

## The Impact of Software on Integration of Information Systems in Mergers and Acquisitions

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### ABSTRACT

In this study, the effect of software on merging and acquisition of information system integrations is examined. Initially, the advantages and disadvantages of mergers and acquisitions are discussed in terms of processes and reasons. Information systems are mentioned later. Finally, the effect of the software and the resultant section has been discontinued. The impact of the software is supported by statistical information through research and questionnaire studies.

**Keywords:** Merger & Acquisitions, Information Systems, Integration of Information Systems, Impact of Software

## Birleşme ve Satın Almalarda Bilişim Sistemleri Entegrasyonlarında Yazılımın Etkisi

### ÖZET

Bu çalışmada, yazılımın bilgi sistemi entegrasyonlarının birleştirilmesi ve edinilmesi üzerindeki etkisi incelenmiştir. Başlangıçta, birleşme ve satın almaların avantajları ve dezavantajları, süreçler ve nedenlerle anlatılmaktadır. Sonrasında bilişim sistemlerinden bahsedilmektedir. Son olarak, yazılımın birleşme ve satın almalarda bilişim sistemleri entegrasyonundaki etkisinden bahsedilmektedir. Yazılımın etkisi, araştırma ve anket çalışmaları yoluyla istatistiksel bilgilerle desteklenmektedir.

**Anahtar Kelimeler:** Birleşme ve Satın Alma, Bilişim Sistemleri, Bilişim Sistemleri Entegrasyonu, Yazılımın Etkisi

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## I. INTRODUCTION

Today, Information Technologies and Information Systems are developing by increasing importance and even going to a place where it is no longer possible to give up. People are now in need of technology to survive, positioning it as an inseparable part of their lives. It refers to the full range of rapidly developing tools, applications and services that are used to provide the information needed by businesses with information technology (Webster,2009). With information technology, it is known that not only the information required but also the sound and images are processed (Güvenen,1998). At the same time, besides information technology, another important concept is the information systems and the management of these systems.

With information technology and information systems, businesses are acquainted with many facets and achieving more efficient development in many areas. One of the most important ones to explain some of these is creating new business opportunities such as e-commerce, e-payment, e-billing and human resources systems. This is very important because the creation of new jobs means opening new revenue gates in terms of businesses. For example, Sears, with its credit card status information technology, followed by credit authorization and credit processing services to Phillips Petroleum to provide credit card tracking and new business opportunities. At the same time, another important contribution is the change in industry structure. That is, businesses can make progress by keeping themselves in a state of being able to be rebuilt according to technological developments. The industrial structure also affects the profitability of the business at the same time (Bensghir,1996). According to Michael Porter, there are five key factors that drive an operating company's profitability. These; The strength of the buyers, the power of the suppliers, the power of the substitute products and the new entrants to the market (Kırım,2009). All these are concepts that are intertwined with technology today.

## II. MERGER & ACQUISITIONS

Acquisitions is expressed as the takeover of one or more of the operators in an entity that maintains its existence by legally continuing the existence of one of them and terminating the legal assets of the others. When an entity has merged as a result of acquiring another business, the legal entity of the acquiring entity continues to be the legal entity of the acquired entity. In this context, it transfers the values and debts of the inherited entity to the acquiring entity and the acquiring entity acquires the interests of the acquiring entity; buying their own stocks, offering their treasuries or paying in advance (T. Koçel,2015).

The concepts of mergers and acquisitions seem to be the same, but they are different. Business combinations are the merger of two businesses in one business and the process of liquidating the target company and incorporating all its assets and liabilities into the balance of the merged entity. In the purchasing process, the buyer is able to buy a part, the whole, or the major assets of the target business, or to add the target business in its entirety. In this study, these concepts will be referred to as merger or marriage (Ü. Tekinalp,2010).

### A. Merger and Acquisition Process

The three critical stages of a merger / acquisition can be summarized as follows (Thach,2015):

- Pre-merger: Following the announcement of the merger, the acquired organization enters a period of depression. In such a situation, there are clear indications on the minimum

level that can be used in highly uncertain situations and practice. Pre-merger term management is the hardest and most demanding period of management for those in possession.

- Merger: It is the period when the enterprises are working hard to unite. In this period, activities such as help, support and guidance are quite extensive.

- After the merger: When all the systems are aligned, the new merger progresses. The role of the manager traditionally turns into the management of daily tasks.

