

The Impacts of Business Process Re-Engineering and Benchmarking on the Firm Performance

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As a result of the global increase in competitiveness, the changes in the methods of competition and worsening conditions in the competitive world, the idea of whether to change or not is not questioned any more. Instead, nowadays, how fast and efficient the change must be is the question itself. Economists and theorists have developed several approaches and management techniques to ensure that change can be fast and successful. Within the scope of this thesis, the ways mid-level and senior managers' approach to modern management methods are evaluated. Moreover, their opinions about the effects of these methods on the performance of the firms are evaluated. Based on the literature review, examples clarifying the qualities of management methods, application processes in Business Process Reengineering and Benchmarking have been examined. A comprehensive survey consisting of 93 questions has been tailored in the light of the information gathered from the resources and using the valid scales in the literature. The survey has been conducted on 168 mid-level and senior managers working in 27 small, medium and large-sized firms operating in different sectors and the impacts of these methods on the performance of the firms have been researched. The findings reveal that managers think the firms are able to make a profit, increase equity capital and productivity by using modern management methods.

Key Words: Change, business process reengineering, benchmarking

Introduction

By the beginning of the 1900s; the change was a quite limited and slow, infrequent phenomenon that faced great challenges. Social changes accelerated and started to be frequently experienced in the new period that started with the development of business management. The changes are faster each day with the development of the intellectual culture and technology. The business world has become smoother and more complex as a result of this rapid change. The main purpose of all activities put forth by enterprises is to make their competitors accept their superiority and maximize their profitability in the market they exist. Today, it is necessary to resort to many modern management techniques and use these techniques in order to ensure this and then make it sustainable. The opinions of business managers on these modern management techniques were measured and it was tried to determine the point that our country exists in terms of such studies as a result of both the literature review and survey study conducted regarding these modern management techniques to which many business managers are acquainted with hearsay information.


Reengineering

Although the concept reengineering has many definitions, it is necessary to mention first the inventors of this concept Michael Hammer and James Champy

in this sense. According to Hammer and Champy (1998, 29), reengineering means to "reconsider the business processes to its foundations and redesign it radically in order to make striking changes to the most important performance measures of our age such as cost, quality, service and speed." Reengineering is not to fix the already made or leave the basic structure the same by making limited improvements and changes. The change means to apply the engineering, get rid of the old systems and start anew. Everything is returned to the starting point with this management technique and it is tried to discover the ways of doing work better (Hammer and Champy 1998).

While according to Aktan (1999, 2), "The business management approach that is defined as reengineering, in which all business processes, business culture, human resource and communication technology go through transformation, is to redesign and ensure the application of business management processes that are ongoing for years and the business and methods realizing these processes with radical thoughts."

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Activities that previously differed from one another with a functional division of labor and specialization are combined with re-engineering. It can be said that the search for finding the solution to certain design problems resulting from scientific management principles underlies this combination; furthermore information technologies are mostly consulted to in the combination of the processes (Güleş and Burgess 2000, 108).

Business processes have received ample attention for more than a decade. Many approaches and models have been proposed, but the spectacular results that the reengineering revolution vowed were never fully realized (Vergidis, 2008, 1). Reengineering has been touted as a magical elixir that empowers managers to free themselves from existing constraints, to "think out of the box" and to achieve various significant benefits as high firm performance and employee satisfaction. Thousands of firms around the world have begun reengineering projects (Davenport and Stoddart, 1994). As Yu and Mylopoulos (1994) stated that "one step towards a more systematic approach to the design of business processes is to develop models that provide appropriate representations of the knowledge that is needed for understanding and for reasoning about business process."

Different emphasis on the definition of BPR and the many outcomes possible with BPR (O'Neill and Sohal, 1999). BPR is a strategic action and requires a clear understanding of customers, market, industry and competitive directions (Attaran, 2004). "The reengineering process leads to the representation of an existing method in a modular fashion i.e. as a set of reusable method chunks, easy to retrieve and to assemble one the others". (Ralyté and Rolland, 2001). In all too many companies, reengineering has been simultaneously a great success and a great failure. After months, even years, of a careful redesign, these companies achieve dramatic improvements in individual processes only to watch overall results decline (Hall et al ,1994).

According to Güler (2010, 148), enterprises that need re-engineering practices expect a three-dimensional gain as a result of these practices. These expectations are strategic gains, gains in the markets that the business is active and to be newly penetrated and the gains to be obtained during the production stage. Enterprises may easily achieve the information on what kind of change they must go through by analyzing their existing processes well, however they can obtain the information on whether they can reach the performance they expect as the end of a redesigned process by directly observing beyond a good guess. Hussey (1998) thinks that the answers to certain problems must be found for a successful change project. Some of these questions are as follows: When an enterprise is about to make a decision of change; the reasons and targets of this change, its effects on the customers both inside and

outside the enterprise, what the interventions and resistances that can be encountered during the process are or whether there is the possibility of resistance, the risks that can be brought about by change, whether qualified/unqualified labour force that can cope with this new situation exists, whether the practices to be carried out for a change can be controlled by the managerial control system of the practices, what the dynamics of the existing organization culture are and whether these dynamics will prevent the change from being successful (Pira and Kocabaş 2003, 90).

The possibility of resistance against change may be a serious problem for an organization that is planning to start the activity of change. If such subjects as supporting the personal development of the employees, valuing the employees, ensuring stability in working order, and announcing the changes within the enterprise to the employees are not applied, the success rate of the change may drop significantly (Aksu 2000, 46). Naturally, it cannot be claimed that re-engineering works will be successful at all times and under all conditions. From a broad perspective; internal factors such as the culture of the organization, the opinion of the enterprise owners and managers regarding the concept of change and attitudes and behaviours of the employees about change, and external factors such as the economic, political and socio-cultural situation and competitive conditions of a global or local market or country directly affect the success of these studies.

