

# Reengineering Higher Education

## Yükseköğretimde değişim mühendisliği

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### Özet

İş dünyasında değişim mühendisliği devrimi hakkında Hammer ve Champy'nin orijinal kitabı (1993) ile birlikte birçok makale ve kitap yazılmıştır. Bu yazı bir yükseköğretim kurumunda değişim mühendisliği uygulaması için gereken değişiklikleri açıklamak için Hammer ve Champy'nin kitabını esas almaktadır. İlk olarak, makale değişim mühendisliği uygulanan bir üniversitenin nasıl olması gerektiği açıklamaktadır. Daha sonra, olması gereken değişimler listelenmektedir. Yazı geleceğin üniversitesi için gereken şartların bir özeti ile sonuçlanmaktadır.

**Anahtar sözcükler:** Değişim mühendisliği, üniversitelerin organizasyon yapısı, yükseköğretim.

The higher education field encounters similar challenges as the manufacturing industry. Today's most important challenge encountered by the manufacturing industry is the "rapid fulfillment of customer's requests in agile networks" to be more competitive (Wiendahl and Heger, 2011.)

Similarly, higher education institutions (HEI) are to keep up with short life cycle of some of the degree program offerings. Every year, new areas emerge in the market, needing qualified workforce. Universities, in turn, are expected to respond to this newly created need. As the rate of newly created products and paradigms increases rapidly, HEIs need to be equipped to respond to this challenge as effectively and efficiently as possible. In order to accomplish this task, HEIs need to become "learning organizations", where organizational structures and organizational culture are totally different than today's archaic

### Abstract

Several articles and books have been written about the reengineering revolution in the business world, including the seminal book by Hammer and Champy (1993). This article uses their book as a basis to explain the changes necessary to reengineer a higher education institution. First, the article explains what a reengineered university will look like. Then, it lists the required changes. The article concludes with a summary of necessary conditions of a futuristic university.

**Key words:** Higher education, organizational structure of universities, reengineering.

management approaches at HEI's. Furthermore, as Calantone et al. (2010) state, "it is critically important to understand the relationship between new product launch strategies and their interaction with the competitive environment."

In their report on the future of higher education, Newman et al. (2004) claim that not only US institutions, but also universities in several other countries, such as Denmark, Australia and China, are moving towards new approaches for university governance for greater level of competition and responsiveness. In this article, we propose a new approach for managing an HEI based on the reengineering principles of Hammer and Champy (1993). We believe that, as enterprises transformed themselves using these principles to become more agile and responsive to the needs of the marketplace while maintaining cost efficiency, HEIs can also greatly benefit from similar restructuring. We totally agree with

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Barnett's (2011) contention that universities are lacking imagination and that through the creative use of the imagination, feasible utopias can be achieved.

## Reengineering Efforts at Universities

Hammer and Champy's bestseller, *Reengineering the Corporation: A Manifesto for Business Revolution*, (1993) explained how businesses can drastically improve their organizations. After reengineering, companies were able to respond to customer demands while improving the quality of the output despite the fact that the cost and the time required to deliver the output have drastically decreased.

If universities aspire to be more competitive, it is this author's opinion that they need to apply the reengineering principles to redesign their own processes. It is time for higher education organizations to learn from their business counterparts. This is the only approach higher education can take to be more effective as well as efficient.

Several articles and books have been written about the reengineering revolution in the business world. Similarly, there are several attempts to demonstrate how the same concepts can be applied to the educational systems. For example, Weller (1998) interprets reengineering as "discarding the current way of doing business, and reinventing a new and better way to produce products and services." He claims that the reason of schools' existence is to educate students, not to employ teachers and administrators. Liang et al. (1998) describe how information services at a university were integrated using reengineering. Seidman (1998) outlines how reengineering principles are used to redesign a three-year bachelor's degree in business administration. The new program offers more flexibility through "modules," and yields better learning outcomes than a traditional four-year program. Li (1998) reviews the use of information technologies (IT) for reengineering the education for construction engineering. He explains how IT-based communication techniques facilitate the efficient sharing and exchange of information. Adenso-Adenzo-Diaz and Cantelli (2001) outline how reengineering could be applied to the university system in Spain. They point out the possible hindrances for the introduction of reengineering principles to the academic administration. Allen and Fifield (1999) studied the impact of organizational culture on the successful implementation of reengineering projects at United Kingdom (UK) Higher Education Institutions (HEI) without outlining the details involved in such projects.

Davies (1996) clearly advocates the use of reengineering in higher education. He uses the true definition of reengineering: "The fundamental rethinking and radical redesign of business processes to achieve dramatic improvement in criti-

cal contemporary measure of performance." He outlines how customers, competition and change are forcing higher education institutions to consider "fundamental rethinking and redesign" and "new types of leadership and management." His most important contribution is the decentralization of decision making and the empowerment of smaller groups closer to the students. As he points out, it is necessary to support these groups with information, knowledge, power and rewards, enabling them to make effective decisions even if it means that top managers feel threatened because they may lose their power base.