We can explain the six main categories of talent that managers can focus on in order to be successful in mergers / acquisitions during the merger (Uçanok,2014):

- Emotional acceptance: All personnel should be considered to experience such feelings of happiness from extreme anger and sadness during mergers / acquisitions. A leader must be able to cope with such emotional depressions and psychological pressure.

- Business and Customer Orientation: Managers should be able to adapt employees to their business and meet customer requirements. This can also mean sustainable performance goals and which projects will be interrupted and maintained. Continuous involvement in processes will increase spiritual support.

- Communication Cube: Information about the strategies to be followed about the merger and the infrastructure of the purchased business should be searched and collected as much as possible. Informal conversion systems should be developed for use and bi-directional communication.

- Motivation and incentives: Managers must understand the needs of their employees in order to be able to communicate their employees with the highest added value for their motivation and remove the causes of business dissatisfaction, if any. He should also be able to satisfy his people on material issues.

- Understanding Mergers and Acquisitions: After mergers / acquisitions, managers often need to be aware of which activities are taking place. Managers should know that there may be mistakes, at the same time they should be aware of the extent of profit and loss and should work to meet customer demands. They should be able to act as quickly as possible to integrate, communicate, and make decisions.

## **B. Reasons for Mergers and Acquisitions**

If we could list the reasons of merger and acquisition (Renaud,2017);

- Synergy: The most used word in merger and acquisition is the idea that performance will increase and costs will decrease by combining business activities. Essentially, a business will try to combine it with another business that has complementary strengths and weaknesses.

- Diversification / Sharpening Business Focus: These two conflicting goals have been used to describe thousands of mergers and acquisitions. A business that incorporates diversification can gain another business in an apparently unrelated industry to lessen the impact of the performance of a particular industry on profitability. Businesses that want to sharpen focus are often combined with businesses that have a deeper market penetration into a significant operational area.

- Growth: Mergers, buyers can give the opportunity to increase market share without having to work with them; instead, they buy a business that is competitive. Usually these are called horizontal assemblies. For example, a brewing company can buy a smaller competitive brewing plant, so that the company can make more beer and sell more to brand loyal customers.

- Increase Supply Chain Pricing: You can purchase some of the distributors and remove some costs. If an enterprise buys one of its own suppliers, it can save on the margins that the supplier already adds to its costs; this is known as vertical merging. If a company buys a distributor, they can send their products at a lower cost.

- Avoid Competition: Many procurement and purchase agreements allow the purchaser to remove the future market from the market. The disadvantage is that a large premium is usually required to persuade the shareholders of the target company to accept the offer. It is not uncommon for the winner to sell shares and push the price to the company.

### C. The Advantages and Disadvantages of Merger and Acquisitions

The advantages and disadvantages of mergers and acquisitions depend on the short and long term strategies and efforts of new companies. This is due to factors such as the 'market environment, diversity in the business world, costs of procurement and the change in financial power surrounding the captured business. Some advantages and disadvantages of the merger and acquisition are (Essays,2013):

- Advantages:

- The most common reason why businesses enter the merger and acquisition process is to combine the forces and controls on the market.

- Another advantage is synergy, which is the magic power that allows increased value activities of the new entity, and it takes the form of enrichment of rotations and cost saving.

- Created by sharing scale economies, resources and services.

- The two business association lead in total cost reduction, which is a competitive advantage, as a result of increased purchasing power and longer production time.

- Risk reduction using innovative techniques to manage financial risk.

- In order to be competitive, businesses must be at the top of technological developments and forced into their application areas. A merger and acquisition transaction of a small business with unique technologies will keep or grow a large enterprise competitive advantage.

- The biggest advantage is the tax advantage. Financial advantages can encourage mergers and businesses will fully develop the use of tax shields, increase monetary leverage and benefit from alternative tax advantages.

- Disadvantages (Parikh, 2016):

- The biggest disadvantage of mergers and acquisitions is that these opportunities are priced because there is no standardized or uniform way of finding the right price because each operator is unique and different from the other because it makes it difficult to calculate the correct price. There is always the possibility that the operator will over-price the M & A deal, and these decisions are irreversible on the market and may cause future business problems.