Benchmarking

Benchmarking, which can be simplified as "comparing with someone else" or "learning from someone else" is not a concept that is peculiar to the business world. As an individual, everyone compares their work, job, achievements with the similar ones in the same area and tries to measure the value of his work/job and determine its deficiencies or surplus, positive or negative aspects.

Enterprises that want to dominate the business circle they exist or adapt to its conditions must obtain information about this environment; otherwise, they may face unexpected difficulties (Halis 2001, 54). In terms of the business world, we see that the subject benchmarking is broadly handled in the literary literature.

For example, according to Çatı et al. (2007, 147) is accepted as "modeling of leader enterprise by another enterprise, comparing it with its own operation processes, determining its deficiencies and taking the necessary precautions."

Writers named Freytag and Hollensen define benchmarking as "a management technique that is used for measuring the strategies and performance of the enterprises by comparing them to the best of their class both within and outside the enterprise (Erdem 2006, 68)."

Through benchmarking, enterprises get out of their own shells, understand the developments, new practices and changes occurring in their external environment and examine adapting these to their own organization using scientific methods. Acting independently from the external environment, believing that he does it best or looking down on others and not being open to mutual communication are factors limiting the development of the enterprises (Saraç 2005, 55).

If the principal technique of benchmarking, observation is performed well, losses that occur due to competition may be reduced. The enterprise should prefer creating objectives using the information obtained from the external environment that is deemed more efficient and rational rather than analyzing the performance of the previous years and creating future targets. Furthermore, the employees will also be more motivated in achieving the objectives and targets with the information from the external environment. Moreover, the source of this motivation is to eliminate uncertainties by the achievement of the objectives and targets by another organization (Halis 2001, 54).

Enterprise managers who give up hope of improvement works start to ask questions such as “who does it better?”, “how does she do it?” and seek the answers to these questions (Yaman 2003, 3).

Best practices and technologies in the internal and external environment are provided to the enterprise through well-planned and managed benchmarking studies, whereby productivity and quality of products or services are increased and consequently fulfilling the wishes and expectations of the customers better and achieving a high position in the competition environment. It can be said that the definitions of benchmarking made so far have the following mutual points. Benchmarking is

- “A constant improvement process,

- Learning from others,
- Adapting the things learned to one’s own institutions,
- Taking precautions in order to fulfill the wishes and expectations of the customers and fulfill their future expectations,
- Ensure leadership and permanent competition advantage in the market” (Saraç 2005, 59).

While benchmarking has advantages, it may also have certain disadvantages in case it is applied wrongly or deficiently and we can list these disadvantages as follows (Çatı et al. 2007, 157);

- “Benchmarking may create the danger of allocating more time to the presentation of better-operating products and processes than necessary.”
- Entering wrong information to benchmarking may be in question as a result of the strategic partner’s wish to look better than it actually is.
- The benchmarking company should be careful about the time allocated to the presentation of biased information and study beyond its scope.” According to Pekdemir (2000, 36), the process in benchmarking practices consists of the following processes:
 - “Determination of the benchmarking subject
 - Creation of the benchmarking team
 - Determination of the benchmarking partner
 - Collection and analysis of the data
 - Determination of the targets and preparation of the implementation plan
 - Implementation and evaluation”.

Relationship between Reengineering and Benchmarking

The main qualities that separate these two management techniques are as in the table below (Kocakahyaoglu 2008, 95):

Table.1. Comparison of Benchmarking-Reengineering Methods

	Benchmarking	Reengineering
Model	Another institution	Defined in the organization
Basic element	Process	Process
Result	Developed process	Restructured process
How	Teamwork	Teamwork
Purpose	Process improvement	Reconstruction of the process
Target	To do better than others	Exhibit striking development

Position of Benchmarking Technique in the Process of Re-engineering

As distinct from other techniques, benchmarking technique does not lead the enterprise directly to the application situation. The characteristic aimed with the re-engineering process input forth using the information obtained with this technique. Benchmarking is a practical application in that the enterprise de-

fines its new processes while at the same time looking at the applications of others and making comparisons with them. The design process of re-engineering works shortens and a triggering role is undertaken in finding new ideas (Yalınz 2006, 35). Benefiting from the benchmarking technique is quite important in a re-engineering process that aims success. It is aimed to realize a leap in the enterprise with benchmarking that is deemed as one of the most important tools of reengineering (Kaygısız 2005).

