A lean six sigma approach to improve municipal service processes

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Abstract

This research aims to identify the current state of process management for municipal subsidies and is proposing to improve the process by reducing motion, deadlines and excessive actions and to eliminate duplication of processes and overproduction. Time spent and process efficiency is the subject tackled in this research. Several areas of action that affect the overall process as departments, regulations, time, experts, movements, materials and procedures have been explored. Lean six sigma/DMAIC model is used as an adequate mechanism for the implementation of this project which aims to improve the quality of service. The result of the research is not limited to only one specific process, the applied model in this study can be used to improve many processes in municipalities. Currently, in order to receive a final response from municipal authorities for subsidies allocation, 41hr of process time, 160 hr of calendar time and 232 hr of wait time are needed. The process efficiency is only 10%.

Keywords: Lean six sigma, Public Service Processes, DMAIC, lean six sigma tools, Municipal Subsidies.

Introduction

Usually, citizens need for municipal services is expressed in many aspects, there are citizens who seek building permission, trade permission, they apply to public competitions for employment, they apply to public competitions for various capital projects, for providing services and supplies, apply for municipal grants, apply for social assistance, certificates, licenses and many other issues. These services that bring value to citizens consist of many processes and procedures and includes many actors that affect the service (value). Citizens and NGOs complain they have to wait long in order to obtain what they are asking for, they must move through many different sectors, many times they fail to understand the processes and procedures and this makes them dissatisfied. Local government is aware that a dissatisfied citizen means one vote less and one vote less means more risk of losing power in the next elections (Nina Bhatia, John Drew, 2007). Since Lean Six- Sigma has reached positive business performance in every industry, maybe it is time and necessary that municipalities start to implement a Lean Six-Sigma approach to improve their processes and meet the customer requirements. Lean six sigma is a methodology that includes two previous methodologies lean and six sigma which originate from the production sector. Lean Six sigma is a combination of well-known waste elimination and process improvement techniques Lean Manufacturing and Six Sigma (Qun Zhang, et al., 2012). Six Sigma is created by Motorola in the middle of the '80 (Masoud Hekmatpanah et. al., 2008), and Lean has its beginnings in 1920 at FORD company (Emiliani, 2006), and it is been applied in vehicle mass production model T (Sameer

Kumar, Kenneth F. Bauer, 2010). The organization which is known for perfecting the lean concept is Toyota Motor Corporation (Sorin T. Teich, Fady F. Faddoul, 2013). Toyota identified seven types of waste that inhibit a system's flows: overproduction, waiting, transportation, over processing, inventory, motion, and rework (Nina Bhatia, John Drew, 2007). Today, lean six sigma is applied not only in the manufacturing sector but also in the services market (Antony, J., Kumar, M. & Cho, B.R., 2007). In the services sector LSS contributes to eliminating the delays of services to customers, which means high quality services in the shortest time (Antony, Six sigma in the UK service organizations: results from a pilot survey, 2004a). Six Sigma was originally developed as a set of practices designed to improve manufacturing processes and eliminate defects, but its application was subsequently extended to other types of business processes (Sameer Kumar, Kenneth F. Bauer, 2010). Improvement of the quality of the services can be achieved by improving processes. Powpaka (1996) found that overall service quality was influenced by outcome quality, over and above the effect of process quality (Pratibha A. Dabholkar, Jeffrey W. Overby, 2005). Improving processes is achieved by eliminating the defects that damage the service or do not bring any value to the client. LSS is the most effective tool in this regard because it reduces variations and eliminates defects (J. Taylor et al.,). It is very important that companies focus on processes to be perfect because they are present in each enterprise environment also in supporting service sector to enable production (Lisa Blomgren Bingham et al., 2005). In considering the nature of business processes it is useful to group processes into four categories: direction setting processes; operational processes; supporting processes; managerial processes (C. Armistead, S. Machin, 1998). Localized implementations of process management have been prevalent for years (Thomas R. Gulledge Jr, Rainer A. Sommer, 2002). The process view provides an approach for managing productivity for large multi-stage networks, and managing the links between quality and productivity in these networks, together with an approach for managing variety of services (C. Armistead, S. Machin, 1998). In view of the organizational environment, the public sector also faces similar challenges but sometimes there is a skeptical view of innovation in the public sector. While public organizations have adopted IT to improve their operational efficiency the changing environment calls for more radical changes to improve the quality of public service (J.Y.L. Thong, Ch.S. Yap, K.L. Seah, 2000). Public service is often used as a synonym for government service embracing all those who work in the public sector (James L. Perry, Lois Recascino Wise, 1990). In the past two decades, many public jurisdictions and agencies have initiated efforts to increase productivity and to find alternative service-delivery mechanisms based on public-choice assumptions and perspectives (R. B. Denhardt, J. V. Denhardt, 2000). Public institutions are seeking new management models which will enable faster rendering of services, enhance citizen satisfaction and reduce costs. According to (Maleyeff, 2014) from a disciplined process improvement methodology, such as Lean Six Sigma, can benefit any organization from large corporations to small municipalities because:

"The Lean influence would cause the organization to: (1) maintain an understanding of both internal and external customers' needs and desires, (2) seek to maximize the value-added content of all processes, (3) constantly evaluate employee incentives to

ensure their alignment with system-wide performance objectives, and (4) look beyond strictly financially quantifiable cost savings. The Six Sigma influence would cause the organization to: (1) stress data-driven decisions that are based on facts, rather than opinions; (2) devote resources to solving problems that present significant challenges to business success; and (3) implement a consistent, highly structured project-based improvement regimen"

According to (Antony, 2004a) service-oriented businesses adopting Six Sigma business strategy will have the following benefits: improved cross-functional teamwork across the entire organization; transformation of organizational culture from fire-fighting mode to fire-prevention mode; increased employee morale; reduced number of non-value added steps in critical business processes through systematic elimination, leading to faster delivery of service; reduced cost of poor quality (COPQ) (costs associated with late delivery, customer complaints, costs associated with misdirected problem solving, etc.); increased awareness of various problem solving tools and techniques, leading to greater job satisfaction for employees; improved consistency level of service through systematic reduction of variability in processes; and effective management decisions due to reliance on data and facts rather than assumptions and gut-feelings. Therefore, in order to satisfy the people they care to improve the quality of their services. Lean Six Sigma (LSS) is a guaranteed model for improving the quality of municipal services. It is argued in many municipalities in advanced countries (Novaces, 2017). Mechanisms and instruments of LSS enables improvement of quality of services. This study attempts to identify a specific service process in a municipality and tries to improve it according to LSS model. DMAIC is a LSS mechanism used in this study to verify and improve services. The study was carried out in a common municipality in rep. Kosovo as an emerging country. The process management for grants deliberation for citizens and NGOs is the specific service studied in this research. Various wastes such as process complications, excessive actions, deadline prolongation, excessive movement and excessive review teams and excessive sector involvements are identified. The study provides recommendations and guidelines for improving the process due to reduce waiting time and sector involvement, avoiding redundant processes, unnecessary movements. This study can serve as a model for other processes carried out by the municipality services for the benefit of citizens. The article is arranged as follows: in the second session the framework of Lean Six Sigma is presented which has reviewed mechanisms and its instruments, in the third session the case study of the municipality process management for granting subsidies is presented. In the fourth session the practical proposals for implementation of processes based on lean six sigma model is presented and section five derives the findings and conclusions.

