

**IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM IN THE
PRIVATE INSTITUTION «USM»**

BY

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THESIS

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Abstract

This work intends to assess current Quality Management System at Private Institution “USM” and develop recommendations in order to improve it based on existing issues. This topic is quite important to be studied as increasing competitiveness in developing markets requires businesses to be effective and efficient in their operations. As a result of the study, it can be concluded that the main competitive advantage of USM is provision of unique full spectrum of infrastructure management services, while ensuring high quality of services meeting international standards. In the long run USM should improve its competitiveness by optimizing process of request for services and enter foreign markets. These tasks will be achieved through Kaizen philosophy by highly involving management in formation of needs for changes, systematization of actions and fixation of habits. At the same time, USM should eliminate following factors in the short-run in order to successfully reach its goals: develop motivation among employees, optimize stocks, improve communications among teams, make procurement process more efficient and develop feedback policy for services conducted.

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1. Introduction

The purposes of this study are following: assessment of the need for implementation of quality management system and development of recommended set of measures aimed at the preliminary stages of the implementation process. The relevance of this research topic to current situation on the market is determined by the fact that market conditions require modernization of quality control services on behalf of effective functioning in competitive environment.

To achieve objectives theoretical aspects in the field of quality management were studied. A survey of employees in selected “expired”/”not performed qualitatively” requests was conducted in order to identify existing managerial problems in the organization. Recommendations are given based on the results.

2. Goals and objectives of Private Institution «USM»

2.1. The main goals and objectives

The main goals of a private institution «USM» (hereinafter referred to as Institution) is to ensure the proper functioning of the infrastructure of Nazarbayev University (hereinafter referred to as University) as a world-class scientific and educational complex of life and to ensure functioning of the University and its affiliated organizations.

The main objective of Institution is the organization of a set of measures aimed at managerial, administrative, logistical and other support to proper

functioning of the University's infrastructure and livelihood of its affiliated organizations, including:

A) providing maintenance and repair to buildings, structures, engineering infrastructure, property, equipment, inventory, transport, equipment and other assets of University and its affiliated organizations;

B) organization of a set of measures aimed at the acquisition of necessary goods, materials and services for the needs of University and its affiliated organizations.

2.2. Organizational structure

As of 2016 there are 10 operation units, 6 production units and 1 technical unit in Institution. Staff is comprised of 141 people. The organizational structure of Institution was approved by the decision of the Governing Council of University.

In order to further develop Institution as a management company, to improve the quality of provided services, as well as to competitive environment, the decision of the Governing Council of University on 23rd of June 2014 established a subsidiary of Institution - a legal entity in the form of a limited liability partnership «USM Astana» (hereinafter - LLP «USM Astana»), to which some production functions of Institution have been passed. Together with the transfer of production units to LLP «USM Astana» majority of the production staff in the amount of 613 people has also been transferred to LLP «USM Astana». Appendix A shows organizational structure of Institution.

2.3. Key business processes

Currently Institution serves 443 241.58 square meters of space including: Nazarbayev University and its subsidiaries 302 999,98 sq.m. (including residential premises of 173,939 square meters and non-residential premises of 129 060.98 sq. meters) and 140 241.6 square meters area of 4 health centers (hereinafter referred to as Clinic).

More than 3,000 students and over 500 professors live in residential premises of University as of the first half of 2016. The number of residents increases each year. It should be noted that from 2016 University has been undergoing evaluation - preparatory work for EUA-IEP (European Association of universities) accreditation, which is program of institutional evaluation. This organization unites more than 850 universities from 47 countries. To join the association, the University must comply with international academic criteria imposed on universities including requirements for infrastructure.

In addition, 3 clinics of University are the first medical institutions in Kazakhstan and the CIS countries that have received clinical status accredited by the International Joint Commission (IJC).

Accreditation IJCI is the most objective and prestigious international health certification, which is considered to be the "gold standard" of quality and is a confirmation of the compliance of medical institution to internationally accepted medical and administrative standards.

International Joint Commission focuses on achieving a single goal: ensuring the safety and quality of care at the highest level. In preparation for international accreditation, consultants of the IJC paid particular attention to the compliance of clinics to 329 international standards measured on 1200 quality criteria. Accreditation requirements include compliance with quality standards of not only health care clinics, but its infrastructure and maintenance as well. Therefore, the critical factor is provision of services that meet high-standard requirements by Institution to clinics.

It should also be noted that in 2015 Institution served 6 clinics of University, 2 of which terminated their contracts. One of the many reasons for this occurrence was the complaints about the quality of services provided. These clinics have decided to create a services department in their clinics and refused to outsource services.

Given the fundamental values of Institution in continuous improvement of services and in provision of new services, Institution organizes the lease of nonresidential premises on the campus for the realization of business to third parties, thus providing the University community with necessary daily goods and services.

Commercial infrastructure is provided in built facilities of University in the form of food shops, catering, pharmacy, coffee shops, beauty salons, laundries, sports centers, gyms, nurseries, and children's center for the development, cinemas and etc. Open sports grounds, equipped with a

playgrounds, are located in the adjacent areas of University. Parking of vehicles is carried out on specialized parking places in University (guest parking), organized parking areas and installed racks for parking bicycles.

Number of infrastructure facilities on the territory of University at the beginning of 2016 amounted to 39 objects, compared with 24 objects in 2015. Institution creates the most comfortable conditions for staff and students in the sports facilities of University, carrying out supervision to ensure the smooth functioning of life support systems for sports facilities and providing sports facilities with necessary fixed assets, inventory holdings and services. A choice of over 12 types of sports clubs with professional trainers is represented on campus. Sports facilities as of today include a sports center, a total area of which is 547.7 square meters, where there are 7 Free and 8 Paid sections and 3 gyms. New sports center with a total area of over 14,000 square meters is being preparing to be launched.