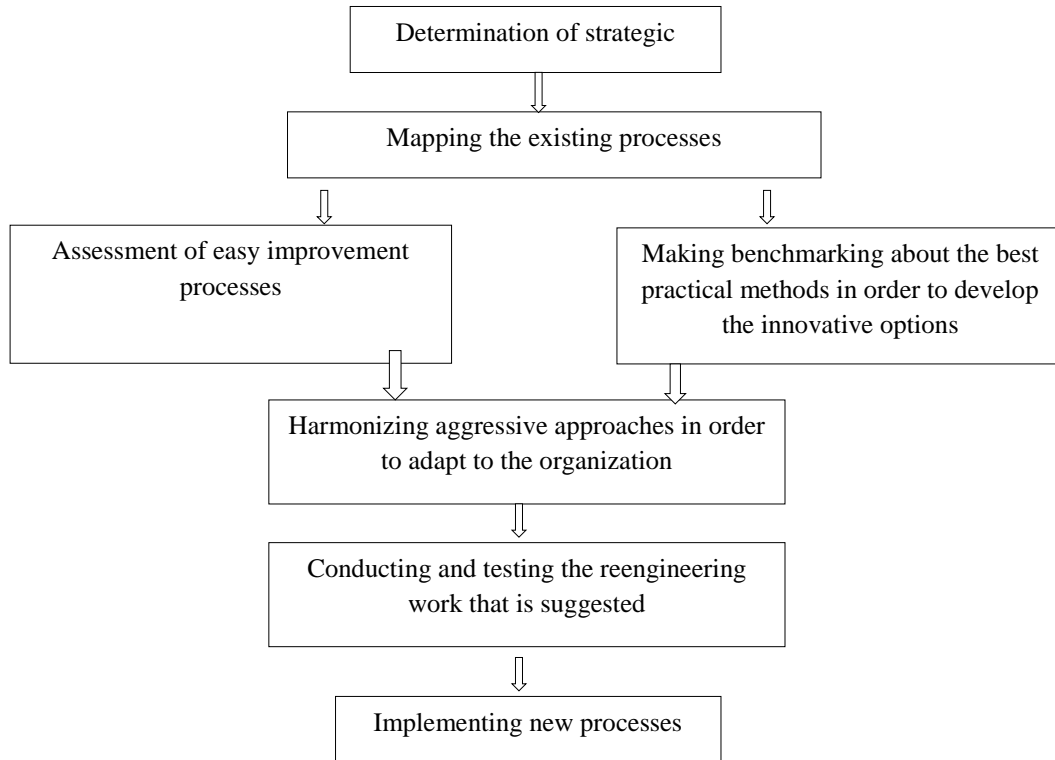


Figure 1. Process Flow Methodology for Restructuring.

Deficits in the classification of the processes are among the factors that negatively affect the development of benchmarking. In other words, benchmarking studies will be carried out more accurately and rapidly in case the classification of similar processes is the same in all enterprises. And in re-engineering, there will definitely be differences in processes even if two enterprises are very similar and thus, the processes should be restructured. Software developed in order to analyze the processes is converged day-by-day and it leads to the globalization of the database related to these processes. With this development, the frequency of applying to the re-engineering technique will increase even more with the further maturation of the concept enterprise in the future. The necessity to collect relevant data, make comparisons and tend towards a better way will appear on the basis of this performance improvement philosophy, so-called benchmarking (Berber 1998, 97).

A Research on the Use of Reengineering and Benchmarking Techniques in Enterprises

Research Method

With this survey applied to middle and senior managers in businesses of all sizes, it is aimed to determine the effects of Reengineering and Benchmarking on company performance if they are applied. In the research in which enterprises of various sizes from Istanbul and its vicinity are chosen as the target group, on-site visits to business managers were paid

first, however the expected level of positive outcomes could not be obtained in terms of applying the survey as a result of their workload. Thus, survey questions were sent them via e-mail by loading to a web link in order to both enable them to fill them in during their free time after work and to reach more managers. As the target group of the research consists of middle and senior level managers in decision-maker positions in enterprises, the completion of the surveys took a longer time than foreseen and the research part constituted a large portion of the research.

The survey form used in the research consists of four parts. In the first part; the interviewees were asked about the profile of the company where they worked and which of the management techniques they knew and implemented, their level of agreement with the expressions consisting of positive or negative judgements on re-engineering and benchmarking techniques were taken in the second part, they were asked to answer regarding certain expressions for measuring the financial and growth performances of enterprises in the third part, and their personal information was taken in the fourth and last part.

Scales Used

As a result of the comprehensive scale review made in the literature in order to determine the scale of the survey to be used in the research, techniques were included in the research using five different scales

for three main subject titles, which are modern management skills, re-engineering and benchmarking.

A tool designed by Özgür (2011) was used for the modern management techniques which are the first variable in order to determine the familiarity and utilization rate of these techniques. The interviewees were asked familiarity and usage questions about each technique and they were asked to answer the questions with yes or no. In the second variable, 7-point Likert attitude scale was used for the perception of the interviewees on re-engineering technique designed by Dağcı (2004). In this scale; (1) represents the option I totally disagree, (2) I mostly disagree, (3) I partially disagree, (4) I neither agree nor disagree, (5) I partially agree, (6) I mostly agree and (7) represents the option I totally agree. The scales of Kocakahyaoglu (2008) and Dokuzer (2006) consisting of 45 expressions in total in 3 questions that also include re-engineering questions in addition to benchmarking, which is the third variable, were used and it was asked to use the options (1) I totally disagree, (2) I mostly disagree, (3) I partially disagree, (4) I neither agree nor disagree, (5) I partially agree, (6) I mostly agree and (7) I totally agree with 7-point Likert attitude scale. The scale taken from Altındağ was used for company performance, which is the fourth variable, and the participants were asked a question consisting of 12 expressions in order to measure the performance of the companies. In this scale; (1) represents the option Very low, (4) Average and (7) Very high. The survey form generated was tested on 30 managers before the main research, and the main study was started in order to apply the survey to other managers after examining the structure, validity and reliability of the scales used. The aim of the research was explained to the participants in a clear and comprehensible manner in the introduction part of the study

and they were informed that the principle of confidentiality of information would be taken as a basis in order to conduct the research in accordance with scientific norms. It was clearly emphasized that the content of the survey will be kept confidential. Furthermore, attention was paid to prepare the questions in a simplicity that can be understood by everyone. Factor, correlation and regression analyzes were used in the assessment of the data in the research.

Research Hypotheses and the Model Created

Hypotheses developed for the research study are as follows:

H_A: There is a significant relationship with regard to the use of re-engineering and benchmarking techniques in enterprises and company performance.