Municipal Subsidies Process

According to (Steenblik, 2005) the word subsidy is derived from the Latin word "subsidium", which meant "support, assistance, aid, help and protection". In medieval times it referred to a payment made to the king. Nowadays, to most people, a subsidy means a payment from a government to a person or company. Many

subsidies are indeed provided in that form, as grants or, more generically, direct payments. Subsidies in Kosovo have an important place and attention. According to (Tahiri, 2017) the policy of subsidies to municipalities in Kosovo for almost a decade continues to be a serious problem. The absence of precise criteria subsidy policy and setting strategic priorities for the subsidy has raised many questions about who benefits from subsidies. Besides concern about who benefits and who not from these subsidies, there are numerous complaints about the process of allocating subsidies. Various NGOs are not satisfied with the criteria and procedures for allocating subsidies. During the interviews, almost all NGOs have complained that the process for the allocation of subsidies is long and unclear. Duration and resentment creates uncertainty in process to NGOs because they do not receive their funds in time and then have trouble because they fail to perform their payments on time. All this creates a lot of trouble in the operational chain of activities that depend on subsidies. NGOs remain indebted to their suppliers, suppliers becomes indebted to the state tax bodies and fail to pay their workers. They use to be sued and bailiff blocks their accounts to liquidate the debt. Thus NGOs and suppliers enter into financial trouble because of delaying distribution of subsidies by the municipality. Allocation of subsidies is governed by specific regulations in the municipalities of Kosovo. I researched the regulation in (Peja, 2017) and it is proved that NGOs have the right to complain because the procedures are long and processes are complicated. According to municipal regulation and following the interviews realized with municipal authorities, the entire process for municipal subsidy allocation is the following:

- Preparation for application according to municipal standards;
- Application submission;
- The first application review;
- The second application review from Evaluation Committee;
- Issuance of the conclusion by the Evaluation Committee;
- The Mayor's decision Funds Allocation from Finance Office;
- Funds Commitment from Relevant Office;
- Execution of payment by Treasure.

In total, in the worst case, the procedure to transfer the approved means in the account of the NGO can go up to 122 days or 3-4 months. In the best case, if the municipality has sufficient means in disposal, if the case reaches the hands of committees in the most appropriate times, this procedure could take 70-90 days. There are times when it is carried out more quickly, but those are exceptional cases and considered high priority by policy-makers.

DMAIC

No matter what the approach is for deploying improvements within the company, having a standard improvement model like DMAIC (Define, Measure, Analyse, Improve, Control) is extremely helpful because it provides the company with an improvement roadmap (Fu-Kwun Wang, Kao-Shan Chen, 2010). Foster (2007) claimed that a common process for implementing improvement tools is the DMAIC methodology, which is similar to Edward Deming's ''Plan-Do-Check-Act'' problem

solving approach (Chakravorty, 2009). DMAIC roadmap of the Six-Sigma follows specific phases, including: Define, Measure, Analyze, Improve and Control. Each phase involves the application of specific statistical and quality tools (MingNan Chen, Jr Jung Lyu , 2009). The DMAIC steps are a proven roadmap for any process improvement, can be used in any industry or any type of process improvement. DMAIC is applied in practice as a generic problem solving and improvement approach. From a large number of sources, the functions of the DMAIC stages and their steps and prescribed actions are reconstructed as in Table 1 (Jeroen de Mast, Joran Lokkerbol, 2012).

Define: problem selection and benefit analysis

D1. Identify and map relevant processes

D2. Identify stakeholders

D3. Determine and prioritize customer needs and requirements

D4. Make a business case for the project

Measure: translation of the problem into a measurable form, and measurement of the current situation; refined definition of objectives

M1. Select one or more CTQs

M2. Determine operational definitions for CTQs and requirements

M3. Validate measurement systems of the CTQs

M4. Assess the current process capability

M5. Define objectives

Analyze: identification of influence factors and causes that determine the CTQs' behavior

A1. Identify potential influence factors

A2. Select the vital few influence factors

Improve: design and implementation of adjustments to the process to improve the performance of the CTQs

I1. Quantify relationships between Xs and CTQs

I2. Design actions to modify the process or settings of influence factors in such a way that the CTQs are

optimized

I3. Conduct pilot test of improvement actions

Control: empirical verification of the project's results and adjustment of the process management and control system in order that improvements are sustainable

C1. Determine the new process capability

C2. Implement control plans

Table 1: Rational reconstruction of the DMAIC procedure, after De Koning and De Mast

(2006).