Most of the studies in reengineering higher education concentrate on the use of technologies or on the pedagogical viewpoint. This article outlines the changes necessary to reengineer a higher education system based on the recommendations outlined by Hammer and Champy (1993). In a sense, it offers a detailed account for a reengineered university already established by Davies' article. First, it explains what a reengineered university will look like. Then, it lists the changes that will occur at a reengineered university. Finally, in the conclusion section, it presents a summary of the necessary conditions of a futuristic university.

## What Does a Reengineered University Look Like?

In this section, we present the necessary changes that need to take place at a reengineered university based on Hammer and Champy's (1993) recommendations.

### Several Jobs Combined Into One

Eliminate specialist's jobs, such as admissions, advising, registration, financial assistance, housing, job placement etc., and design the process such that "one individual or a group of individuals has responsibility, or knowledge of, the entire process." Universities need to employ the case manager model, where an individual is responsible for the whole process of delivering the service to the customer. This means that a team of professors and related administrative personnel will be in charge of admission, advising, registration, financial assistance, housing and other functions for a given major. If there is a need for a new major, a new team will be formed to execute these functions.

### Teams Make Decisions

At a typical university, faculty committees serve as advisors to the administrators, who, in turn, make final decisions. In a reengineered university, even the final decisions will be made by these committees. Then, the managers (administrators) would concentrate on how to improve the process instead of how to supervise workers.



### **The steps in the Process are Performed in a Natural Order**

When case managers are established, the process will naturally lose its linearity in the sequence of tasks performed, and this will lead to a dramatic increase in the speed in which decisions are made, and tasks are completed.

### **Processes Have Multiple Versions**

Today's market needs change more rapidly than it used to be. Therefore, the logic of producing uniform and consistent output is now obsolete (Hammer and Champy, 1993). The reengineered higher education system will have several versions depending on the market needs. Hence, it will be easier and quicker to create a new version as the need arises. Processes with multiple versions will have to begin with a "triage" step to determine which version works best for a student. Traditional one-size-fits-all processes are usually complex, and eventually exceptions become the rules as the input becomes more complex. The processes designed to handle uniform input can no longer handle the complexities caused by the changes in the characteristics of the input as well as the changes in the requirements of the marketplace.

### **Work is Performed Where it Makes the Most Sense and Checks and Controls are Reduced**

The case manager in charge of the process will not only be empowered but also will be more productive. Traditionally, a college professor delivers student grades to the department, and the department sends the paperwork to where the grades are re-entered into the system. With today's technology, these checks and controls and other unnecessary steps can be easily eliminated. Several institutions are already using these technologies where students have almost immediate access to their grades during and at the end of the term. The teams should also be given autonomy to make decisions regarding resource allocations. Alho and Salo (2000) offer an excellent framework for merit rating and formula-based resource allocation. When such a system is employed, an administrator will no longer have to waste his or her time making a decision on whether a request made by a professor for buying a computer or traveling to a conference location should be granted. Hence, the administrator will be able to concentrate how to improve the process as well as on how to increase financial resources.

### **Reconciliation is Minimized**

Division of tasks necessitates reconciliation. When a case manager or a team is in charge of the entire process, the number of steps required to complete the process will be reduced. This means that the non-value added activities in the process

are eliminated. Also, the number of external contacts is minimized. For example, the administrative units are no longer needed in the process of recording grades.

### **A Case Manager Provides a Single Point of Contact**

Students will have a single point of contact to get answers for any concerns and problems they have. Currently, the students need to find the person or group of people who are in charge of the area related to their concerns. A reengineered higher education institution will better serve its student population by providing the single point of contact. Undoubtedly, the information systems and technologies will play a major role in the success of such a transformation (Penrod and Dolence, 1991).

### **Hybrid Centralized/Decentralized Operations are Prevalent**

As companies reengineer their processes, they combine the advantages of centralization and decentralization. This is possible because of the advances made in IT. The case manager model at a higher education institution can only work if these institutions make use of these technologies. As specialists are no longer needed, expert systems should be used to make some of the decisions. Shared databases should be used to provide any kind of information needed to serve the customer. In doing so, the institution will increase its effectiveness with decentralized operations (case managers) and take advantage the economies of scale of centralized information. As most reengineering projects at several companies resulted in the increase in computer systems and information technology personnel, universities will have to employ an increased number of such personnel.

### **The New World of Higher Education**

A reengineered university will have a case manager who will be in charge of the entire process. The case manager will admit the student, determine the financial aid, assign housing, advise as to what classes to take, perform the registration process, teach classes, report grades, and authorize his or her graduation. A medium-sized university of 20.000 students can easily handle its student population with 500 case managers. Since the information system and technology support at a reengineered university will be crucial, the emphasis in support personnel should be placed on information system specialists and information technologists.