H₁: The use of benchmarking in enterprises affects company performance directly and positively.

H₂: The use of re-engineering techniques by managers affects company performance directly and positively.

Analysis and Findings

168 managers from 6100 managers who were sent the survey via e-mail replied. SPSS 17.0 statistical software was used in the analysis of the data. The analyzes consist of the factor analysis, reliability analysis, producing correlation values showing the one-to-one relationship between variables that include the average and standard deviations of the variables, and regression analyzes.

The summary of the analysis results of demographical information of the managers participating in the research is shown in the table below:

Table.2. Descriptive Analysis Results on the Demographic Information of the Participants

Variables		Frequency	Valid % Rate
Years	23-29 ages	28	16,6
	30-39 ages	78	46,4
	40-49 ages	46	27,3
	50-59 ages	15	9,3
	60-65 ages	1	0,4
Gender	Female	59	35,1
	Male	109	64,9
Education Status	High School	1	0,6
	College	6	3,6
	University	94	56,0
	Master's	54	32,1
	Doctorate	13	7,7
Title/Status	Business Owner/Partner	17	10,1
	Senior executive	55	32,7
	Mid-level executive	96	57,1
Department	Information Systems	2	1,2
	Education &HR	62	36,9

	Corporate Communication & Public Relations	4	2,4
	Financial Affairs/Finance/Accounting	16	9,5
	Sales and Marketing	42	25,0
	Production and Planning	10	6,0
	Management	28	16,7
	Technical Support	4	2,4
Total Period of Working	3-5 years	23	13,7
	6-10 years	35	20,8
	11-15 years	41	24,4
	16-25 years	47	28,0
	25+ years	22	13,1
Years of Working In This Enterprise	1-5 years	98	58,3
	6-10 years	42	25,0
	11-15 years	16	9,5
	16-25 years	10	6,0
	25+ years	2	1,2
Size of The Enterprise Worked For	1-10 employees	10	6,0
	11-50 employees	29	17,3
	51-100 employees	13	7,7
	101-500 employees	51	30,4
	501-1.000 employees	19	11,3
	1.001-5.000 employees	31	18,5
	5.000+ employees	15	8,9
Company Type of The Enterprise Worked For	Joint Stock	117	69,6
	Limited	49	29,2
	Limited Partnership	2	1,2
Area of Activity Of The Enterprise	Regional	8	4,8
	National	142	25,0
	International	118	70,2

Reliability analysis ensures that the scale used in the research model to be free from random errors. Although scales used in this model are taken from previously realized scientific studies, validity and reliability analyses of the scale have an important place in the context of our research. Reliability comes from the internal consistency of the measurement that assesses the average relation between the questions in a variable. In the reliability analysis carried out on the research scale through SPSS data analysis

program, Cronbach's Alpha value of the research scale consisting of 69 questions in total was determined as 0,950. The Alpha value which was determined to be well above 700, the threshold value, in the researchers scientifically shows and proves that this research scale does not carry a vague structure and is clearly and explicitly understood by the participants of the research. Thus, no kind of harm was seen in the transition to the factor analysis to be carried out in the following step.

Table.3. Cronbach's Alpha Values

Variables	Number of Questions	Cronbach's Alpha Values
Benchmarking Activities	12	0,936
Reengineering	11	0,820
Re-engineering and Benchmarking Mutual Practices	20	0,930
Positive and Negative Aspects of Reengineering and Benchmarking	14	0,831
Performance	12	0,943

As can be seen in Table .X, reliability analysis values of each factor separately clearly put forth that the participants in the research understood the questions explicitly and see no inconsistency between the expressions when answering.

Factor Analysis

The researchers want to put forth whether there is an order between the reactions of the participants of the research to each item in the measurement tool. Factor analysis, which was initially used to recognize psychological dimensions and obtain information regarding the content of the dimensions are among

the multi-variable analysis techniques. This type of analysis combines and groups mid-level or highly associated variables. Thus, it can be possible to reduce many variables to a few groups or dimensions. And factor is the name of any of these dimensions or groups (Karabuğa, 2010). As a result of the analysis, it was determined that some of the top factors are single factors as expected while some are divided into a few subfactors. Kaiser-Meyer-Olkin (KMO) validity values, which most sharply measure the validity of the sample in this kind of factor analysis, are shown in Table .20.

Table.4. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Sample measurement	0,906
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Benchmarking Activities, which are used in the scale and among the basic research assumptions, was determined as a single factor as expected before. In other words, it was determined that the managers who filled in the survey perceived all of these questions under a single subject title and the validity value of 0,906 put this forth clearly. The validity value of which Kaiser-Meyer-Olkin (KMO) value, which is the value that measures the validity of the sample most sharply, was determined as **0,906** can be qualified as perfect when taking this criterion as a basis as seen in Table .20.

Table.5 Benchmarking Factor Loads

Expression	Variable
	1
Meeting the customer's demand quickly and flexibly/Ensuring customer satisfaction	0,741
Improving business processes (workflow)	0,776
Short and mid-term business plans	0,753
Improving product and service quality	0,815
Sales and after sales services	0,861
Human resources management	0,682
Costs, pricing and other accounting and financing processes	0,781
Reliability of the enterprise	0,744
Increasing the knowledge-skill levels of the employees	0,828
Increasing the motivation of the employees	0,814
Finding a new market	0,699
Use of technology	0,751

Another scale, Reengineering, was divided into two subfactors being the Features of Reengineering (Core) and the Perception of Reengineering. It is estimated that especially the Reengineering Perception factor has a structure that would directly affect both the growth and financial performance of the enterprise in this master's thesis as it includes the activities of the enterprises to start over from scratch by turning over a new leaf and renew all their business processes from top to bottom.