In order to monitor the quality of services for the period from 2011 to 2015 Institution held five annual surveys among the staff and students of University to determine the level of satisfaction with services provided by structural units of Institution (Fig. 1 Appendix B). Over a five-year period Institution noted a positive trend in the degree of customer satisfaction with services provided. So the results of surveys conducted in 2015 (in June and November 2015), the overall percentage of satisfaction for all types of services

provided by Institution was 74%, which shows an increase of customer satisfaction of almost 1.5 times in comparison with data for 2011.

Number of participating in a survey staff and students of University has more than tripled (from 439 to 1492 participants). Students prevail among respondents.

A report on the results of the survey and an action plan is located on an ongoing basis at University's www.my.nu.edu.kz web portal in «Services» section tab - «University Service Management», «Service Request». Activities include analysis of the opinions and comments of consumers and the formation of new challenges for each of the structural units of the institution. Despite the increase in the areas served by the Institution, it seeks to retain the existing customer-oriented attitude with a gradual increase in the degree of customer satisfaction, improving the image of the organization in provision of high quality services.

Business process automation at Institution is a process aimed at improving the efficiency of business processes, connected with the provision of services to students and staff members of University and its affiliated organizations. While the automation is being held, allocation of resources is being optimized, automated tools are being developed and implemented so that it is possible to reach qualitatively new level of development. As a result of the automation activity the risks associated with actions of performers are significantly reduced, whereas the effectiveness of organization's processes is increased.

Institution has started to work on the automation of processes targeting more effective and efficient workflow. Thus, for the period from 2011 to 2015 following factors have been implemented in the course of automation of operational activities:

a) Automation of control over requests

On March 3, 2015 an automated system for receiving and processing requests OTRS (Open Ticket Request System) has been implemented on campus of University. On December 20, 2015 Clinics were also connected to it. OTRS system allows control over execution of requests on all services provided by Institution. It is important to note that this program was implemented without the use of additional sources of financing. After exhausting its possibilities, Institution plans to upgrade the existing platform. Based on 2015 results total percentage of requests fulfilled for all services was 93%, based on Clinics. In addition, Institution on a monthly basis conducts a report on execution of works in the OTRS system in the context of each type of service. OTRS system analysis of data reveals major issues in the implementation of requests, checks duties of responsible workers and makes recommendations in the context of individual structural units of Institution.

b) Automation of control over residential buildings

The institution in 2012 in conjunction with the private institution «NULITS» has introduced «Hotel Management System» software product (hereinafter - HMS), designed to automate the use of real estate assets. This

system allows recording the acceptance, accommodation, registration, booking a large flow of arrivals and departures in the premises of University (the movement of students between the blocks and / or facilities, travel / arrival of teachers from one apartment complex in another). Upgrade work of HMS has been started, which will allow to maintain a record of fixed assets, work with tenants of nonresidential and residential premises, formation of employment report and information on utility bills and rent payments.

c) Automation of transport management

Transport Desk platform operates on the basis of OTRS system. It is responsible for receiving and processing requests for vehicles by employees of University and its affiliated organizations.

d) Automation of translation process

Institution accepts requests for translation services from University and its affiliated organizations on the basis of bilateral agreements. To systematize and improve business processes associated with translation activities Translation Desk platform operates on the basis of OTRS system that receives requests for translation services.

To automate all business processes of Institution, it seeks to build an effective organizational structure, ensuring division of labor and reflecting work of all the elements of a complex business mechanism.

2.4. Competitive environment

Activities of Institution were based on the experience of service companies of leading foreign universities (Cambridge University Administration Services, Oxford University Administration Services, Edinburgh University Estate Services, etc.) to provide services and maintenance of buildings. Top universities according to rating THE (Times Higher Education - QS World University Rankings) give preference to professional management companies that provide wide range of services. The services that these companies provide have a wide range: maintenance of university buildings, management of residential buildings, finance, human resources, organization and management of catering points, transportation services, IT-services, etc. Administrative and maintenance companies in top-tier universities are characterized by high quality and easily accessible service. Universal sources of service are provided to faculty members and students - internet portals, through which each user is able to pay rent for parking space or pay for commercial and personal services; to learn news about new proposals of the company; to access menu items in canteen on campus or location of infrastructure; to become familiar with policies and rules of residence; to apply for restoration of ID cards and to connect with the staff of service company.

In Kazakhstan, higher education institutions do not have similar service company. It enables Institution to become a new, unique example of management at University. Currently the only competitor that the Institution has

is Republican State Enterprise "HOZU Office of the Republic of Kazakhstan the President". It offers the same range of services, but it operates only Administration of the President, Parliament and the Government. Therefore, the Institution has competitors that provide certain services for certain types of entities.

Literature review

3.1. The concept of quality. Existing systems of control and quality management

If nowadays Institution's goal is to fulfill contractual obligations, to ensure smooth operation of all building systems and to provide logistical support to University and Clinics, the experience of 5 years has shown that in addition to this it is necessary to ensure the quality of services in order not to lose trust of customers. Quality is an the effective implementation of quality control for which it is necessary to unite the efforts of all employees, including senior management, middle managers, supervisors and workers in all areas of corporate activity - marketing research and development, product planning, design, production preparation, procurement, supplier relationship management, and financial control, personnel management, training and retraining (American Society for Quality, 2004). Ongoing activities are called company-wide quality control (CWQC) or a total quality control (TQC) (Ishikawa, 1990).

