

## REDESIGNING VALUE CHAIN FOR HIGHER EDUCATION AND A PROPOSAL FOR ANALYSIS PROCESS

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### **ABSTRACT**

*Increasing global competitive environment in the field of higher education has made universities necessary to take strategic management into account. In this context value chain analysis is one of the most basic and important tools used in strategic management. However, the generic value chain model developed by Porter deals mainly with activities and processes related to private sector initiatives. In this study, a unique value chain model which could be used by higher education institutions and especially by universities was tried to be developed, and a proposal was made to analyze the model in question. The paper outlines the main components of the proposed model and explains how it works conceptually and at a practical level as a tool to help value-creating capabilities of higher education institutions.*

**KEYWORDS:** *Higher Education, Value Chain, Value Chain Analysis*

### **INTRODUCTION**

It is necessary to understand the term value before value chain. The concept of value means the tangible and intangible assets which render company effective and productive, provide a competitive advantage and help to achieve company objectives in terms of business. With value-based management it is possible to manage these tangible and intangible assets in a way to create value.

Value-based management is a phenomenon that formulated with business strategies and called the process to create value for the company. The value that will be created is significant both for the company itself and its stakeholders. With the help of this value, the company objectives will be achieved, the market value of the company will increase and initiative opportunities will arise for the future (SaruhanandÖncer, 2005). According to Knight (1997) “value-based management instills a mindset where everyone in the organization learns to prioritize decisions based on their understanding of how those decisions contribute to corporate value”. The adoption and implementation of value-based management are possible only with the realization of value chain analysis.

### **The Value Chain Model**

The concept of value chain was brought forward by one of the leading thinkers of strategic management literature Micheal Porter. Porter used the concept of the value chain to define each of activities or stages which turn the inputs into outputs in a company (Walters and Rainbird, 2004). The value chain is the chain of activities which add value to the goods

and services offered to the customers and to the products of the company and follow in succession (Chang and Hwang, 2002). Therefore the value chain is a tool for examining the overall business activities (Porter, 1980). According to Hill & Jones (2012), the term value chain refers to the concept as a chain of activities for transforming inputs into outputs with the purpose to create and deliver value to the customers.

The value chain defines all operations necessary for the conceptual design of a product or services to its delivery to the end consumer (Porter, 1980). In other words, the value chain is all activities including the stages from the design to the product purchase from the suppliers, production, marketing, and sale and after-sale services (Sağmanlı, 2002).

According to Porter, a value chain is a tool used for departmentalizing the company in the form of activities strategically linked to one another in order to understand the current and potential sources of costs and differentiation which occur in a company. It will enable to develop competitive advantage and maintain this advantage, that the company conducts a set of activities which are strategically important in a more economical or better way (Porter, 1985). The main reason of emphasis relevant to the decomposition of activities is that the activities are deemed as the cornerstone which enables the company to offer products which state value to its customers. Different activities have different cost patterns and different contributions to the value creation. The decomposition procedure of activities which create the value chain is required to be conducted in the way that it will consist of all activities of the company (Stabell and Fjeldstad, 1998).

In this definition, the reason of especially preferring the concept of a chain is to concretize through simulation that all activities in the company are intercorrelated. At the same time, this simulation also serves for defining the weak and strong rings in the value chain and therefore, determining the advantages or disadvantageous sides of the company in the strategic competition (Rainbird, 2004).

Porter categorized the activities in an institution as primary activities and support activities and classified the operations based on this categorization. Accordingly, the primary activities were determined as the inbound logistics, operations, outbound logistics, marketing and sales and service while the support activities were determined as the procurement, human resources management, technological development and infrastructure.

### **Primary Activities**

The primary activities are the activities which directly take part in the physical production of product, marketing, transportation to the client and after-sale services (Pearceand Robinson, 2003). These are defined as the critical activities which are basic in terms of understanding and applying how the competitive advantage will be created in the company as a whole (Stabell and Fjeldstad, 1998). It is related to directly giving value added to the inputs and transforming them into the products and services which are desired by the customers (Porter, 1985). In other words, these activities express the primary functions of the company in offering a product or services to the customers (PittsandLei, 2000). Accordingly, the primary activities are as follows (Porter, 1985):

**Inbound Logistics:** It is the first step of primary activities in the value chain and involves supplier relationships which include all the processes related to receive store, and disseminate inputs in the production process.