SIPOC

Before starting the process research it is important to understand the key elements of the process. This can be accomplished with the help of a SIPOC diagram. SIPOC means for suppliers, Inputs, Processes, Output and Customer. A SIPOC diagram is a tool used by a team to identify all relevant elements of a process improvement project before work begins. It helps define a complex project that may not be well scoped, and is typically employed at the Measure phase of the Six Sigma DMAIC methodology (Kerri, 2017). It is similar and related to process mapping and 'in/out of scope' tools, but provides additional detail. A SIPOC diagram provides a process view of how your company goes about satisfying a particular customer requirement and enables the identification of opportunities to improve. In more formal terms, SIPOC can be seen as a high-level process map. It is typically used during the define phase of a process improvement project, as it helps us clearly understand the purpose and the scope of a process (Kumar, 2007). To use SIPOC diagram special software is not needed, just a flip chart or white board. It starts with the middle step in the diagram that is P = Process, which describes the main process steps. The second action is to identify the outputs and the third action is to identify customers who will benefit from the outputs. Once outputs and customers have been identified it continues with the identification of necessary inputs to produce outputs. At the end, the necessary supplies for the inputs needs to be identified also in order to be able for the realization of the process.

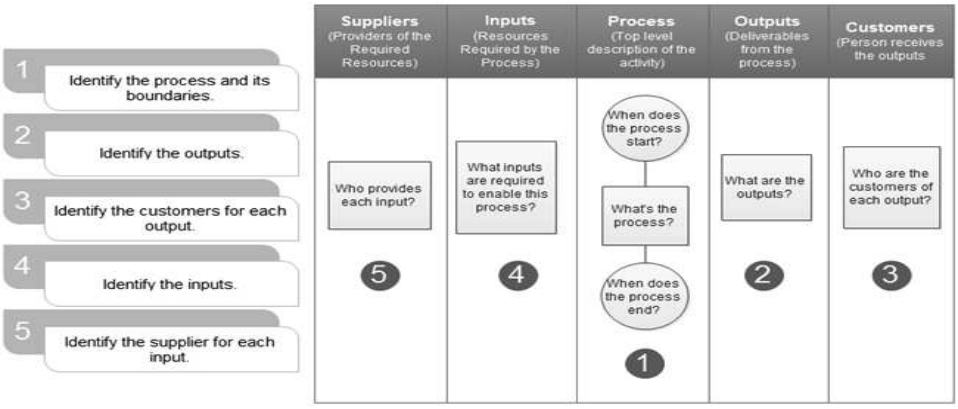


Figure 1: (from Google), http://gtfov.geekabit.co.za/sipoc-templates.html

Methodology

A significant challenge for today's municipal authorities is to be both efficient and highly effective in terms of service delivery to the citizen's and citizen's satisfaction. In this paper the process for the municipal subsidies allocation for different beneficiaries is investigated. Qualitative methodology is used to conduct the study. For the realization of the interviews semi-structured and open interviews were prepared.