Today one of the methods of implementation of quality management systems is to provide an international quality certificate ISO 9001-2000. In order

to ensure the quality of services it is better to implement ISO-9001 series of standards in Institution and its affiliated bodies. Quality management system, established in accordance with international standards of ISO 9001, allows sustainable permanent observance of rights and ensures customer satisfaction in terms of producing high-quality services contribution (International Standard, 2008). Companies may implement one of following: Quality Management System Standard ISO 9000-2011 or Quality Management System Standard ISO 9001-2011.

But at the same time there are Kaizen and 6-Sigma control systems. Kaizen approaches improvement of work in organizations. This term originated in Japan and came to refer to a system of interrelated activities that lead to the improvement of the quality of products, processes and management systems (Imai, 1991). In the modern sense Kaizen is a system (philosophy) of continuous improvement of quality, technology, processes, corporate culture, productivity, reliability, leadership and other aspects of the company. Masaaki Imai said - "Whichever activity companies are engaged in, Kaizen can be applied anywhere" (Imai, 1991). "Kaizen is a long term strategy, which is focused on the achievement of specific objectives and which will involve every employee, regardless of his/her functions and positions" - says Andrew Gavrichenko, representative of the Kaizen Institute Russia (2015).

Seven simple quality tools are following (Magar, V.M., Shinde, V.B., 2014):

- Control Chart (Shewhart chart);
- Histogram;
- Pareto Chart;
- Cause-and-effect diagram;
- Check sheet;
- Scatter diagram;
- Stratification (flow chart or run chart).

Companies that apply Kaizen strive to reach its goals with minimal losses due to continuous improvement of the system. It is also called lean manufacturing (Liker and Meier, 2006). Kaizen system (Lean production) is similar to putting money aside for the future in savings accounts. In putting effort and sacrificing something today will bring good results in the future. This process is similar to capital investment. The key to success is to start as early as possible and do not stop.

Six Sigma is an integrated scientific approach to business process management focused on continuous improvement (GE, 2015). This complicated system, which is mainly used in US companies, is based on carrying out statistical evaluation of facts and data, developing activities to enhance the yield of products processes and their consistent implementation and subsequent analysis of infallibility of processes to increase customer satisfaction.

3.2. Methodology and development tools of quality management systems in enterprises (organizations)

Currently main ideas of Kaizen and 6-Sigma are widely known in the world and became classic. Kaizen system can be used very effectively as a technique or a program implemented within the quality management system based on international standards ISO 9001. As practice has shown ISO 9001 series of standards of continual improvement cause greatest difficulties for users. Introduction of Kaizen in addition to other control systems will serve as additional tool. For example, Kaizen tool – PDCA cycle (Plan, Do, Check, Act) is also available in ISO-9001 (Gorenflo, G., Moran, J.W., 2016). The essence of this instrument is a continuous sequential execution of phases, from planning to scheduled execution, followed by evaluation of the effectiveness and identification of implementation issues by eliminating causes of the problems identified. It is expected that implementation of PDCA cycle will never end as problems will never disappear.

Neither the PDCA cycle nor other method of improvement can be realized without the involvement of all employees. Therefore, the formation of Kaizen-thinking and introduction of the ISO-9001 will require high involvement of management and each employee. Kaizen, ISO-9001 and 6-Sigma involve extensive use of tools in implementation of procedures for continuous improvement.

It is recommended to implement seven simple quality tools in start-up companies. It is also important to note that there are a lot of quality tools, which are used successfully in practice nowadays. But despite the apparent simplicity,

Kaizen philosophy and very popular 6-Sigma control process as well as international standards ISO 9001 are still difficult to be learnt and implemented in quality management system.

3.3. The interrelationship between quality management system and strategy of organization

Introduction of quality management system in Institution will provide transparency, control, development and competitiveness. Under transparency organizational structure, business processes and functions are meant, not financial matters. As in the development of procedures that constitute an algorithm of activities related to quality, organizational structure, business processes and functions of structural subdivisions are defined and specified.

Manageability of Institutions will improve due to the fact that the design of quality management system strictly divides responsibilities for performance of specific procedures. Basically it means keeping records about the quality of procedures that are formed by responsible people after implementation of specific actions. In the process of creating quality management system regulations on structural subdivisions, job descriptions and work instructions are reviewed. All these measures improve process control.

Development of Institution is provided by implementation of the quality management system in several factors. They include enhancement of the skills of personnel, involvement of all personnel in the process of creating the system, increasing the efficiency of delivery of services by eliminating unnecessary

features or duplication of functions, focusing on the essential, efficient use of time, which naturally will lead to the improvement of relations with customers and suppliers.

All of the above will lead to improvement of company's competitiveness in the market, promoting its own trade brand. But most importantly it will allow to achieve its strategic goals and to implement virtually all of its objectives (Strategic Plan of USM private entity, 2016).

4. Implementation of project's model

4.1. Examples of issues' identification

To identify the problems of Institution existing currently following two processes were chosen to be monitored - request of the National Junior Clinic Rehabilitation Center (hereinafter - RDRC) on 16th of March 2016 for elimination of issues with fire alarm system alerts, which has not been fulfilled yet (delay of more than 170 days), and request of the National Diagnostic Center (hereinafter NDC) for repair of medical refrigeration equipment which was filed on August 2nd 2016 and closed on September 23rd, 2016 with violation of timing terms (delay of 56 days).