**Operations:** Operations are almost the basic activity in every company (Shafer and Meredith, 1997). It includes all the activities associated with transforming inputs into outputs such as manufacturing, assembly, packaging,

equipment maintenance, testing and facility operations. In other words, it is related to the processes of production and creating added value (PittsandLei, 2000).

**Outbound Logistics:** It is the stage of preparing and transmitting the products to consumers, retailers, and wholesale buyers. These activities relate to collecting, storing and distributing of the product to the final consumer, and they may be either internal or external.

**Marketing and Sales:** These are the processes like advertising, promotions, sales force, selecting distribution channels, channel relations and pricing. The marketing mix is the source of creating value at this stage to set up an effective strategy.

**Service:** It refers the customer service of the value chain process and includes the activities required to keep the product or service working effectively for the buyer after it is sold. These are the activities such as installation, training, repair, product adjustment and warranty (Porter, 1985).

### Support Activities

The support activities are the activities which ease execution of the primary activities that directly make a contribution to create value for the customers and offer them to the customers and which help to increasing their performances and effectiveness. The reason for defining relevant activities as support activities is that the value of these activities is based on affecting and increasing the performances of primary activities (StabellandFjeldstad, 1998). Porter examined the support activities under four main titles (Porter, 1985):

**Procurement:** It includes acquiring needed resources to operate such as sourcing, finding vendors and negotiating with suppliers for best prices. It occurs in multiple parts of the company with the purpose to support the primary activities.

**Human Resource Management:** It involves all the activities of employees of a company such as recruitment, training, motivating, developing, promoting, payment and dismissing. As employees considered one of the basic sources of value, effective human resource management activities can create a significant competitive advantage for the companies.

**Technological Development:** It is about the technological infrastructure of the company and related to all the activities in the value chain. These activities include managing and processing information, developing and protecting knowledge in a company and also developing a technology. The use of technology is one of the most important elements in increasing the efficiency of the value chain and obtaining a competitive advantage.

**Infrastructure:** It includes the process of general management and also the functions and structures that companies need to operate effectively such as accounting, legal, public affairs, finance, government relations and quality control mechanisms. It supports all the activities in the value chain.

The primary and support activities which are summarized above state the main activity groups which are conducted by the company (Ülgen and Mirze, 2004). The contributions of these activities to the value chain and their significances in the value chain may vary depending on the sector at which the company engages in the activity. For example; the inbound and outbound logistics have critical importance for a company of which main activity field is distribution while the production process has critical importance for a company which mainly carries on production activities (Porter, 1985). Therefore, every company shall create distinctive value chain model with reference to the

generic value-chain and focus on creating value added especially in the processes which are critical in determining the primary and support activities.

### **Value Chain in Higher Education**

The roles of universities in society have become very significant, especially in the knowledge era. The necessity for changing and transforming the universities (and campuses) in accordance with the new economic order is observed (RowleyandSherman, 2001). The necessity for creating more value by prioritizing the strategic decisions compels the universities to change (RowleyandSherman, 2001). Creating strategic change is only possible with the analyses of processes. According to Porter, the value chain consists of everything which makes the contribution to the main corporate outputs. Every sector has different operational processes within the frame of internal dynamics and economic relations (Porter, 1985). The value chain analysis may be applied to the service sector as much as the production sector. The value chain model of Porter was developed with the aim of strategic work. But the universities and research institutes have also started to use private sector like analyses. The universities don't engage in activities as an independent actor like the enterprises, but they have shareholders who expect to act as if. Creation and examination of value chain analysis in the higher education has significant importance in terms of creating difference and value, determining the activities which they shall put into practice in terms of providing a competitive advantage, revealing out which processes will be eliminated and which processes will create value-added and be developing right strategies. Consequently, it is a necessity in the field of global higher education to reveal out, with which processes the universities have created value, which processes are more problematic and how these solutions may be overcome and making suggestions in terms of how the value created may be increased and the use of results obtained in the strategy development process of the company.

