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Will Innovation management and re-engineering positively affect sustainability and performance? Research in energy companies

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ABSTRACT Failure in reengineering or innovation management will not only decrease the performance of the organization but also endanger its sustainability. **Objective.** To carry out a study on energy companies to investigate the importance of the subject. **Methodology.** The reason energy companies are selected for the research is that innovation and change come to the fore with the need for new energy sources. LISREL, SPSS 25 and SPSS PROCESS V.3 were used in the analyses. **Results.** As a result of the research, it can be said that innovation management in energy companies has a positive impact on both sustainability and performance. At the same time, both the independent and the mediation variable effect of reengineering is positive. **Conclusions.** Innovation and change are inevitable and can be explained as a result of research where positive results can be achieved if properly managed.

KEY WORDS Innovation management, re-engineering, sustainability, financial and growth performance.

¿Influyen positivamente la gestión de la innovación y la reingeniería en la sostenibilidad y el rendimiento? Investigación en empresas energéticas

RESUMEN El fracaso en la gestión de la reingeniería o de la innovación no solo disminuye el rendimiento de la organización, sino que también pone en peligro su sostenibilidad. **Objetivo.** Realizar una investigación en empresas energéticas para indagar sobre la importancia de este tema. **Metodología.** La razón por la cual se seleccionan las empresas energéticas para investigación es que la innovación y el cambio pasan a un primer plano con la necesidad de nuevas fuentes de energía. En los análisis se utilizaron LISREL, SPSS 25 y SPSS PROCESS V.3. **Resultados.** Como resultado de la investigación se puede afirmar que la gestión de la innovación en las empresas energéticas tiene un impacto positivo tanto en la sostenibilidad como en el rendimiento. Al mismo tiempo, tanto el efecto de la variable independiente como el de la mediación de la reingeniería son positivos. **Conclusiones.** La innovación y el cambio son inevitables y pueden explicarse como resultado de la investigación en la que se pueden lograr resultados positivos si se gestionan adecuadamente.

PALABRAS CLAVE gestión de la innovación, reingeniería, sostenibilidad, rendimiento financiero y crecimiento.

A gestão da inovação e a reengenharia influenciam positivamente a sustentabilidade e o desempenho? Pesquisa em empresas de energia

RESUMO A falha em gerenciar a reengenharia ou a inovação não apenas diminui o desempenho da organização, mas também compromete sua sustentabilidade. **Objetivo.** Realizar pesquisas em empresas de energia para investigar a importância deste tema. **Metodologia.** A razão pela qual as empresas de energia são selecionadas para pesquisa é que a inovação e a mudança vêm à tona com a necessidade de novas fontes de energia. LISREL, SPSS 25 e SPSS PROCESS V.3 foram utilizados nas análises. **Resultados.** Como resultado da pesquisa, pode-se afirmar que a gestão da inovação nas empresas de energia tem impacto positivo tanto na sustentabilidade quanto no desempenho. Ao mesmo tempo, tanto o efeito da variável independente quanto a mediação da reengenharia são positivos. **Conclusões.** A inovação e a mudança são inevitáveis e podem ser explicadas como resultado de pesquisas em que resultados positivos podem ser alcançados se gerenciados adequadamente.

PALAVRAS CHAVE gestão da inovação, reengenharia, sustentabilidade, desempenho financeiro e crescimento.

Introduction

In innovation management, it is important to manage inventions and changes, and to assimilate them and make them understandable to organizational structures. It can be very difficult to predict the success of an innovation. Many innovations are not implemented with the idea that because the success of innovations is unpredictable or future impacts cannot be seen. Although this is troubled, businesses should not give up innovation. Because the future of businesses depends on their good use of innovation skills and capacities (Top, 2008). The ability of a business to achieve competitiveness among its competitors depends on the differences and innovations it creates in product, service and process using knowledge and developing technology. Having acknowledged that innovation has a significant impact between technology and competitive advantage, businesses follow both technology and innovations by investing in innovation and competing businesses for remain at a competitive level. The importance of reengineering for innovation can be seen whether the sustainability of enterprises can be achieved. Innovation activities must be managed well and successfully carry out change within the organization in order to be successful. Because the most important factor in the survival of businesses is the ability to innovate. In this, the impact of reengineering on innovation activities within the organization is very important. The more innovations a business has, the more competitiveness it increases its capacity to be permanent. Dynamic environmental conditions created by rapid changes in economic, technological, social and organizational areas as a result of globalization; increase competitive conditions, increase market requirements changes, causes shortening of product life cycle, raising awareness due to offering consumers the right to choose, and thus threatening the existence of businesses to change forcing. In order to respond to these challenging reasons and to be permanent, by turning the situation into opportunity, a new approach to management and reengineering emerged in the 1990s (Mische, 2017). Re-designing of business processes is one of the most popular reengineering management approches that have attracted attention in recent years in the business world. Although compared with successful and unsuccessful examples in the literature related to reengineering, it turns into an important management weapon that promises success against competitors when applied correctly and carefully is able to. In interconnected processes that can convert to multiple outputs using one or more inputs, reengineering enables competitive, creative and lucrative businesses to occur (Riyanto, Primiana and Azis, 2018). Innovation is an important factor that affects the productivity of businesses. Giving importance to innovation activities enables businesses to produce at a lower cost compared to competitors. Businesses develop new production methods, reduce costs and increase productivity, thus providing an ununderestimated advantage over competitors (Can, 2012). Innovation is a sustainable tool of growth for businesses, as well as increasing customer needs, increased media support, increased employee loyalty to the business, and the natural result of all rising income and profit margins are also quite significant benefits (Tukker et al., 2017). Within this scope, the research examines the effects of ınnovation management —IM— and re-engineering —RE— on sustainability —S— and financial and growth performance —FGP—.