Table.6. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Sample measurement	0,832
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As can also be seen in the table above (Table .23), the Kaiser-Meyer Olkin (KMO) value of this factor is 0,832 and it can be accepted as a good validity value.

Table.24. Rotated Variable Matrix

Expression	Variable	
	1	2
Reengineering is to put aside all rules and applications of the past.		0,841
It is to recreate the company.		0,843
It means to start everything anew.		0,839
In certain circumstances, reengineering leads to the recreation of the structure and main strategies of the identity, product and services of the institution.	0,800	
It provides for quick and rooted changes in the processes.	0,677	
It is obligatory for re-engineering to be managed by the top senior managers in order for it to be successful.	0,725	
The two main organizational problems in reengineering practices are the resistance shown against change and technological limitations.	0,717	
It ensures that the work is carried out in the most logical place in organizations.	0,762	
It ensures that the structures of the organizations change from hierarchy towards simplicity.	0,771	
It includes invention, discovery, creativity and synthesis.	0,720	

Re-engineering and Benchmarking Mutual Practices, which is another scale, was divided into three subfactors being the Perceptions regarding Reengineering and Benchmarking Practices, Success Criteria in Benchmarking Practices and Structural Rules of Reengineering. Reengineering aims a rooted change in the whole system rather than improving the existing structure, and thus it can determine the success criteria and pave the way for an efficient organization structure by determining the success criteria in the business applications of competitive

companies. For all these reasons, it is understood that all three subfactors support one another in harmony.

Table.7. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Sample measurement	0,916
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It can be expressed that these three subfactors are clearly supported by the 0,916 validity value indicated in Table.25.

Table.8. Rotated Variable Matrix

Expression	Variable		
	1	2	3
Reengineering aims a rooted change rather than developing the system			0,742
Works in reengineering practices should be combined as a single work and the decisions should be taken at the point where the work is performed			0,732
One of the most important common features of the processes to which reengineering is applied is the removal of standardization			0,764
In reengineering practices, general control mechanisms should be used rather than instant control mechanisms that do not create economic value			0,697
The advantages of centralization are also benefited from by ensuring intra-enterprise flexibility and coordination with the help of information technologies in reengineering practices	0,633		
The first stage of reengineering practices is to clearly and explicitly determine the objectives	0,822		
The most important reason for the resistance against reengineering is insufficient informing and the fear of job loss	0,806		
The main duty of the leader in re-engineering is to create vision and motivate the employees	0,811		
In reengineering, the authority must be transferred to the employees and constant education programs should be applied.	0,710		
The most important factor that will lead re-engineering to success if to investigate work processes	0,806		
Benchmarking is a process used by the enterprises to achieve their targets in change practices	0,693		
Benchmarking should not be considered only in a process-oriented manner; it is possible to implement it in many areas just like the processes	0,740		
Benchmarking gives the opportunity to measure the position of the enterprise in the sector	0,624		
In a benchmarking practice that concentrates on imitation, there is only the opportunity to become a benchmarking partner		0,642	
The emergence of new ideas is easier in enterprises applying benchmarking		0,710	
The main objective of benchmarking is to reveal the products and business processes that will create competitive advantage		0,789	
The choice of partner is the most important success factor in benchmarking practices		0,520	
The support of the senior management is more important than informing the employees in order to lead benchmarking practices to success		0,537	
The aim of benchmarking is not to take lesson in the first place but to create a constant learning opportunity for high performance and success	0,668	0,566	

The other scale, which is the more detailed structured form of reengineering, are divided into three subfactors as the Modern Management Techniques Applied in the Enterprise, Positive Aspects of Reengineering and Benchmarking Practices, and Negative Aspects of Reengineering and Benchmarking Practices. The main objective of these three subscales that include all variables regarding reengineering is to ensure revealing how much this technique is known by managers and reveal the positive and negative aspects in the practice.

Table.10. Rotated Variable Matrix

Expression	Variable		
	1	2	3
Process management is applied in our company	0,851		
The work process development activities in our company are carried out by the personnel who are directly engaged in the processes	0,805		
The company's targets are known by all management level and employees	0,771		
On-site management style is dominantly applied in our company	0,664		
Information exchange is made in our company in order to make a comparison with similar enterprises	0,613		
The application of reengineering is time-consuming, expensive and it remains in theory			0,745
The application of the benchmarking process in enterprises that have decided on change provides advantage to the enterprise		0,771	
The application of benchmarking in reengineering provides both time and new ideas when achieving the target		0,762	
I definitely support the reengineering practice if it is required in our enterprise		0,726	
Benchmarking can be mostly used for improvement and development, it cannot provide a radical growth for the enterprise			0,748
One of the reasons for the companies to refrain from benchmarking is the "we used to be" syndrome, i.e. the way of thinking of "we are the best" broke grounds"		0,645	
Through benchmarking, it is possible to obtain data without making investment on research, development and innovation by providing the opportunity to learn quickly many things that were previously learned		0,552	
The most important reason for the failure in benchmarking applications is that benchmarking is regarded as copying		0,615	
Transfer of funds to R&D departments will yield more beneficial results than applying benchmarking			0,746

All of the factors used up to this stage are in the status of independent variable and company performance was taken as the dependent variable it affects. The performance scale is also divided into two as quantitative (financial) and qualitative (growth).

Table.11. KMO and Bartlett's

Kaiser-Meyer-Olkin Sample measurement	0,930
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Table.9. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Sample measurement	0,800
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The main indicator showing that this basic aim is achieved can be accepted as the Kaiser-Meyer-Olkin (KMO) validity value of 0,800 indicated in Table.27.