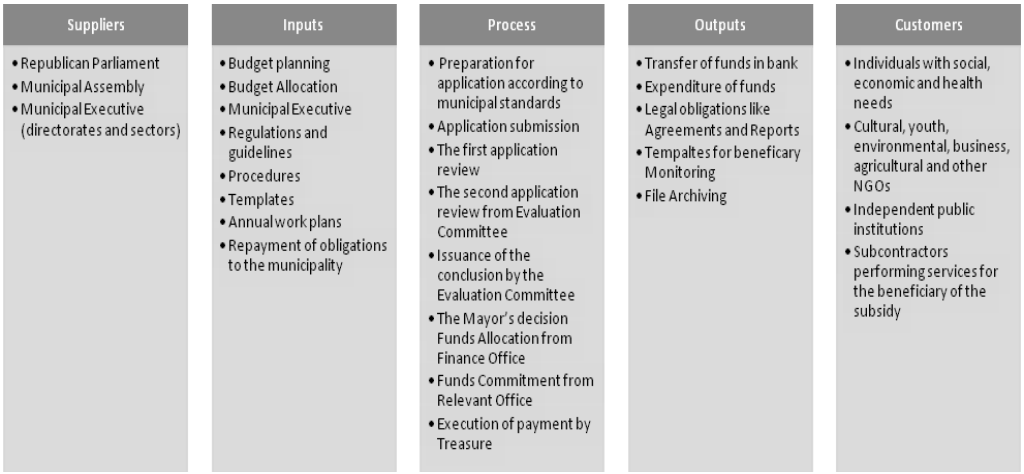
The NGOs which regularly receive financial support from the municipality have been interviewed. For this research a list of beneficiaries was insured by municipal finance directorate which is used as information recourse tool. After obtaining information from NGOs, the competent municipal authorities are also been interviewed. The survey was conducted by interviewing municipal authorities' through municipality directorates and sectors who are responsible for requirements approval and subsidies allocation. Department managers which are also part of the evaluation committee for subsidies were interviewed. To conduct the study DMAIC model is used. The identification process is done with the use of the SIPOC diagram. Data collection was done with the use of the "Voice of the Customer" tool. Data measurement is done with "Flowchart Process Mapping" while analysis of the findings is done with "Fish bone diagram". Process improvement proposal is performed by using "Corrective Action Matrix".

Define: The current state of the subsidy allocation process

The process for the municipal subsidy allocation is explored in this stage. The research process is presented below in SIPOC Diagram the Figure 2. This research started with the first phase which is the definition of the current state of the process. The process begins with the request submission for the municipal subsidies. Municipal officials examine the request, they estimate whether the request to reject or approve. In case of approval of the request it will be recommended to the Evaluation Committee. In case of refusal, reviewed file turns back to the relevant office, in case of approval, the Evaluation Committee shall issue a conclusion and forward for approval to the supreme authority which is the Mayor. In case of approval, the Mayor office shall issue a further decision and forward it to the finance office for the implementation of payment and to the relevant department to monitor the process and project implementation. In this case Department of Finance shall allocate funds to relevant department and relevant department commits allocated funds for payment. The completed file with the application forms, the request of NGOs, the review of the screening office, the conclusion of the Evaluation Committee, the Mayor's decision, certificate of allocation of funds, certificates of commitment of funds will be followed the treasure. Treasury transfers the funds to beneficiary accounts. According SIPOC diagram in figure 2, the process identification begins with the "Process" and continues with "Outputs". Process steps are explained above in session "Municipal Subsidies Process', whereas the outputs are: Transfer of funds in the bank; Expenditure of funds; Legal contract obligations and reporting; Form for monitoring the beneficiaries; File encoding. In this case study, the benefiting NGOs and contractors are the "Clients" who benefit from the subsidies. To get outputs, "Inputs" like budget planning, budget allocation, municipal executive decisions, regulations and guidelines, procedures, templates preparation, annual work plans and finances are required, likewise NGOs are required in advance to settle all obligations towards the municipality. All these procedures are enabled because of "Suppliers" which supplies the process with laws and regulations which are powered by the Kosovo Assembly, Municipal Assembly and the Municipal Executive.