The first overdue request for elimination of issues with fire alarm system alert was received on March 16th 2016 by the engineer of the Civil Defense and Emergency Clinic RDRC Telebayeva A. The request was accepted by dispatcher on 16th of March 2016 at 8:55:05, loaded into the OTRS and directed to executor in 3. Further passage of the request is shown in Appendix C. The

second unfulfilled request for repair of medical refrigeration equipment was received from the Head of Clinic pharmacy – Daribayeva A. The request was accepted by dispatcher, loaded into the ORTS and directed to executor in 3 minutes.

Reasons for delays should be investigated to monitor the situation of these two requests. For this purpose on-site interviews were conducted about the processing performance of requests. In the first request of clinic RDRC these people were interviewed: engineer for civil defense and emergencies at RDRC who filled the request – Tulebayev, A., dispatcher of Institution – Nurpeissova, M., engineer of low-voltage systems at Institution – Kapesov, D., head of low voltage networks service at Institution – Zhanaidarov, Z., Deputy Director of Institution responsible for relationships with Clinic – Baizhanov, Z., General Director of Institution – Kuldin, P., head of production and technical department of Institution – Reshetnikov, V. and Head of procurement management – Seksembayeva, S. In the second request of NDC these people were interviewed: the applicant - Head of clinic pharmacy – Daribayeva, A., dispatcher of Institution – Amanzholova, A., engineer of refrigeration repair at Institution – Aitikenov, A., Deputy Director General of Institution – Baizhanov, Z., General Director of Institution – Kuldin, P., engineer of Operational and Maintenance service – Bakayev, M., Head of Operational and Maintenance service of Institution - Yerkenov, A. and Head of procurement management - Seksembayeva, S.

According to results of the survey, causes and effects of the situation were compiled in one chart (Appendix D). On the basis of the chart issues were identified that appear at different stages of request processing.

4.2. Identifying the causes of failed requests. Assess issue for a sign of systemic problem

Analysis showed that in both cases reasons are almost the same:

On the part of the applicant:

- Improper transfer of duties from previous serving companies to Institution. In other words, there is not continuity of operations. Previous company had to pass all passwords for software, evaluation reports, the results of planned inspections and technical passports.

On the part of Institution:

- Lack of availability of stocks of spare parts
- Lack of independent decision-making process about the purchase of necessary spare parts (all parts or services are purchased only after registration with the Head of Institution, which is being processed more than 3 days before being sent to responsible structural units of Institution). Within a few days or months, as shown by the first request, paperwork for the purchase of spare part is completed. According to internal regulations of Institution draft contracts and technical specifications should be agreed by more than 12

employees of business units. Then responsible structural unit sends request to Procurement Office to organize procurement through an electronic portal. The results of procurement are obtained if the procurement is carried out using purchase method of price offers in 15 or more days. Furthermore, signing of the contract on the basis of the outcome of the procurement is coordinated again by the same 12 employees of structural units.

- Lack of narrowly skilled technicians.
- Production management initiates all matters of procurement.

Despite the fact that they are responsible for timely execution of request, internal documents and job descriptions do not provide information about responsibility for delay or about deadlines for consideration of one request by limited liability partnership «USM Astana». Therefore, relationship of Institution with its affiliated bodies is not regulated.

4.3. Conclusions on systemic problems and solutions. SWOT analysis of systemic issues

Based on the conclusions drawn from the survey and analysis of data from the OTRS following systemic problems in request performance were identified for the period of four months from March to June 2016:

- Accepting the request is not included in the schedule by dispatcher. It arises from the fact that qualification requirements and conditions for dispatcher

position are low: secondary education and low pay. Moreover, responsibility for the timely input of request to the OTRS is not included in their job description – no systemic control;

- No spare parts inventory. There is no inventory in the stock in case of emergency situations. Analysis of scheduled check-ups is not conducted in order to understand which spare parts are often used and which spare parts should be procured. The work on optimization of stocks has been conducted to solve such cases. One solution to this case might be conclusion of contracts with suppliers in beginning of year so that details will be dispatched on just-in-time basis in order to prevent situations of absence of spare parts. This way there will be no need in keeping inventory in the stock. Another solution might be including suppliers of spare parts into the register of special suppliers for three years. It will allow completing procurement process in 5 days;

- Overload of specialists at other sites. Due to optimization process, staff is not being expanded. System of alarm groups is not introduced due to the same reason. In addition, motivation rewards system is not used to keep experienced professionals. Timing has also not been conducted based on categories of production staff. There is no interest in efficient use of working time;

- Specialists do not come to sites on time (work teams in clinics areas do not have narrow specialists, because of low tariffs on service). There is also no interconnection between the experts;

- Some requests cannot be executed (for example, requests sometimes refers to extensive repair work, which is not included in contract or to weather conditions that do not allow working on high altitudes);

- Partial execution of requests (for instance, temporary connection or partial execution of work);

- Long procurement procedures (internal regulations cause long negotiation process, which sometimes run counter to the Procurement Rules). Period of negotiation takes more than 5-10 days before the procurement procedure and the same amount of time is spent after procurement during signing of agreements;

- Lack of staff motivation among production units in closed request. Firstly, OTRS program does not show the final performer. Secondly, satisfaction assessment is not held. Thirdly, reward bonus system does not account for performance in the OTRS program that leads to lack of interest in development of employees and implementation of new processes;

- No standard in manufacturing procedures and in regulation of labor (Labor Code, 2015);

- Requests are not tracked in order to see whether they are planned or emergency;

Causes and average number of non-performing/non-executed orders for March-June 2016 is shown in Figure 6.