Table.29, which is divided into two subfactors and of which Kaiser-Meyer-Olkin (KMO) value is 0,930, scientifically shows that the performance scale can be understood well by the participants of the research with this validity value that is close to perfection.

Table.12. Rotated Variable Matrix

Expression	Variable	
	1	2
Your average net profitability when compared to your equity	0,884	
Your average net profitability before tax	0,901	
Net income you obtain with your basic activities	0,830	
Financial success of the new products you has launched in the market	0,549	0,639
Your general level of success in financial terms	0,687	0,511
Annual average increase in your sales		0,712
Increase in the number of new products you have launched in the market		0,728
Increase in your market share when compared to your leading competitors		0,807
Increase in the number of your employees		0,691
Increase in the number of your new customers		0,750
Your position in the competition environment in the market in general		0,686
Your general level of profitability	0,810	

Correlation Analysis

It can be said that there is a correlation if the value of another variable linearly changes while the value of a variable change (Şehirli, 2013).

Correlation analysis is a statistical method used in order to test the relationship of a variable with two or more variables and to measure the level of this relationship if any. This analysis aims to see what way the dependent variable (Y) will change when the independent variable (X) changes. In order for the analysis to be carried out, both variables must be continuous and exhibit a normal distribution. Whether there is a linear relationship and, if any, the degree of this relationship as a result of correlation analysis is calculated with correlation coefficient. The correlation coefficient is shown with "r" and it takes values between -1 and +1 (Doymuş, 2009).

It is assumed that there is no relationship between the variables included in the research in case this coefficient takes the value (0).

Upon looking at the correlation table in this research, various positive relations were found in case all subfactors included in the research are reciprocally considered with the performance subfactors. When we first take the financial performance as a basis, it was seen that the Modern Management Techniques, Positive Aspects of Reengineering and Benchmarking Practices, Negative Aspects of Reengineering and Benchmarking Practices factors are in a positively high relationship with financial performance.

In other words, it can be said that modern management techniques (Reengineering and Benchmarking) lead to a direct increase in the profitability, equity increase and efficiency of the enterprise in the light of this information.

The positive effect of Reengineering and Benchmarking Practices, which is another subdimension, on company performance is supported with a correlation rate of 0,258.

The negative effects of Reengineering and Benchmarking, the last subfactor, on the fact that

there is a positive correlation coefficient can be interpreted in two different ways.

Considering that the answers of the people filling in the survey are at a high level of reliability, it is revealed that the negative effects of the above-mentioned new generation practices will affect company performance.

That the answers to the questions are shallow as the operation of these practices are not yet fully known, may have changed the research parameters and expected values. This inference was made by the researchers who conducted the thesis with a positive coefficient while normally expecting a negative coefficient. It is necessary to strengthen future researches in order to clarify this situation. The academicians will be provided various suggestions in the conclusion part on this subject.

On the other hand, it is observed that there is a serious effect in the positive direction in the mutual relationship between the growth performance of the enterprise and the subfactors of Modern Management Techniques Used in the Enterprise and Positive Aspects of Reengineering and Benchmarking Practices. The correlation values of 0,361 and 0,321 show that there is a positive and mid-level relationship between the two variables. Again, when the effects of other factors on growth performance are investigated, it was observed that the title Benchmarking has an effect of 0,219. In this sense, an increase of 100 units in Benchmarking can be interpreted as ensuring an increase of 21,9% in growth performance.

When the correlation analysis table is examined generally, it is observed that the correlation values below 0,200 are significant. However, it especially refrained from interpreting its effects as there is quite a strong relationship. The reason for this is that the mutual interaction at significance levels below ,200 can often be misleading. For all these reasons, regression analysis in which independent variables are investigated and which is a more comprehensive analysis will be started after correlation analysis.

Table.13 Average, Standard Deviation Values and Correlation Coefficients of Top Factors

Variables	Avg.	S.D.	1	2	3	4	5	6	7	8	9	10	11
(1) Benchmarking Activities	5,73	1,00		0,310**	0,188*	0,379*	0,320**	0,226**	0,269**	0,223**	0,154*	0,182*	0,219**
(2) Reengineering Core Properties	5,13	1,04			0,150	0,811**	0,585**	0,469**	0,278**	0,551**	0,065	0,151	0,168*
(3) Reengineering Perception	3,47	1,43				-0,009	0,238**	0,516**	0,179*	0,003	0,336**	0,088	0,069
(4) Perceptions regarding Reengineering and Benchmarking Practices	5,60	1,02					0,672**	0,429**	0,323**	0,601**	0,044	0,160*	0,177*
(5) Success Criteria in Benchmarking Practices	5,08	1,02						0,490**	0,373**	0,564**	0,337**	0,176*	0,155*
(6) Structural Rules of Reengineering	4,39	1,19							0,272**	0,327**	0,331**	0,100	0,125
(7) Modern Management Techniques Applied in the Enterprise	5,23	1,19								0,478**	0,223**	0,231**	0,361**
(8) Positive Aspects of Reengineering and Benchmarking Practices	5,40	0,92									0,243**	0,258**	0,321**
(9) Negative Aspects of Reengineering and Benchmarking Practices	4,07	1,32										0,225**	0,191*
(10) Quantitative (Financial) Performance of the Enterprise	4,89	1,10											0,754**
(11) Qualitative (Growth) Performance of the Enterprise	4,99	1,08											

One-to-one relations between the components marked as ** was accepted $p < 0,01$, and those that are marked as * was accepted as statistically significant at the level of $p < 0,05$.