The public has various expectations of the universities and the universities are liable for meeting these needs. The relevant liability makes this a necessity that the higher education institutions offer the best service to their shareholders by continuously developing their service qualities. The value chain analysis should be used as a tool in the effort of continuous improvement and development.

The private sector enterprises create the value by selling the product and service produced at a value higher than their costs. But the universities do not create value against money. The universities have two types in terms of two different sources of finance as public and private. The foundation universities in Europe and America cover all costs of education through the payments that they receive from the students. The foundation universities finance themselves with sponsorships, graduates' contributions and donations (Thorthon, 2005). In this context, the value created by the universities which are public universities and mostly financed by the state may not be determined over a fee. The universities produce the value generally for the public and the economy (LewisandStiles, 2004). The universities struggle in the continuously changing dynamic environmental conditions. The international competition and changing management paradigms relevant to the higher education lead to increase of significance of strategic decisions and compel the universities to change in terms of creating more value added. These new conditions bring along new struggle areas. Along with that it is very hard to determine the value created by the university is formed from what, some opinions are suggested. It is emphasized in the literature that the main value to be created by the universities is to make research, produce technology and give innovator and quality education (TsaianandGhoshal, 1998; KarvonenandKraslawski, 2012). Besides that, the project development, establishing international networks, (KarvonenandKraslawski, 2012), university-industry cooperation in making research

and producing innovative and the subjects of research leadership are asserted as the activities which create value for the universities (Boras, 2011).

According to Pathak and Pathak (2010), it is possible to sort the values which higher education may create appropriate for the new era as follows: number of students, research scholarships and publications (the most distinctive/significant criteria of intellectual capitals of universities), education opportunities for both trainers and students, technology use (use of technology opportunities in the education and flexible education opportunities), research education and development services (training the young academicians on the making research and producing project, consultancy for the doctoral candidates, introduction of research results, helping the offer letters for finding fund, etc.), assessment of students in university, course, type of education (customer experience management, customer satisfaction, assessment of education and trainer) and visibility, providing famousness (creating brand and differentiation as a requirement of international competition, making the graduates' brand ambassadors, etc.). According to Thorton (2005), the main sources of creating value may be sorted as follows; to produce information (by the academicians), store and manage the information (by the libraries and librarians), the concrete infrastructure (libraries, classrooms, laboratories) and discrete infrastructure (human source motivated to create new information within the direction of informed academic studies) which is used in creating information. As emphasized in the literature, the value chain analysis of universities will be very different from the private sector enterprises (Groves et al., 1997).

In the higher education value chain model suggested by Pathak and Pathak (2010), the importance of support activities was emphasized and relevant activities were classified as primary and secondary. The relations of support activities with the primary activities were stated. How the value increase may be conducted for each activity may be measured and the relations between the activities were revealed.

In the value chain model developed by Hutaibat (2011) model, there are three areas: the academic reality perception as the scope and the research and education as activities. The academic reality perception consists of the severity in the academic world such as shortage of financial funds, a continuous tension between the research and education and personnel acquisition and maintenance. The research and education activities state the main operational activities and they are relevant to most significant focal points. The intention of education is the real time which is spent in the classroom, but also consists of a situation that the academic member interest in the questions or problems of students out of the class.

The value chain suggestions which take place in the literature and review the value chain analysis of universities in the conceptual dimension are summarized above.

### **Redesigning and Analyzing the Value Chain for Higher Education**

According to Porter's value chain analysis, the value was reviewed in four stages as follows: i) defining strategic work unit, ii) defining critical activities, iii) defining the products and iv) defining the value that every activity has created. The main questions in the value chain model are as follows: i) the enterprise should conduct which activities and how? ii) what are the enterprise activities which will allow for competing in the sector and which will add value to its products? With this analysis, the *primary activities* which are directly effective in creating value and *support activities* which create value with its effect in the performance will have been explored and defined (Porter, 1985; Amit and Zott, 2001).

