

Tackling Quality Management Employment Oriented Higher Education

(CONSIDERATIONS ON APPLYING SIX SIGMA AND ISO 9000 WITHIN HIGHER EDUCATION)

Introduction

Competitiveness and performance are the key words that best define the goals of the present business environment. Under the given circumstances concepts such as quality improvement and quality control become important actors in achieving these goals. It is in fact the duty of the personnel to carry out the necessary actions to meet the established objectives. How well the employees are trained and how competent are they in the field of quality improvement and quality control is a question that intercepts with the notion of academic environment.

Regarded as a whole, higher education plays various roles such as: training the students and preparing them for the economic environment by involving them in the teaching-learning and research processes and offering the example of a system whose outcomes meet the organizational goals by implementing Six Sigma.

The paper focuses on the way Six Sigma is applied to higher education and it is compatible with one of the quality management systems, namely the model ISO 9000 within universities.

Aspects regarding Six Sigma

Six Sigma allows a multidimensional approach, as it could be viewed as “a metric, a philosophy or a methodology for quality improvement”

The variety of approaches depends of the organizational level the concept is utilized. Top management perceives Six Sigma from a philosophic point of view, as it incorporates the commitment of the entire organization to achieve continuous quality improvement. Six Sigma could be defined as a metric not only at top management level, but at other levels, as well as, such as the level of the operating personnel. From a statistical perspective, six sigma defines a process performance that produces 3.4 defects per million opportunities”, (Goffnet, S. P., 2004) with other words the concept is used for processes that, virtually, perfectly meet the customers’ requirements and needs. At the mid-management level Six Sigma is used by project leaders as a methodology to achieve quality improvement by reducing the defects in products, services and processes. Whereas for products and services the DMAIC (define-measure-analyze-improve-control) approach is being used, for products and processes another approach is popular in the literature, namely DMADV (design-measure-analyze design- verify)

Aspects regarding ISO 9000

The ISO 9000 family of standards is one of the most well-known models belonging to the quality management systems. The revised ISO 9000:2000 relies on eight principles: customer focus, leadership, involvement of people, process approach, system approach to management, continuous improvement, factual approach to decision making, mutually beneficial supplier relationships. Further on it is presented how these principles can be applied within a higher education institution. *Customer focus*. First of all it is very important that any higher education institution identifies its customers and stakeholders – students, professors, parents, employees, etc. - in order to better understand their needs and expectations. Following these steps the higher education institution aims at best fulfilling their needs and satisfying their

requirements. The similarity with Six Sigma relies on the consideration of this principle, customer orientation, as a prerequisite of the success of an organization.

Leadership. According to this principle, a higher education institution has on one hand to establish the direction it is moving to, along with a mission, vision and goals to be attained and on the other hand it is responsible for the environment people are working in, for offering them the opportunity to develop. From the point of view of creating an internal environment sensitive to people's needs a further similarity with Six Sigma can be emphasized.

Involvement of people. Within a higher education institution the involvement of people in different processes and activities should be increased as knowledge creation, dissemination and utilization are the main tasks to be carried out. This principle brings people's active participation at various activities forward, positive attitudes regarding their creative role and responsible attitudes towards solution finding. Process approach. According to the revised version of ISO 9000, the quality management system is process based. Process components that are to be taken into account are the inputs and outputs of the teaching-learning, respectively research processes. A clear evaluation of the risks and effects of the performed processes upon the various stakeholders is to be made). Higher education is viewed as a network of processes, where the existence of resources and their efficient use play an important role in achieving quality outcomes and quality educational services. Within ISO 9000 the PDCA (plan-do-check-act) methodology, also known as the Deming cycle can be applied to all processes, whereas Six Sigma uses a different methodology called SIPOC (supplier-input-process-output customer)

System approach to management. Higher education is seen as a system of integrated processes that interact and communicate with each other under the supervision and control of the top management and of the other responsible parts. By means of this approach the management structures are able to better enhance and improve the quality of the educational processes as well as outcomes. *Continuous improvement.* Within higher education institutions this principle is achieved by measuring the quality of processes and outcomes – under these circumstances it is necessary to introduce and use quantitative and qualitative indicators, and by comparing it to stakeholders' satisfaction. To continuously improve both research and educational products and services one should increase the efficiency and effectiveness of the quality of the university processes, and permanently evaluate the process outcomes and criteria used to analyze the results 6). Another possible way of evaluation is by conducting audits.

Just like ISO 9000, Six Sigma focuses on quality improvement by reducing the defects and flaws in the processes of delivering educational services. Permanent efforts are being made to increase customer satisfaction by decreasing the number of failures that lead to clients' in satisfaction.

Factual approach to decision making. A factual approach is possible when data is available and reliable. A higher education institution should develop a system specially designed for collecting and assessing the necessary data. To make appropriate and sound decisions the data and the information should be clear and accessible and should be first analyzed.

The factual approach in decision making is vital within Six Sigma, as all decisions are based on data rather than on simple assumptions.

Mutually beneficial supplier relationships. Lasting relationships with suppliers can be achieved and consolidated when both parts are committed to quality based activities and outcomes.

Bringing the two concepts together

A synergetic approach created by analyzing and simultaneously using the benefits of Six Sigma and ISO 9000 plays an important role in the development and success of a higher education institution. While Six Sigma is orientated towards those projects that offer financial success through customer focus, ISO 9000 is related to those projects that aim at improving the existing processes and activities, targeting the same goal, namely customer satisfaction. These two approaches are compatible and complementary, and are used, for instance, within research processes or partnerships. A prerequisite for the success of this synergetic approach is the congruence of the project goals of Six Sigma with the process goals of ISO 9000. A certain goal correlation has to be identified between the two models. With complex projects this prerequisite is difficult to meet. The planning of a Six Sigma project and the recruitment of employees to participate are closely related to the processes already identified and analyzed within the ISO 9000 documentation. The different management levels existing in a quality management system (rectors, deputy rectors, deans, chairs, etc) such as ISO 9000, coincide with the structures identified by Six Sigma: green belts – representing the practitioners, black belts – representing the experts responsible with the problem solving, master black belts supporting the personnel involved in the project, and champions or leaders (senior management) –responsible with the project supervision and control and providing the necessary resources.

One of the issues common to both approaches and extremely debated within higher education institutions regards the seeking for resources and their transparent utilization. As many higher education institutions struggle to tackle the issue generated by the so called “funding gap” Six Sigma projects within such institutions could offer an answer to this matter by generating monetary benefits and possible financing resources through a continuous focus on customers’ needs and expectations. The success of the synergetic approach of Six Sigma relies on the development, such as ISO 9000, of a well structured documentation, explicit procedures, clear defined tasks, activities, indicators and achievable goals. In addition to ISO 9000, Six Sigma emphasizes a statistical thinking, making use of statistical methods to evaluate the academic processes and outcomes and to improve them by reducing defects and failures.

Combining the two approaches is made possible due to a few main similarities. Compare to both process based aspects imply the existence of disfunctionalities that occur during the various processes and activities and the preoccupations and intense measures undertaken to improve the quality of services and products by eliminating the causes that lie at the their bottom.

Conclusion

In order to intensify the actions carried out to reach high levels of performance, higher education institutions should more often consider and refer to Six Sigma as a success strategy in maintaining academic quality at high standards and improving it continuously.

The complex character of Six Sigma, defined by the existence of a customer orientation, a management infrastructure (the different levels of belts), a process based perspective and quality improvement steps and measures, proves its compatibility with ISO 9000, a quality management system. In this regard integrating Six Sigma in the quality culture of any higher education institution could be a success.

References

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