Regression Analysis

Two main regression analyses were carried out in the scope of the research. All independent variables were tested on the financial and growth performance separately. Considering the effects of independent variables on financial performance, it was observed that all variables that gained importance in correlation relationship overshadow one another and/or

those who filled in the survey led to confusion on answering perception. In addition, as is seen in Table.34., it was observed that Negative Aspects of Reengineering and Benchmarking Practices account for 11,9% of the changes on the coefficient 0,174 β and (Table .34.) on the financial performance which is a dependent variable (Table .33.). It is expected that the scale will have negative effects on the performance as it contains negative questions

Table.14. Summary of the Effect of All Variables on Financial Performance

Model	R	R ²	Corrected R ²	Estimated
1	0,345 ^a	0,119	0,069	1,06289

Table. 15 Coefficient of the Effect of All Variables on Financial Performance Model

Model		Non-standardized coefficients		Standardized Coefficients	T	Level of Significance
		B	Standard Error	Beta		
1	(Constant)	2,272	0,644		3,528	0,001
	Benchmarking Activities	0,107	0,092	0,097	1,158	0,249
	Reengineering Core Properties	0,026	0,144	0,025	0,183	0,855
	Reengineering Perception	0,036	0,076	0,047	0,471	0,638
	Perceptions towards Reengineering and Benchmarking Practices	0,038	0,172	0,036	0,223	0,824
	Success Criteria in Benchmarking Practices	-0,059	0,126	-0,055	-0,470	0,639
	Structural Rules of Reengineering	-0,081	0,097	-0,087	-0,832	0,407
	Modern Management Techniques Applied in the Enterprise	0,094	0,082	0,102	1,153	0,251
	Positive Aspects of Reengineering and Benchmarking Practices	0,203	0,129	0,169	1,572	0,118
	Negative Aspects of Reengineering and Benchmarking Practices	0,146	0,074	0,174	1,978	0,050

a. Dependent Variable: Quantitative (Financial) Performance of the Enterprise

As a result of testing all of the independent variables in the research on growth performance, which is another dependent variable, Modern Management Techniques Applied in the Enterprise and Positive Aspects of Reengineering and Benchmarking Practices had an effect. As the questions used for both of these two scales are positively correlated, the growth performance of the companies is affected positively (0,248). At this stage, what stands out is that the Negative Aspects of Reengineering and Benchmarking Practices which were found as significant in the

previous analysis are also overshadowed by other factors (0,223). It is proof that the financial and growth performance of the enterprise can be affected at different levels by different variables although there is proof showing that actually the subfactors of the scales used for company performance sharply differ from one another and are different. The details of this information can be seen in Table.35. and Table.36.

Table.16 Summary of the Effect of All Variables on Growth Performance Model

Model	R	R ²	Corrected R ²	Estimated
1	0,436 ^a	0,190	0,144	1,00036

Table.17. Coefficient of the Effect of All Variables on Growth Performance Model

Model	Nonstandardized coefficients		Standardized coefficients	T	Level of Significance	
	B	Standard Error	Beta			
1	(Constant)	1,959	0,606		3,232	0,001
	Benchmarking Activities	0,140	0,087	0,130	1,610	0,109
	Reengineering Core Properties	0,032	0,136	0,030	0,234	0,815
	Reengineering Perception	0,002	0,072	0,003	0,034	0,973
	Perceptions towards Reengineering and Benchmarking Practices	-0,009	0,162	-0,008	-0,053	0,958
	Success Criteria in Benchmarking Practices	-0,154	0,119	-0,145	-1,296	0,197
	Structural Rules of Reengineering	-0,022	0,091	-0,024	-0,240	0,811
	Modern Management Techniques Applied in the Enterprise	0,225	0,077	0,248	2,930	0,004
	Positive Aspects of Reengineering and Benchmarking Practices	0,263	0,122	0,223	2,155	0,033
	Negative Aspects of Reengineering and Benchmarking Practices	0,095	0,069	0,116	1,367	0,174

a. Dependent Variable: Qualitative (Growth) Performance of the Enterprise

In the following stage, the number of independent variables included in regression analysis was reduced in order to eliminate the shadowing effect and the statistical study was continued. In this context, two subfactors of Benchmarking and Reengineering were included in the analysis. As a result of this analysis, the other two components of Benchmarking were markedly overshadowed. Its effect on growth performance is observed especially with the β coefficient of 0,182 and the R^2 value of 5,9%. No

kind of effect of the benchmarking factor on financial performance was encountered (Tables 37 & 38.).

If this analysis is to be interpreted in terms of the managers, it can be said that the Benchmarking technique, which is both more widely known and is structurally easier to implement, is preferred when the Benchmarking technique and Reengineering technique are to be compared. From another perspective, the more widespread use of the Benchmarking technique can also be attributed to traditional factors.

Table.18 Research Hypotheses Acceptance Table

Independent Variables	Company Performance	
	Hypothesis	Result
There is a significant relationship between the use of reengineering and benchmarking techniques in enterprises and company performance.	H _A	Partially Supported
The use of the benchmarking in enterprises affects company performance directly and positively.	H ₁	Not supported
The use of re-engineering by managers affects company performance directly and positively.	H ₂	Not supported

Conclusion and Suggestions

As the competitive conditions in world markets changed and gradually became harder, the enterprises tended towards modern management techniques that will stand them out from their competitors and help them get a competitive advantage in their market. Two management techniques, namely Reengineering and Benchmarking, have been examined in this study and the effects of these techniques on the performance of the enterprise have been investigated.