All these factors indicate the presence of lack of attention of Institution to final results, lack of conscious attitude to work, lack of confidence, evading from responsibility, non regulated business process, lack of operational coordination between the structural units, no incentive to drive continuous improvement.

4.4. Stages of QMS implementation and assessment of risks

Based on the study, it is recommended to introduce the QMS in stages based on international standard of ISO-9001 series integrated with the Kaizen system as a tool for improvement.

Implementation of the system based on the ISO-9001 series of standards consists of four main steps in preparation for certification:

1. Survey of existing control management system
2. Staff Training
3. Development of documentation for the quality management system
4. Implementation and audit of the quality management system

After all mentioned steps are completed, Certification process will start.

Formation of Kaizen thinking in Institution will take at least a year if there will be high involvement of management. It consists of following steps:

- Cascaded formation of needs in changes;
- Small victories;
- Systematization of actions for the sake of victories;
- Fixation of habits.

As it can be seen, implementation of the Kaizen stages complement a system based on the ISO-9001, thus it is a tool that will provide execution of all procedures drawn up by the introduction of the ISO-9001 by each and every employee of Institution on practice. Kaizen and ISO-9001 require involvement of each employee in the process of improvement. By educating and creating teams that will search for solutions to problems in the field of quality improvement and that will make recommendations and suggestions to senior management on improving the performance of institutions, the QMS can be gradually implemented. Despite the fact that both systems are simple and very clear, introducing them solely without employing consulting services is impossible. Today on the market there are many consulting companies who will price implementation of QMS (ISO-9001) in Institution and its subsidiary LLP «USM ASTANA» at average cost of 3.5 million tenge, whereas costs of introducing Kaizen consulting services account for 10 000 000-60 000 000 tenge. This is explained by the fact that the market of Kazakhstan has a very large number of QMS implementation specialists-consultants on the basis of ISO-9001, while Kaizen is a pretty young system.

Analyzing the data from SWOT analysis (Appendix E), it can be concluded that the main competitive advantage of Institution is provision of unique full spectrum of infrastructure management services, ensuring high quality of services meeting international standards. This will in return increase number of customers.

The main disadvantage is high dependence on subsidies from University. In this regard, Institution should search for potential clients by participating in tenders for public and non-profit organizations to generate additional income, enabling to attract qualified personnel to replace the outsourcing services. Otherwise, there is a risk of leakage of qualified personnel and failure in timely execution of tasks, which will lead to insufficient proper maintenance of buildings and facilities of University. Therefore, Institution identified improving its competitiveness organization and entering foreign markets as main strategically important tasks of its operations.

5. Conclusion

Institution should aim for “strive for the highest quality of services at maximum efficiency” and stimulate the desire for continuous improvement based on teamwork and cooperation. Determination of consumer is a prerogative task of senior management as it is a decisive factor in determining the quality indicators that services should in order to satisfy customers. It is for sure that the Institution will bear financial costs in the process of implementation of these tasks, but the most important thing in the first stage is to carry out preparatory work with each employee to explain them everything, train them, to bond the team and to review all internal regulations. It's a lot of work, but it is valuable contribution to the future of the Institution.