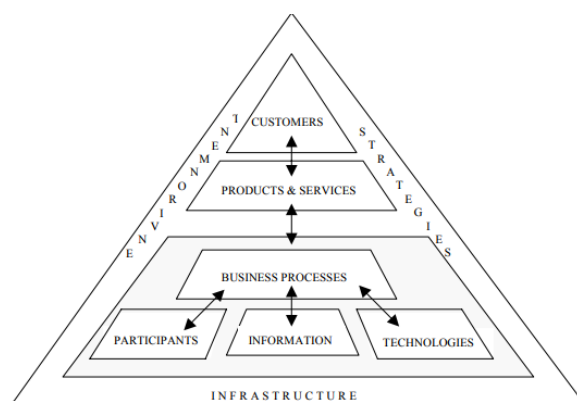
- Another disadvantage of mergers and acquisitions is the successful incorporation of employees of merged companies because, when it comes to marriage, it makes it hard to come to terms with groom relatives and groom relatives; which makes it difficult to adapt to the new member in the family. In the same way, new corporate employees, new culture, employees, management, etc. They find it very difficult to deal with. The two criminals are due to the lack of integration and price of the merger agreement because the merger failed and the businesses suffered great damage.

- If the business is listed, shareholders may disagree with it because it is risky because the failure of the merger will cause the businesses to go bankrupt and the shareholders never want to have such a situation if the business gets too much debt for the purchase. You will feel insecure due to unification and you will have to replicate positions and business people will want to get out of business.

### **III. INFORMATION SYSTEMS**

Information systems are the combination of hardware, software, and telecommunications networks that people often bring to the funeral for their acquisition, creation and distribution of useful data (Joseph,2010). Information systems are not limited to computers. How we use the information systems effectively will be understood through the understanding of the system, the organization, the management and the information systems. It is important to understand the structure, decisions, functions, policies and management of the organization in which the system to be examined is most important in order to understand how the information systems can be used most efficiently. Information systems are part of organizations. Experts in the existing system are cultivated and operated according to different functions. These can be different functions such as sales, marketing, production, finance and human resources.

An information system can technically be defined as a set of interrelated components, which can collect (or retrieve) information, support decision-making and control in an organization that will process, store and distribute information. In addition to supporting decision-making, coordination and control, information systems can help managers and employees analyse problems, visualize complex issues, and create new products. Information systems contain information about important people, places and things in the organization and the environment surrounding it. Information is meant to be meaningful and usefully formatted data for people. On the contrary, data are flows of crude phenomena representing events in organizations or in the physical environment (Kenneth,2014).



**Figure1: An Integrated View of an Information System(Alter, 2011)**

The information system has several components; an integrated view of Alter's computing systems can be seen in Figure 1. Form; An integrated view of an information system covering 6 entities including customers, products (and services), business processes, participants, information and technology is shown. Customers are actors who interact with information systems through the exchange of products or services. These products are produced or assembled in business processes using participants, information and technology. Participants represent persons engaged in business. Information can range from information about customers, to information about products and business processes. Business processes use technology and new technologies enable new ways of doing business. Clients and participants are examples of intermediaries. As seen in Figure 1, work processes play a central role in large information systems. A business process defines a workflow within an organization.

#### **IV. THE IMPACT OF SOFTWARE**

The software is the entirety of a program or technology written in various programs and computer languages using current technologies to meet the needs of information systems or to automatically process manual processes. The concept called software has now found its place in the most important points of our lives nowadays. There are many things we use in our homes, computers, mobile phones and even our tools - software is now everywhere in our lives. Software that is so in our lives is a critical point in business. Therefore, in mergers or acquisitions of businesses, software is the most important consideration. Problems emerging in software when merging and buying in the research made up 49.75 percent of all problems. Looking at the software-originated problems poses more problems in merged entities, as can be seen from the responses to the survey, often referred to as "software-focused". Because of the "no software changes" and "not touching the bottom of the software" answer, businesses that move through purchasing often appear to continue without touching the software subdivisions of the businesses they buy. But in mergers, it is tried to combine the software sub-structures because there is no need to have two headings and a standard is formed by the interpretations such as "being standardized". When we look at the comments in the questionnaire during these assemblies, it seems that there are differences in terms of database and software technologies. Differences arising in the database are often cited by the "different types of data and different technology databases" given in the answers, the biggest problem being the use of different types of databases. When databases are used in different technologies and logic, it is very difficult to come up with them. In terms of software technology, the biggest complaints are the answers to the questionnaire; Differences in server operating systems and technology differences, as well as the language of the software used and, if used, open source or prepaid software technology.