The execution of value chain analysis necessitates the follow up of successive stages (ShankandGovindarajan, 1993). Relevant stages are summarized as follows:

- Determining the value chain activities (modeling the value chain),
- Determining how each activity will be analyzed,
- Data collection and analyze
- Interpreting and reporting the data

Below is a detailed description of each step of Porter's value chain analysis process adopted especially for higher education institutions.

### **Determining the Value Chain Activities**

Developing a unique value chain model for a university is the most priority stage of the process. In this stage, it is possible to develop the value chain model by conducting brainstorming meetings with the commissions which will be formed by getting benefit from the literature and making in-depth interviews with the managers of the institution. In the context of this study, a comprehensive literature research was followed by brainstorming with a group of representatives of different fields, including business, fine arts, medicine and communication. Later, a face-to-face interview was conducted with the administrators of a state university located in the top 10 universities in Turkey and having a medical faculty.

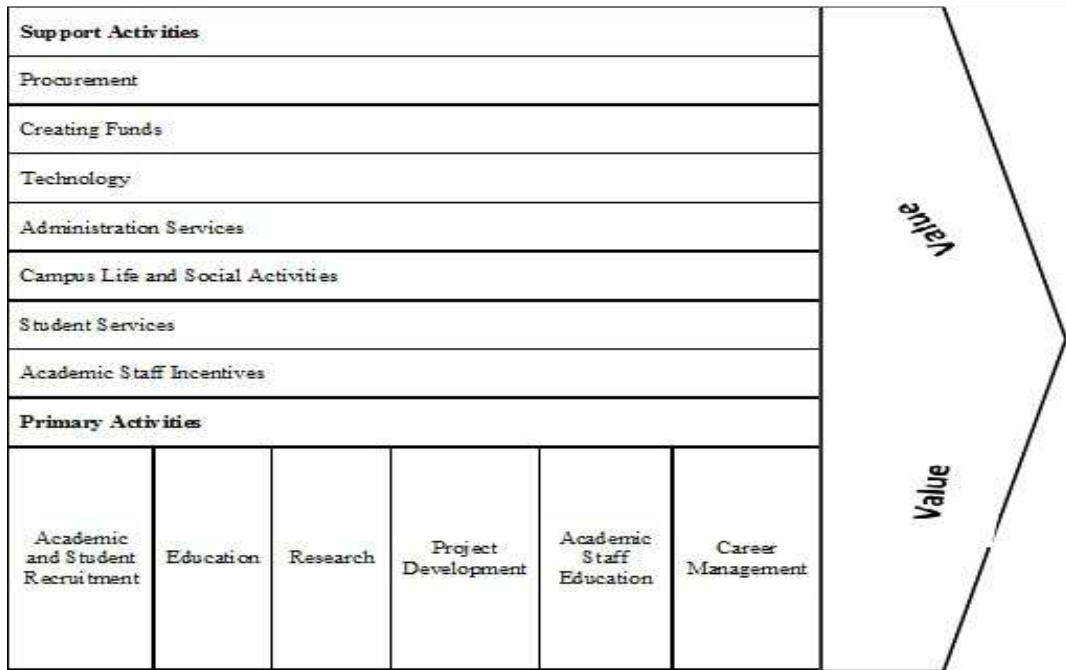
The main questions which are required to be emphasized while developing the value chain model are as follows: i) which activities should be conducted and how? ii) What are the activities which will allow for competing and which will add value to us/our institution?

As in the literature, main operations are primarily required to be determined when developing a value chain model. The most significant point of this stage is considering the characteristic of the main activities in terms of being a process. The main logic here is to determine the main operations relevant to the main work of the institution. Following determination of the main activities in the institution, the secondary operations which support these processes are determined. Beyond any doubt, there are other operations in a university as well as the main operations. As a result of this analysis, all activities of a university, in other words, the value chain model, has been revealed as a process. The value chain model developed for higher education in the light of the methods outlined above is in Figure 1.

In the data obtained within the scope of the study, it was seen that the first of the primary activities of the universities was *academic and student recruitment* corresponding to the stage called inbound logistics for the private sector companies. This step means gaining students and academic staff to the institution.

The stage we call operations in private sector enterprises has more than one activity in higher education institutions, which are *education, research, project development* and *academic staff education*. It can be seen that the activities of universities which considered as production emerges in more than one field.