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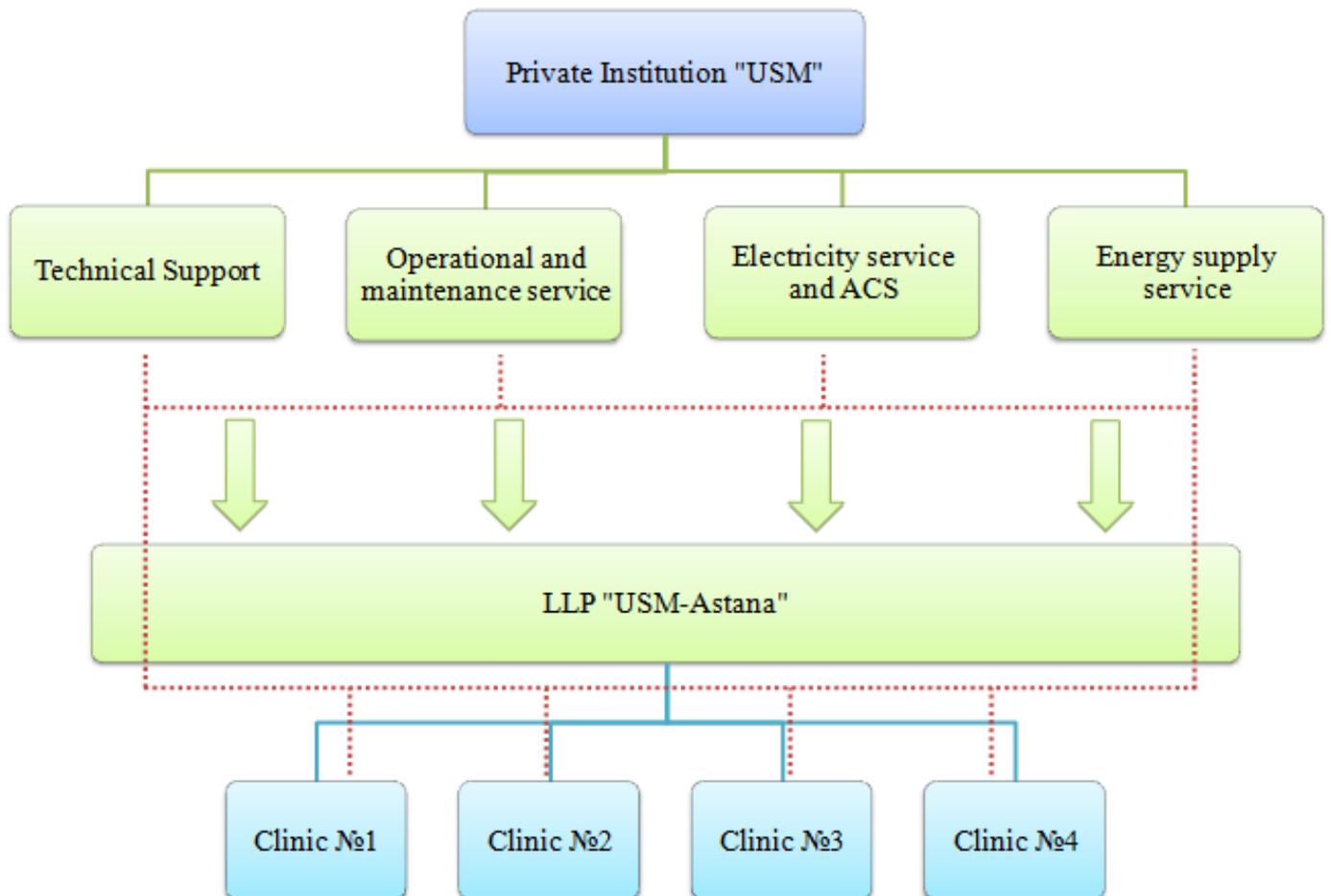
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