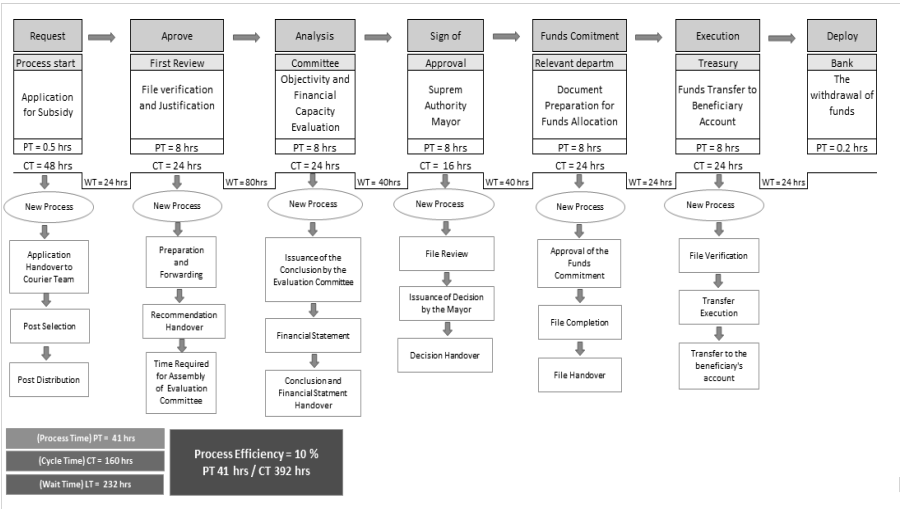
Figure 2: SIPOC Diagram, Municipal Subsidies Process

Measurement: data collection to measure the current process



To measure the current process the research is focused on individuals and organizations that are beneficiaries of the regular municipal subsidies and are almost dependent on these funds. This step involves the collecting of data to evaluate the current process to understand how the process flow is, how satisfied are they with this process, what grievances they have noted and where they have observed those defects. Process Flowchart is used to measure the process. A process map is graphic representation of a process, showing the sequence of tasks using a modified version of standard flowcharting symbols (Chakravorty, 2009). The following figure (figure 3) shows the course of the process from the moment of submitting the request to deposit of the funds on beneficiaries account. The table shows that the process from the moment of submission of application until to the receipt of funds by the beneficiary is spending about 41hrs (Pt), 160hrs Calendar Time (Ct) and 232hrs Waiting Time (Wt). The total process efficiency of subsidies allocations is about 10 %. This percentage is achieved by dividing the value Pt / Ct+Wt. The process runs through seven (7) different offices, this means that civil servants have moved a lot from one to another office and have spent a lot of waiting time. There is a huge number of people (staff) who have handled this case. Many documents are produced by the applicant as well by the institutions in order to share the information to all involved parties. With this flow chart the time spent for process operation is measured and not the process itself, because time spent and process efficiency is the subject what we are interested in this research.

Figure 3: Flowchart – current process mapping

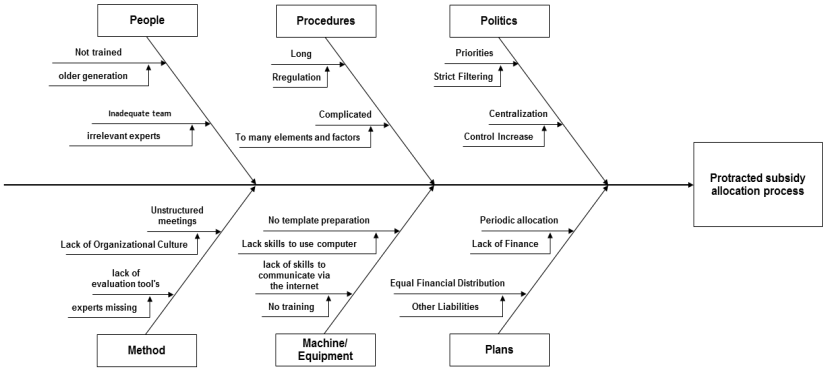


Analyze phase: defects and causes

In this phase, the defect analysis was conducted. In service processes, a defect may be defined as anything which does not meet customer needs or expectations (Antony, 2006). To analyze the defects and its causes a fish bone diagram and "5 Why" model is used. Fish bone charts specify the reasons of matters happen in a clear manner (A.A Yazdani, R.Tavakkoli-Moghaddam, 2012). At this stage, the analysis is based on key factors that affect the process, such as: people, methods, tools / technology, policies, procedures and plans. As we can see in the figure 4, Fish bone diagram components are "fish head" where outcomes are presented referring to problems or effects, in horizontal "branches" causes are presented and in second horizontal "branches" reasons are presented.