When a process is reengineered, jobs evolve from narrow and task-oriented to multi-dimensional. People who once did as they were instructed (i.e. managers telling workers what to do or administrators telling faculty what to do), now make choices and focus on customers' needs. The following changes will occur at a reengineered university:



### **Administrative Units Change from Functional Departments to Process Teams**

At a reengineered university, offices of admissions, registrar, offices of housing, offices of financial aid, offices of advising, bursar's offices will all disappear. Information specialists and technologist will support these functions so that case managers can perform these tasks.

### **Jobs Change from Simple Tasks to Multi-Dimensional Work**

Individuals or groups of individuals who used to perform a single task, such as admit a student, assign housing, receive payments, teach classes, and key in grades will now form teams who are responsible for the whole process. Generalists will replace old jobs consisting of specialists.

As jobs become more multi-dimensional, they are also more challenging and difficult. In academia, the group of people who will display the strongest resistance to such a radical change will be the faculty. Liang et al. (1998) report that "departmental egoism" was a major roadblock to productive change. The higher education institutions where teaching is the primary mission, need to emphasize the benefits of reengineering, and to employ proven techniques of change management for a smooth transition.

### **Job Preparation Changes from Training to Education**

This principle of reengineering already exists at higher institutions. Universities are founded on the principles of education. While training increases people skills, and teaches "how" a job is performed, education teaches "why" a job is performed. Because this philosophy is already part of an academic culture, the principle of reengineering should be easily understood in academia.

### **People's Role Change from Controlled to Empowered**

In academia, although professors are more empowered than their business counterparts, administration traditionally controls resource allocation. In addition to the ability and the authority to make process decisions, case managers at a reengineered university will also be empowered to make decisions on allocating resources.

### **Focus of Performance Measures and Compensation Shifts from Activity to Results**

Measuring performance based on activities will no longer work. Performance measures should be based on results. For example, measuring the performance of a faculty member based on the number of articles published in refereed journals

does not necessarily increase the quality of the output. It is a known fact that in some countries, as the number of published articles in refereed journals steadily increase, it is observed that the impact factor of these articles decreases. Just because a person is active does not necessarily mean he or she is productive.

### **Advancement Criteria Change from Performance to Ability**

Advancement should not be a reward, but it should be used as a change mechanism in order to increase the university's productivity. Promotion to a different position or to higher rank should not be used as a reward tool for a professor who is very good in the classroom, but he or she should be given a bonus, or a salary increase as a reward. A professor who is very effective in the classroom should not be rewarded by appointing him or her to an administrative position, as the university might lose a very good professor in the classroom and gain a very bad manager.

### **Values Change from Protective to Productive**

As the compensation system and advancement criteria change, the values will also change. Individuals, academicians and administrators, at a higher education system will no longer have to protect their jobs from a low salary increase or from an eventual dismissal by keeping the administration happy, but they will make sure that the customer is happy. This in turn will increase the effectiveness of the institution.

### **Administrators Change from Supervisors to Coaches**

When reengineering changes occur, the role of the administration will change from controlling the case managers and teams to making sure that they have the resources to accomplish the goals and objectives of the institution. Administrators will no longer have to spend their time on controlling budgets, and approving expenditures. They will have more time to improve the process and find more resources.

### **Organizational Structures Change from Hierarchical to Flat**

When checks and controls are reduced and the case managers are empowered to make their own decisions, the traditional hierarchical organizational structures are no longer needed. In a reengineered institution, there would be no associate deans, department chairs, associate directors, coordinators, etc. There would be multiple versions of processes owned and operated by a team led by a case manager.

### **Executives Change from Scorekeepers to Leaders**

At a reengineered university, the top management will no longer keep scores. It will concentrate on establishing the

management system that will ensure that the role of the administrators changes to being coaches and that the process teams can function with the motivation to produce the desired outputs. As the organizational structure becomes flatter, the top management gets closer to the real action, and better understands the needs and the concerns of those who actually produce outputs.

## Conclusion

Hammer and Champy (1993) point out the essential role of IT in a reengineered organization. Only the use of shared databases, expert systems, decision support systems, computer networks, and the internet will enable an organization to accomplish the above changes. As higher education institutions are leaders in the use and innovation of these technologies, it makes perfect sense that they also embark on reengineering their organizations.

In addition to IT, the impact of the top management to the success of reengineering is insurmountable. Miller and Miller (1998) warn higher education institutions not to assign personnel to reengineering projects on the basis of availability, but to ensure that exceptional individuals are in charge of such projects with the full support of top management.

Hammer and Champy (1993) believe that reengineering is the only thing that stands between many U.S. companies and disaster. Similarly, we believe that reengineering is the only thing that stands between higher education institutions and disaster in this fast changing world. The reason U.S. companies sustained their dominance in the 20th century was the lack of competition. Today, the same principles they used to employ to achieve that level of dominance cause their downfall. Before universities experience the same fate, they need to retire old principles that made them the best in the world and adopt a new set. It is time for higher education institutions to reinvent themselves.

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