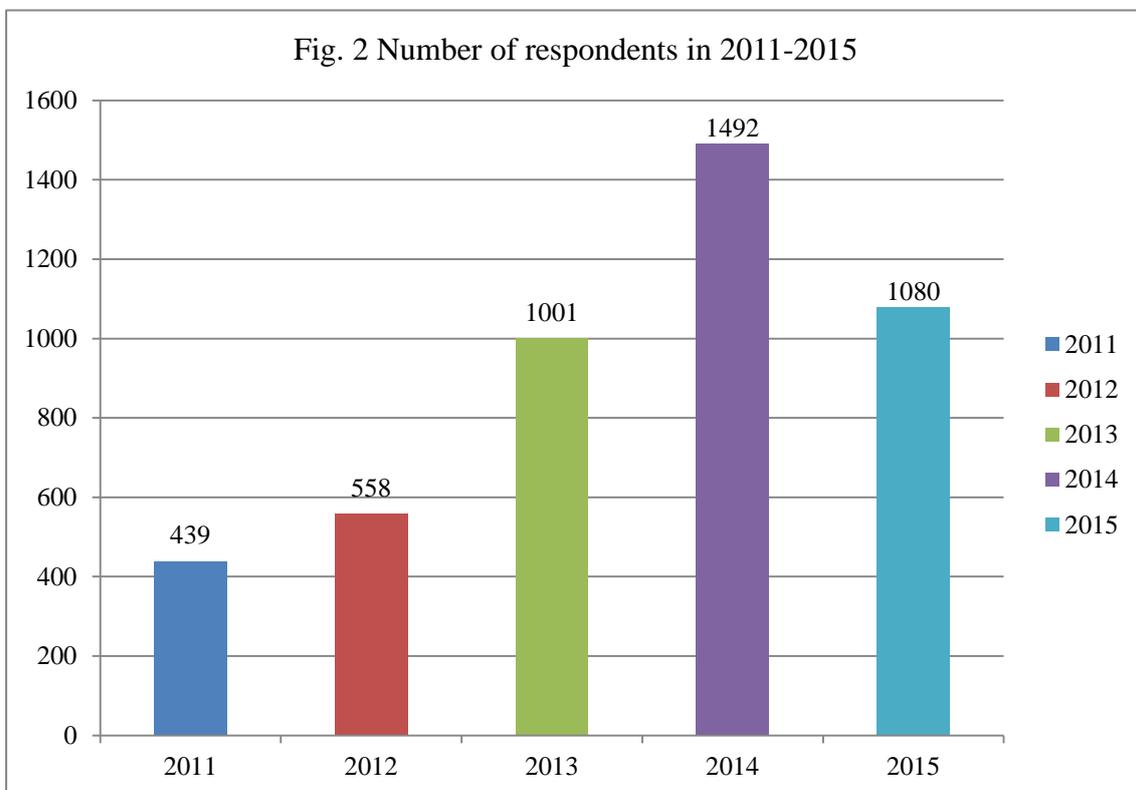
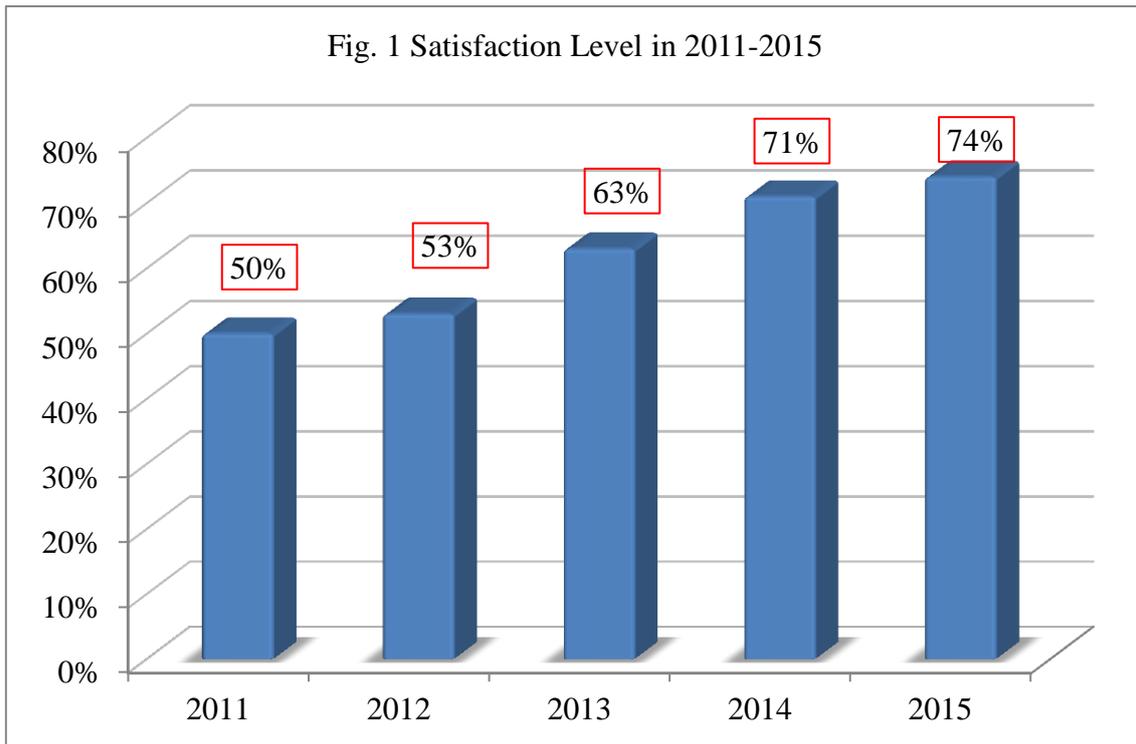
Strategic Plan of University Service Management private entity for 2016-2020.