Figure 4: Fish bone diagram, defects in the process for allocation of subsidies

As shown in Figure 4, defects in this process are many. Defects are identified to



the People (civil servants) in charged for this process. People are not trained and don't apply any review and team work standards to quickly review the submitted

requests. The evaluation committee consists of people with different professions and in most cases their preparation does not comply with the requirements and nature of the organizations that have submitted the request. As a result, the ratings are not objective and often their estimations have damaged NGOs in their expectations.

Procedures are prolonged because of the regulation in force. Regulation is approved by the Municipal Assembly and only this institution can change it. Current regulation requires the observance of procedures although, after discussion that were held with representatives of NGOs, all share the opinion that this regulation is causing loss of time, a lot of movements, and communication with many civil servants. Current regulation requires two evaluation committees, involvement of many departments and coding the same documents (file) in each department.

Politics affect directly the processes. Executive decisions require files to be checked very carefully to determine whether they are eligible for financial support. Induced by these policies, the procedures are performed many times, firstly in the receiving office, secondly by office of review and thirdly by evaluation committee. Politics is involved also in mode of payments. Treasury realizes the payments for projects that are a priority of the Mayor. Often funds are spent by paying for the priorities and there is not enough capacity to pay other charges, in this case category of subsidies is victimized. According to the regulation for subsidy allocation, everything begins and everything ends with the Mayor's political will. In the absence of the Mayor, due to travel or other commitments, the process for financial allocation happens to be extended even more than usual deadlines.

Plans are also sometimes guilty for causing defects in the process. Usually, Departments are required in the beginning of the year to plan their fund allocation for subsidies. Departments distribute (plan) their funds to 12 (twelve) months. It happens that an NGO submit his request in January, February or March, but the means to that category of NGOs are scheduled to flow in September, October or November. In these cases, these NGOs have to wait for months to get their share. The worst can happen if at the time of flow planning the priorities of the Mayor to intervene and to spend planned funds, this causes even more process delay for NGOs.

Equipment's are critical to improving the processes and the municipality has invested a lot in this area. Computers are equipped with advanced software and perform at high quality, but in many offices, these applications and tools are considered as undervalued assets because civil servants are not capable to use them. In this case, municipality loses the opportunity to create models and templates that enable time saving for e service. Web-based communication is another opportunity offered to civil servants but they are not able to use it so there is another lost opportunity for time saving. Since they do not use web-based system, they operate in the classical method by moving from one building to another, from one office to another and lose so much time in the process.

Working Methods as a standard doesn't exist at all and thus review teams and evaluation committees spent more time as usually to analyze files, and fail to objectively rate the NGO requests. Consequently, meetings are unscheduled not regular and confusing and the decisions are not correct.

Improvement phase

In the Improvement phase, the "Corrective Action Matrix" method is proposed to be used in order to improve the process. Based on previous stages where process defects and causes of defects are presented, here are proposed several steps that will positively change the process.

Figure 5: Corrective Action Matrix, proposals for improving the process

The successful implementation of the improvement phase provides e new municipal regulation which and enables reduction of the waiting time, improves the flow of the

Nr	Action *(Summary of the improvement action being implemented)*	Champion *(Person with primary responsibility to implement the action)*	Target date *(Due date for implementation)*	Effectiveness *(When the action is implemented, how much of the problem will be corrected)*	Current Status (identifying any risks of missing the target date)
1	Changing the Rregulation for the allocation of subsidies and to change timelines and decision-making policies	Municipal Legal Office	Up to 3 months	Reduces procedures, reduce timelines, simplifies decision-making, enabling inclusiveness, increase	Neglect of the working committee, obstruction of opposition
2	Construction of web-based system for on line application	Administration Department	Up to two months	Simplifies the application of the NGO, collects the necessary data	Lack of skills in the current administration, the need for engaging experts
3	Construction of web-based system for the analysis of the requirements	Administration Department	Up to two months	Simplifies the analysis of requirements, It reduces the movement of evaluators, real and objective Rating	Lack of skills in the current administration, the need for engaging experts
4	Staff training to reduce the waiting time when operations goes across various sectors	Each involved department	Up to one month	The Calender Time decreases, and the process in general	Not all departments have the right commitment and working culture
5	Standardization of workshops for the evaluation of applications	Administration Department	Up to one month	There are meeting timetables, better coordination with the agenda, the evaluation process takes less, the process is transparent, NGOs are more satisfied	Commission resistance to comply with new working standards
6	Training of civil servants to use the communication technology	Administration Department	Up to three months	Able to construct relevant applications, able to distribute the official materials through the official web-based network, able to communicate with NGOs and publication of decisions in the official form	Lack of funds to pay for training