The basic feature that differentiates these two concepts from one another, of which foundations are

mainly based on change for one and comparison for the other, is the way we accept them. Our points-of-view towards benchmarking and change, with the fact that they have always existed from the first times that human beings existed even only with primitive methods based on observation, are different. While change is accepted as a gray area that has always been approached with suspicion from the past to present and in which some of us do not feel comfortable in, we can accept benchmarking as an act that we sometimes do not even realize when we do.

The point-of-view of the enterprises towards reengineering that took over this heritage from the concept

change is not much different from yesterday. However, the hard competitive conditions that we mention now force the enterprises to answer the questions why they do the work they do, how can they do the work more quickly and cheaply. One of the most important reasons for this cautious approach is that re-engineering expects the change it demands to be radical, unusual and quick.

One of the best techniques that can be used in fulfilling these demands of reengineering is benchmarking. This concept that can be defined as learning from others is also the pre-acceptance that some people can carry out better practices than others. In order to be able to eliminate the insecure stance put forth at the first moment, the organization may have to learn that their competitors do better practices by changing from them, and this can also be possible through benchmarking. The enterprises that make benchmarking studies permanent may develop their skills in the subjects of being open to new ideas and adapting to new practices in a short time. If necessary, the first practices can be carried out within the units in the company as a result of the doubt that privacy principles that make enterprises step back about benchmarking works. Such a start will be a good pre-study on learning the particulars of this technique.

Another important aspect of the benchmarking technique is to ensure that the resources of the enterprise will be used in a correct way with the use of this technique. In this case, the enterprise can produce products or services that fit the expectations of the customers with the resources saved.

On account of the fact that these attitudes, benchmarking technique that our enterprises can perceive as industrial spying or information copying is approached suspiciously.

Many researches carried out around Turkey show that companies in our country do not attach enough information on benchmarking studies. This attitude of even the world's biggest companies that are active in the international area and have affiliates in many countries of the world shows that this technique is not yet sufficiently assessed in the enterprises of our country or accepted by them.

In previous periods, benchmarking database studies have been carried out in our nation, even in a limited manner. If private sector enterprises and NGOs cannot be sufficient in making the participation in these projects that do not constitute continuity to become encouraging, this activity must be turned into an activity that has continuity by turning into a project by decision-maker public institutions.

Summary of the Findings

Sixty nine (69) variables in total that were included in reliability analysis were assessed using SPSS 17 program and the reliability value (Cronbach's Alpha) was found as 0,950. As this value is well above

the threshold that is known, other techniques used in the experimental research (factor analysis, correlation, regression) were applied without giving rise to any suspicion and statistically extremely safe and valid results were obtained. Kaiser-Meyer-Olkin (KMO) values that measure the validity of the sample clearly were determined to be between 0,800 and 0,930. These data that came in sight show that the validity values of the study are at perfect level. When a whole correlation table is investigated, it is seen that the hypotheses developed before starting the research are valid. The data collection process of the research part was carried out with mid and senior-level managers of the enterprises that are active in Istanbul. The managers that were chosen as the target group were asked to make face-to-face interviews at the beginning of the study, however doubts as to whether the research can be completed at the targeted time as a result of such reasons as the inability to find the time that they are available for making interviews and difficulties in transportation. Then surveys were filled in on-line through survey links that are sent via e-mails that can be accepted as the faster way of data collection. Furthermore, a more homogenous sample group can help this study to achieve more general results in case the study is carried out in larger geographical areas.

Analyzes conducted in the study are based on the survey data taken from 168 mid-level and senior level managers of the enterprises that are active in 27 different sectors; on the other hand, a wider sample group can yield more accurate results. A survey of 5 pages consisting of 93 questions in total was prepared with scales used on condition of remaining loyal to the original survey. This question number that can be deemed long for a survey may have led to such negative situations such as distracting the participants of the survey in certain parts, reducing their concentration and consequently, randomly marking the questions after a certain point. Thus, that the scales to be used in future researches to be more simple and clear will make the data collection process faster and more reliable. That certain subfactor used in this master's thesis on the measurement of the effect of modern management techniques on the financial and growth performance of the enterprise show a high correlation with one another may lead to multiple linear relations. Thus, it is seen that the researchers to conduct studies in this field in the future choose scales that do not include their subdimensions or do not have multiple linearity relationships in the use of scales will be quite beneficial.

Lastly, although it can be regarded as a small country model with its population structure and density and economic structure, more stable results can be obtained by extending this research conducted in Istanbul to the whole country in the future. Moreover, conducting such researches periodically will help verify data of the previous period or correcting deficits or errors. The academicians working

on the subject can be advised to conducts studies on the integration of modern management techniques with one another and whether a holistic system approach can exist as a new subject in future researches.

Suggestions for the Managers

Although modern management techniques applied in the enterprises do not leave a positive effect on performance, at first, it is indispensable to apply in order to protect the structural integrity and core competitive advantage of the company in the long term. Hence, it is adopted that modern management techniques, and especially re-engineering and benchmarking techniques, must be adopted and implemented by the top management and the board of directors in an organization with qualified employees. That all independent variables were included in the analysis in multiple causality relationships brought about many shadowing. However, different levels of correlation were determined among all variables in the correlation analysis investigating one-to-one relations. It is clearly understood that the companies in Turkey can increase their performance by applying modern management approaches one-by-one and not all together. The senior management is obliged to choose and implement the best approach or approaches among these current methods.

According to research results, another suggestion for the managers is to inform all employees before starting re-engineering applications and tell them that restructuring will bring about order and not chaos. A finding of the research is that mid-level and senior level managers participating in the survey see a linear relationship between benchmarking studies and the growth performance of the enterprise. These results show that the benchmarking activity, which is more customary and traditional among other management techniques, must be gained to the enterprise life by supporting with modern strategy and techniques.

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