The last of the primary activities is career management which is related to the career development of both students and academic personnel and is called outbound logistics in the generic model.



**Figure 1: Value Chain Model for Higher Education**

In addition to these primary activities, there appear support activities in higher education institutes which are; *procurement* as providing input to all processes, *creating funds* as including activities to create institutions’ own funding sources, *technology* as the development of all kinds of technological infrastructure, *administration services* as ensuring proper operation of all primary activities, *campus life and social activities* as improving the lives of students, academic and administrative staff in campus, *student services* as in charge of all kinds of transactions about students and finally *academic staff incentives* as supporting the development of academic staff.

**Determining Method and Instrument Development**

In this stage, how each activity in the value chain model will be analyzed is determined. It is decreed that which activities are problematic, what are the activities which create and do not create value, how and with which scientific methods these activities will be searched. Following the relevant decision, the instruments devoted to applying the relevant method are developed.

At this step which we may refer to developing the methodology of the process, the use of integrated research method at which quantitative and qualitative methods take place together will be a right approach. In the determination of activities of an institution which create value, the in-depth interviews should be especially made with university managers. Following determination of with whom the interviews will be made, semi-structured question forms should be prepared and the interviews should be made with the help of these forms.

In the analysis of value chain, it is possible to get benefit from the survey method in collecting the necessary data relevant to the processes. In the development of surveys necessary for analysis, primarily the surveys in the literature relevant to the subject, the value chain models developed for the universities and unique value chain models developed for

the institution should be benefitted. The scope and structure of surveys, should be verified and if needed, the Cronbach Alpha's coefficient should be calculated by conducting a pilot study and put into final form by verification.

Also, data may be collected by making in-depth interviews with the employees and managers of the institution and conducting focus group discussions. The focus groups should involve all the internal and external stakeholders of the institution. Additionally, secondary data sources which will be supplied from relevant departments of an institution may be used. At this point, the use of quantitative and qualitative methods together will be the most accurate one as stated above. In accordance with the characteristic of activity, more than one scientific method such as survey, focus group discussion and in-depth interviews should be used together.

Below is a proposal of what should be examined under each activity in the value chain developed for higher education institutes and which technique can be used as a research method.

**Table 1: In-Depth Value Chain Analyses for Higher Education**

Primary Activities	Suggested Analysis Areas	Research Methods
Academic and Student Recruitment	Students preference rate/reason Young academics preference reason	Survey Secondary data
Education	Education quality Abroad education and scholarship opportunities	Survey Secondary data
Research	Publication quantity Citation quantity Science awards quantity Intellectual property quantity Research Support	Survey Secondary data Focus group
Project Development	Number of projects by fund source Project consulting	Survey Secondary data Focus group
Academic Staff Education	Abroad education and research opportunities Support for career plans Consultancy service	Survey Focus group
Career Management	Members of alumni associations Data obtained during career days (number of participation, characteristics and numbers of participating firms, etc.)	Secondary data



Table 1: Contd.,

Support Activities	Suggested Analysis Areas	Research Methods
Procurement	Suppliers Costs Inventory applications Expert staff quantity	In-depth interview Secondary data
Creating Funds	Revenues from Continuing Education Centers Revolving fund revenues Other revenues	Secondary data
Technology	Information and communication infrastructure Mobile apps Social media Intranet	Survey Secondary data
Administration Services	Student orientation, participation in decisions, representation Management approach, centralization, communication, motivation, transparency	Survey Focus group
Campus Life and Social Activities	Library, databases, dining hall, academic facilities, social facilities, technical equipment, working environment, cleaning services, canteen services, electronic services etc.	Survey Focus group
Student Services	Knowledge level, communication, individual interest	Survey Focus group
Academic Staff Incentives	Research and publication promotion Providing resources Abroad partnerships	Survey Focus group