process, quick assessment and quickly codifying the files. These results are achieved by finding other ways of action by involving people who have free time, involving skilled people, engagement of people that have attended trainings and have more experience and building new working standards. The table above shows the form of action to improve the process of evaluating applications for subsidies. Six (6) key actions are presented which would substantially change the process for the allocation of subsidies.

Step 1: Since the municipal regulations present obligations for executive body of the

municipality, then the first step to be regulated is regulation changing and adapting to the proposed steps.
Step 2: To set up an on-line system which will enable the application of NGOs in the municipality calls. These systems are widespread and are proven to be successful.
Step 3: To set up an on-line system which will enable the analysis of requirements based on specific standards. Even these models are widespread and are proven to be successful.
Step 4: Training of civil servants for consideration of requests and forward them to other offices without losing time. Lean Six Sigma offers such training and are proven successful.
Step 5: Establishing standards for requirements analysis based on relevant terms and conditions.
Step 6: Training of civil servants for the professional and useful use of communication technology.

Control Phase

Once the problems and causes are identified and measures are taken to improve the process, actions should be to be taken to check the implementation of the outlined improvements. The goal of the control phase is to implement performance measures and other methods to control and continuously improve the processes (Sandra Furterer, Ahmad K. Elshennawy, 2005), by monitoring, standardizing, documenting and integrating the new process on a daily basis (R. Banuelas, J. Antony, M. Brace, 2005). For the realization of Control phase, "Corrective Action Matrix Checking" is recommended to be used. Proposed actions in improvement phase should be kept under surveillance. The control of each step has its own process which can be observed with the help of SIPOC instrument. Each step should be carefully monitored to ensure that it is carried out by the deadlines that have been proposed. In a specific matrix, obstacles should be checked. Stalled steps should be investigated in order to identify the causes of the deadlock. To those risky actions that may hinder the improvement of the process, during the control phase a special attention should be paid.

Conclusions

Although lean six sigma is applied largely in the private and public sector, still remains difficult to find detailed case study literature of Lean six sigma approach in the municipality services. According to this research can be concluded that the application of lean six sigma in the municipality is useful because clearly and accurately defines each process, identifies existing defects, makes the measurement of defects based on collected data, produces accurate results of defects and their causes, offers sustainable proposals for process improvement and project control. By implementation of the lean six sigma concept in municipal services, precisely the DMAIC method, municipality will benefit in two aspects: first, the overall processes will be carried out quickly by reducing of the calendar time, reducing of waiting time and increasing efficiency. Secondly, process will have a clear and transparent flow at

all the time hence all parties will be correctly and in right time informed about. While in the case study presented in this research, currently, for implementing the process for the allocation of subsidies are spent 41hr of effective process working hours, 160hr calendar time at work schedule basis and 232hr of waiting time and the efficiency is only 10%, with implementation of the DMAIC method, in period of time of 3 months, calendar time shall be reduced in 50hr, the waiting time in 144hr and efficiency shall increase at 28%. Using lean six sigma principles and tools provides an excellent way to improve the quality of providing municipal services at a local government level. Lean six sigma methods and tools are not complicated and can be learned quickly. Many of lean and six sigma tools and applications can be downloaded from the internet and used easily for professional operations. Lean six sigma method can be applied for each process in any sector and from all civil servants, as long as they follow adequate training and be dedicated.

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