The key to solving the problems that may arise in the software domain is to build the software from the ground up with a layered architecture so that it can support every platform and be used in any kind of data base, even if the answer is based on the answer "designed with general algorithms" given in the questionnaire. Taking these situations into consideration, it seems that the quality of the staff and the time it will be presented in the first place, the production standard of the software seems to be more time consuming and costly than a writing that is likely to cause problems in future mergers or acquisitions. Also, the concept of "layered architecture" given in the questionnaire is to use software in an object-based manner. Object-based use can be explained by an example like this. For example, if you have a human object and you need to know the name, surname, age and work of this object. At the same time, there is an existing software team, and an enterprise will produce software for human resources, and there is an object defined in this way in an earlier software. In addition, there are 3 types of running models in the software to be built. These employees are different only in their departments. The programmers can create three types of employees based on this human object, that is to say, on the other hand, which can be departmental and human numbers. It is the model in which the department will be located in which type, from number 3, number 2, number 3, because there are 3 people created from the human number intention. Almost all of the software languages are devoted to the object. This situation overlaps with the way of solution of "using an objective language" given in the questionnaire. In fact, most of the programming languages that are present today support this situation. However, due to the impatience of the enterprises and the insufficiency of the qualified personnel, these types of features are not used or not taken care to use when producing software. In other words, since the software is written without thinking about the problems at the time of writing, and since these less costly operations are carried out, this situation becomes more expensive in terms of businesses.

For all these reasons stated in the questionnaire, when the software is being produced or when the operators themselves produce the software, they should work with the best members without considering the expense and give enough time for these members. In this case, the software produced will be more robust and will have a minimal cost to operate in the future, and at the same time it will be able to maintain its functionality in all environments. The most important thing to do if there is a problem or if there is a problem or if there is a merger and acquisition before or without this thought or planned, the most important thing to be done is that the software or information related departments of the businesses to be merged or bought will come together so that the present situation can be objectively combined in a common share It should be discussed. If two operating systems do not overlap, the existing software systems should continue to be used until a new system is installed again.

## V. RESULT

The effect of the software in the integration of information systems obtained during the merger and acquisition of the results obtained from the surveys and surveys conducted together with this study is revealed. From here, the effect of the software can be elaborated on the next work to be done. Moreover, by pointing out the points of influence other than software, it can be seen that which subjects are influential in the integration of information systems in mergers and acquisitions.

## REFERENCES

- Alter, Steven, "The Work System Method for Understanding Information Systems and Information Systems Research," *Communications of the Association for Information Systems*: Vol. 9, 2011, p.3.
- Bensghir, Türksel Kaya, Bilgi Teknolojileri ve Örgütsel Değişim, TODAİE Publish, Ankara, 1996, p. 34.
- Essays, UK. (November 2013). Advantages and Disadvantages Of Mergers And Acquisition Economics Essay. Retrieved from <https://www.ukessays.com/essays/economics/advantages-and-disadvantages-of-mergers-and-acquisition-economics-essay.php?cref=1>.
- Güvenen, Orhan, Küreselleşme Sürecinde Bilgi Teknolojileri ve Bilgi Sistemleri Stratejileri, DPT Publications, İstanbul, 1998, p. 13.
- Joseph Valacich and Christoph Schneider, "Information Systems Today - Managing in the Digital World", fourth edition. Prentice-Hall, 2010, p.34.
- Kenneth C. Laudon, Jane P. Laudon, "Management Information Systems Managing the Digital Firm", 12th Edition, 2014, p. 15.
- Kırım, Arman, Yeni Dünya'da Strateji ve Yönetimi, Sistem Publishing, İstanbul, 2009, p. 67.
- Parikh, V., Advantages and Disadvantages of Mergers and Acquisitions, letslearnfinance, 2016, p.1.
- Renaud, R., Why do companies merge with or acquire other companies?, investopedia, 2017, p. 2.
- Thach, L. and Nyman, M. (2015), "Leading in limbo land: the role of a leader during merger and acquisition transition", *Leadership & Organizational Development Journal*, Vol. 22 No. 4, p. 146.
- T. Koçel, İşletme Yöneticiliği, Arıkan Issue, İstanbul, 2015, p.325.
- Uçanok, B., Bakanay, H. ve Milli, E. (2014), Satın Alma ve Şirket Birleşmeleri Sürecinde, İç İletişim ve Örgütsel Bağlılığın, Kişi-Kurum Uyumunu ve Kültür Çatışması Üzerindeki Etkileri, *Marmara Communication Magazine*, p. 233.
- Ü.Tekinalp, R.Poroy, E.Çamoglu, Ortaklıklar ve Kooperatif Hukuku, Arıkan Publishing, İstanbul, 2010, p.141.
- Webster, F., "The Information Society: Conceptions and Critique" *Encyclopedia of Library and Information Science*, Volume 58, No 21, 2009, p.74.