### Data Collection and Value Chain Analysis

The analysis of the value chain is a main method which allows for systematically reviewing all activities that the institution conducts in providing competitive advantage (Porter, 1985). It is a strategic tool which is used with the aim of determining the competitive superiority source of an institution, determining at which stage of the value chain the value may be increased and understanding the relations between the activities (Blocher et al., 2005). According to Porter, the competitive advantage of the institution depends on its capability for carrying out the activities which have critical importance in the value chain better than other institutions (Porter, 1985). With the value chain analysis, the question of which critical activities shall be focused with the aim of increasing the value in the institution, the efficiency increase and differentiation may be acquired devoted to which activities and in which ways (Ülgen and Mirze, 2004). The three distinctive characteristics of value chain may be summarized as follows (Hergertand Morris, 1989):

Defining the sustainable competitive advantage sources: The roots have their origins in the microeconomy. The companies are formed from the whole of the activities which are different from each other but linked to one another. The competitive advantage shall be based on the unique sources of an institution such as competency, patent, source, quality, etc.

**Determination of Complicated Connections and Relations between the Activities in the Chain:** The second characteristic of value chain analysis is to review the relations between the activities in the chain because the value chain is not the whole of the activities which are independent from each other. Relevant relations may occur in a few ways: i) internal relations in the value chain, ii) mutual relations between the business units, iii) vertical relations between the

business units. The bonds and relations between the activities are extremely important in terms of analyzing the coordination problems and allowing for getting benefit from the joint opportunities.

**Defining the Competitive Strategies which will be Applied in the Activities of Value Chain:** The third and final characteristic of value chain analysis is that it is relevant to the determination of generic strategies. It is relevant to this subject that what kind of activities the institution will conduct devoted to increasing the internal efficiency at which stage of chain and how the differentiation will be enabled.

After it is decreed that how the value chain model will be analyzed and necessary instruments are developed, the data are collected from relevant units and people with the scientific methods determined and then they are analyzed. With the help of the detailed data obtained from in-depth analyses process mentioned above in table 1, here are the points which are required to be specifically focused devoted to the value created in the analysis stage are as follows: Our department serves for whom? What are the current “value needs” (expectations)? In what other ways the needs may be met? How the value may be created? Is there a better way of offering value? May the value provided be increased?

In this stage, it is very important to determine the strong and weak sides of the chain. It should be analyzed that how the institution has created value actually, which strengths have been used while creating the relevant value and which weaknesses should be copied. In other words, the data to be collected should be in the way that they will reveal out the strengths and weaknesses of the university as the value chain analysis is the internal analysis of institutions.

### **Interpreting and Reporting Data**

The final stage of the process is the interpreting and reporting data acquired as a result of analysis. At this stage, it is determined that what are critical activities conducted in the institution and what are the activities which will provide competitive advantage to the institution and which will create a difference. The processes determined to create value for the institution and which are problematic and which critical activities should be focused, are determined. The most significant focal point of relevant stage is to develop value increasing and problem solver suggestions devoted to the activities which are determined as positive and negative. In other words, it is searched and interpreted in this stage that how the activities in the value chain may be made more efficient and different with the data acquired as a result of the determination of strengths and weaknesses relevant to the institution.

## **CONCLUSIONS**

The global competitive environment, including higher education institutions, has made it necessary for universities to act strategically. It summarizes the conditions of higher education institutions that they have the responsibility to meet the expectations of internal and external stakeholders at the highest level and to increase the quality of education and research every day in accordance with the requirements of the times. Under these circumstances, it is crucial to understand the internal and external environmental dynamics and make strategic decisions based on these analyzes. Value chain analysis is a tool that enables institutions to examine their internal environment, and in the case of higher education institutions, in particular, it is a tool that enables all activities related to the service offered to be presented and analyzed in a process. It allows the determination of the strengths and weaknesses of the operations in the analysis chain and the determination of how the value added in the organization will be created. In addition to providing data to the SWOT matrix together with other internal and external analysis methods, value chain analysis plays a major role in making

strategic decisions such as; to determine the source of competitive advantage of the institution, to determine the stage in which the value of the process can be created, to understand the relationships between the activities, what the problematic activities are and how these problems can be eliminated and which critical activities need to be focused. As explained in this paper, the value chain analysis that will be carried out by following a scientific method will enable higher education institutions to create added value by developing unique and realistic strategies and thus to take the right strategic steps to gain competitive advantage.

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