theme research comes down to the fact that the Romanian sanitary system presents stable deficiencies which, despite the many changes from our country, the ones from the sanitary system remained just as lit. This is why we consider that the Romanian medical system must be able to ensure the patients the care they need, to focus on their worries and to offer them quality treatments and services.

From the previous studies on clinics and hospitals across Europe and USA, we have realized that for meeting the above mentioned needs, there is a methodology that put the patients’ needs on the first row, by decreasing and avoiding waste of all kind, as well as streamlining and organizing the medical services so that it could fold on patients’ needs. Such a methodology is called “Lean Six Sigma” and it has been chosen especially for seeing if it can fix the main deficiencies of the Romanian sanitary system, more exactly the waste of time (patients’ waiting time in front of the doctor’s cabinet) and financial fraud.

The purpose for choosing this theme is based on a general analysis of the medical system, together with its strong and weak points, with the existing deficiencies and needs, and then presenting the advantages that might be brought by Lean Six Sigma, and as a practical part, to apply an improvement process in the Bucharest Titan Policlinic.

For approaching this method in the Romanian clinics and hospitals, firstly there will be presented the method’s advantages, as well as highlighting the fact that once the method is applied, there will be eliminated many types of wastes already existing in the medical system.

This is why, the thesis’s purpose is to highlight, with the help of a management method, the fact that the Romanian sanitary system is able to meet the European standards, both from a qualitative point of view, as well as from a managerial, organizational, institutional, etc. point of view. By
applying the Lean method, the Romanian clinics and hospitals will be able to operate efficiently and will be able to ensure the needed conditions for a sanitary institution at European level. Thereby, the patients’ and medical staff’s satisfaction level will considerably improve and the sanitary institutions will function more efficiently.

**The paper’s main objective** is to present the method’s advantages and benefits, to create an organizational culture where the medical staff will understand the role of this system, and thus, to introduce gradually the Lean Six Sigma method in Romania’s clinics and hospitals.

*The second objective* is to eliminate the waste from the Romanian sanitary system. At the moment, the clinics and hospitals cope with different kinds of waste (waste of time, waste of materials, waste of financial and human resources, etc). Once this waste is eliminated, the hospitals will function more efficient from an organizational and financial point of view.

*The third objective* is to implement the Lean principles and methods adapted to the medical system, so that the error rate could sensibly decrease, the capacity of medical care to increase, and the access to medical services to be as easier as it can, improving work and security conditions, improving leadership, etc.

In the fourth place, the creation of teams with Lean specialists is being watched, who will coordinate the activity of different hospitals’ departments, to propose improvement strategies, by constantly creating trainings and meetings.

Once the 4 objectives are accomplished, the paper also wants to accomplish some secondary objectives like:

- Considerably improving the quality of medical services;
- Improving medical staff’s satisfaction;
- Creating productivity growth strategies;
- Eliminating the 7 types of wastes from the healthcare system (Muda);
- Improving patients’ flow – managing the medical act like a river flowing, as well as improving patients’ flow from the emergency department, reducing delays in laboratories, improving the flow in pharmacies, etc.

*The importance and novelty* of this theme emerges from the fact that the sanitary system needs a “refresh” of the offered services, per se, in this paper we try to apply a tool unused before in the Romanian healthcare system, which is Lean Six Sigma.

*The paper’s structure* is divided in 4 different parts, with a total of 9 chapters.
In the first chapter we present an introducing of Lean management methodology and a degree of utilizing this method in different industries, like USA, Europe and especially, Romania. Then, we go back in time and tell about Lean management’s beginning, starting from Ford’s fabrics and passing through the Japanese culture. At the end of the chapter, we present the 7 types of wastes from a Lean management perspective, including how they appear in a healthcare system.

In chapter 2 we present the Romanian sanitary system, ways of financing it, the organization of the Healthcare Insurance Houses, and main deficiencies of the medical system (we will highlight them in this chapter in order to be able to describe and apply the Lean Six Sigma methodology mostly on these deficiencies), and last but not least, we will show how the Romanian sanitary system is seen in an European context.

Chapter 3 is based on a quantitative research realized with the help of two questionnaires. Before starting to apply the Lean Six Sigma methodology, we have decided that it is fair to find out the patients’ and doctors’ opinion regarding the Romanian healthcare sanitary system. Thus, we have created two questionnaires (one for patients and one for doctors) and we have asked questions about the medical services quality, clinic’s endowments, quality-price report, medical services efficiency, etc. Based on their answers, we have developed the investigation and disseminated the results under some figures so that we would be able to present the exact steps where the Lean Six Sigma methodology is needed.

The second part starts with chapter 4, where a description of Six Sigma methodology is described, explaining the signification of the Sigma level and building an analogy between Lean and Six Sigma methodology. At the end of the chapter, we present the main reasons why the Romanian healthcare system needs the Lean Six Sigma methodology.

In chapter 5 we try to apply the theoretical model DMAIC in the clinic where we conduct our research, respectively the Titan Policlinic from Bucharest. In this way, we will evaluate every stage (define, measure, analyses, improve, control) from the policlinic’s context, starting by analyzing the main deficiencies, and then highlight the most important ones (the ones that affect in a high level the patients’ satisfaction), presenting data which attest these deficiencies, and ending by proposing some solutions and observing their efficiency.

The third part of the paper presents chapter 6, which is guide for developing and applying Lean Six Sigma methodology. Because this method is not yet applied in the Romanian sanitary system, we have considered that if there will be clinic’s or hospital’s managers that wish to adopt
this methodology, they could find a real help in our guide, following the main steps that must be accomplished for implementing a Lean Six Sigma improvement project.

With *chapter 7* the third part of the paper will be ended. In this chapter we will present the methodology’s influence on patients and medical staff. Indeed, at a first glance, the methodology must focus on process improvement, decreasing variability and eliminating waste, all this in order to increase the consumers’ satisfaction levels, which are the patients. But, not only the patients represent the medical system’s consumers, but also the medical staff, doctors and nurses, for whom the services must be as well efficient.

The last part of the paper, part four, is composed by *chapter 8 and 9*. Chapter 8 presents contributions and personal opinions regarding the stopping or decreasing the main deficiencies from the Romanian sanitary system, and chapter 9 presents the main objectives that must be accomplished once the Lean Six Sigma project is started, as well as research’s conclusions and future directions.

Lean Six Sigma represents a methodology for eliminating any type of waste, for decreasing the variability and streamlining the processes. With the help of numerous tools proposed by Lean Six Sigma, we consider that, by applying them, the Romanian healthcare system, can solve a part of the existing errors and offer the patients’ medical services with a high degree of quality.