7. Appendices

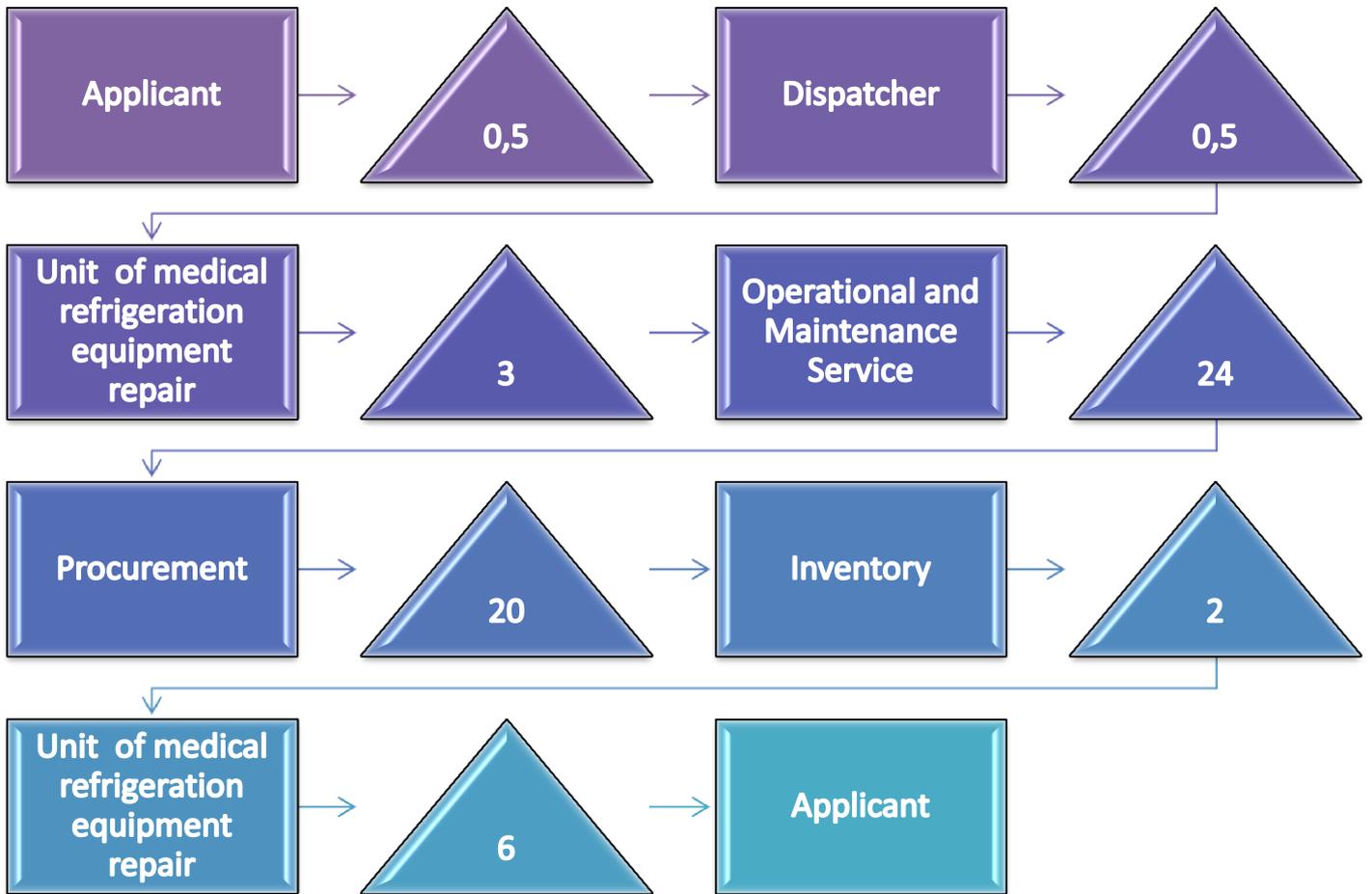
Appendix A. Organizational structure



Appendix B. Level of satisfaction

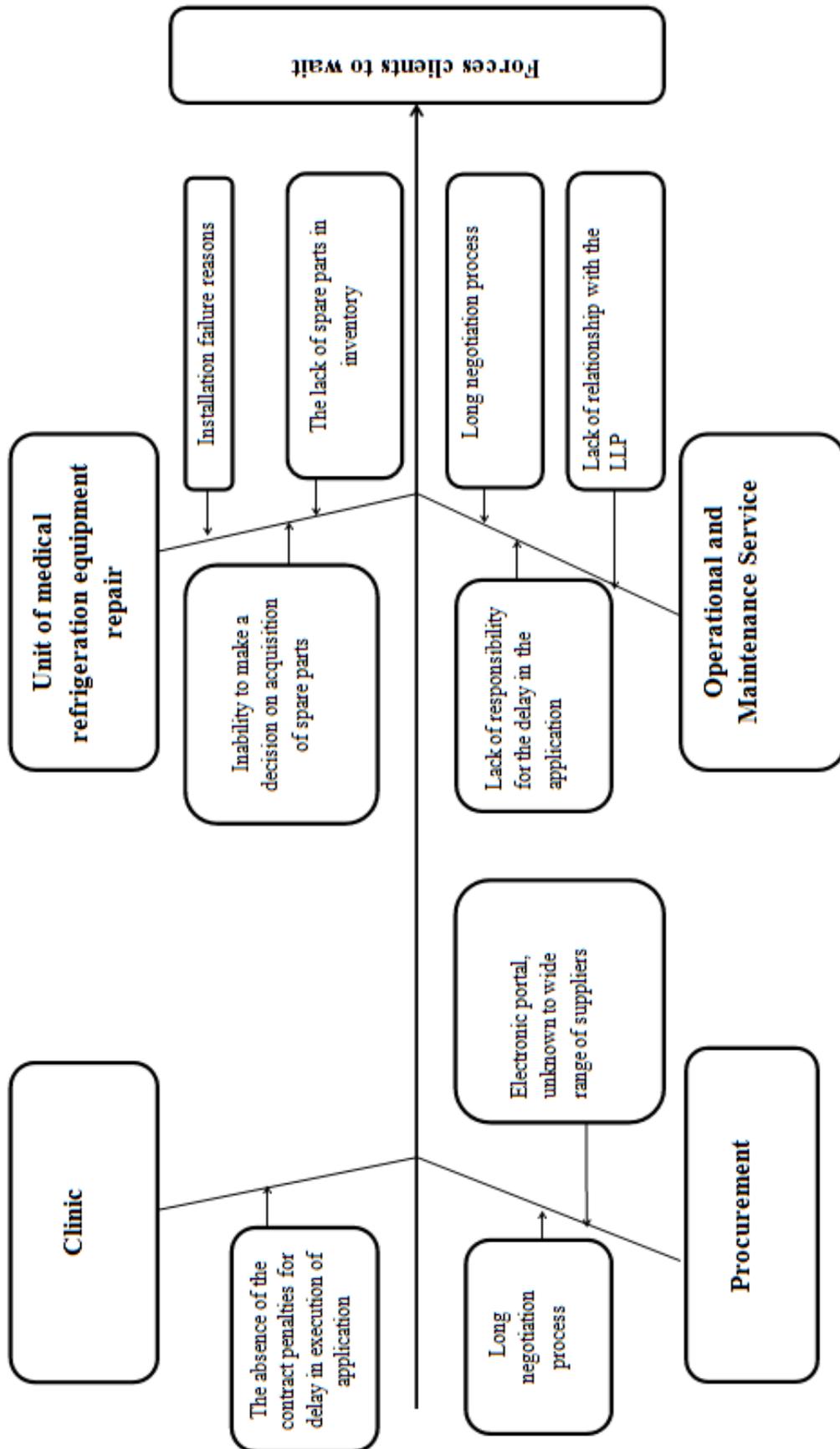


Appendix C. Request to repair medical refrigeration equipment



Numbers in triangle - number of days spent to consider a request

Appendix D. Causes and effects – Request of RDC



Appendix E. SWOT Analysis

<p>Strengths</p> <p>Unique range of services for infrastructure management for University;</p> <p>Guaranteed customers in the face of University and its affiliated bodies;</p> <p>Increased profitability of Institutions because of lean manufacturing;</p> <p>Increase in number of customers.</p>	<p>Weaknesses</p> <p>The long process of quality management system implementation;</p> <p>Very large financial costs for consulting services;</p> <p>Perhaps the period of implementation of project will take several years because employees should fully understand it and be included in the process.</p>
<p>Opportunities</p> <p>Creation of methodological framework in the field of management of real estate assets and building ratings in control maintaining;</p> <p>Expansion of activities taking into account the needs of customers;</p> <p>Formation of Institution as a strong competitive service company in the field of services;</p> <p>Efforts to comply with international standards in service sector.</p>	<p>Threats</p> <p>Changes in the funding policy of University by the Government;</p> <p>Leakage of qualified personnel in the event of lack of motivation and / or decrease in the level of qualification in the absence of timely trainings will lead to insufficient proper maintenance of infrastructure;</p> <p>Disruption of the timing of tasks' completion because of long negotiation process with subsidiary organizations of University;</p> <p>The lack of involvement of employees and top management in the process of Lean Manufacturing.</p>