Literature Review

Innovation Management

Innovation management is expressed as a business or organization managing business processes, technology and human relationships in a way that contributes to innovation practices (Tidd and Bessant, 2018). Innovation management requires certain strategic and organizational skills. Strategic capability can be mentioned in businesses if they have long term planning, ability to predict and predict market trends, access to economic and technology information, evaluation and adoption. Organizational skills are: the ability to identify and manage structural and environmental risks of the enterprise, the level of cooperation and communication between organizational departments, research organizations, academic institutions, expert and professional persons and

institutions applied to consultancy, relationships established with consumers and suppliers, and the quality and level of investment in human (Elçi, 2007). Today's modern innovation models are more complex and envisaged effective communication between different activities than previous innovation models consisting of closed and unilateral communication to the external environment (Goffin and Mitchell, 2016). At the heart of the innovation management process is the organization's knowledge-based foundation. The basis of information of the business is the organizational structure with values, beliefs and habits coming from the past to the present. That's why good innovation management is needed to be successful in reengineering. Because reengineering is able to carry out change in all processes based on the basic information that the organization has. Success in reengineering can be considered a difficult possibility if innovation management is weak. Because the structure of the organization, which consists of its values based on knowledge, prepares an important infrastructure by supporting and strengthening communication and interaction in the innovation process (Uzkurt, 2010). Therefore, it is necessary to focus on many influences systematically, not a single impact on innovation management. Besides, organizational culture is the key element in innovation. Organizational culture occurs and develops with changes occurring in different situations, because the key element is influenced by changes of other elements (Smith et al., 2008). Innovation management provides businesses with a sustainable competitive environment. It is the main factor in providing change, positively affecting change. This style of management should be continued continuously, not when it is needed. In-business and non-operational resources are essential for the start and continuation of the innovation management system. R&D studies are needed for this. With R&D studies, customers' requests, needs and information about the market in which the business operates is the biggest factor in determining the goal of the innovation process (Schot and Steinmueller, 2018). Within this scope, the impact of innovation management on reengineering, sustainability and financial and growth performance are examined.

Re-Engineering

Reengineering is the redesign of processes in performance criteria such as service, speed, cost and quality in the rapidly renewed world as a result of the need for change (Shen and Chou, 2010). Companies that are challenged to compete have new start-up processes by changing everything to survive and solve their problems. This is where the reengineering comes across. It is very difficult to make changes in organizations. The change can always be met with resistance. Importance is given to the concepts of redesigning and structuring processes. Reengineering is a new design project that accepts the change process as the focal point (Hammer and Champy, 2009). That is, it is a holistic reconstruction of the organizational structure, all processes and all information flow systems in order to achieve radical developments in terms of quality, cost and speed (Michela, Carlotta and Andrea, 2012). Therefore, when under the influence of a good innovation management, change may increase the probability of success in engineering. Thus, the performance of strategic and added value business processes, structures, systems and policies in the organization will increase in the performance of radical and rapid redesign takes place (Doumeingts and Browne, 2016). Reengineering is needed in order to ensure sustainability. Because in order to achieve quality, innovation and service objectives, businesses need to analyze and redesign the flow processes (Altinkemer, Ozcelik and Ozdemir, 2011). However, the contribution of management in the implementation of reengineering can be realized by ensuring the participation of employees together. The fact that the reengineering is in accordance with the business culture and adopted by the employees is the most fundamental element that brings the good. Therefore, innovation management needs to be successfully carried out within the organization, as well as flexible to enable faster adaptation in changing and developing market conditions. They should be. In order to ensure sustainability and to be successful in performance criteria, the product and service range is renewed in accordance with the demands and expectations in the market and with creativity. This, need to be reinstalled. At the same time, companies reaching the organizational structure that will provide high level quality and customer satisfaction will have achieved permanent success (Jovanoski, Malinovski and Arsenovski,

2017). The hypotheses examined and tested within this scope are:

H3: Innovation management has the positive effect on re-engineering.

H6: In the relationship between innovation management and sustainability, there is mediation variable impact of re-engineering.

H7: In the relationship between innovation management and financial and growth performance, there is mediation variable impact of re-engineering.

Sustainability

Sustainability is one of the most spoken and written concepts in recent years (Robertson, 2017). Social development, economic development and environmental protection themes are examined together with the concept of sustainability (Dresner, 2008). In order to be successful in sustainability, it is necessary to be innovative and creative by adapting to change. Because in order to be successful against competitors, organizations must be able to respond to customer requests and needs (Lubin and Esty, 2010). Sustainability is of great importance for implementing decision units as it means continuity in economic terms (Solow, 2019). Sustainability to use any system or ecosystem with continuity without distortion, seamless, overloading the main resources and overuse without the consumption of the system (Schaltegger and Wagner, 2011). Therefore, resources need to be used very well in innovation management and reengineering. Otherwise, sustainability can be quite difficult to achieve. Resources must be evaluated continuously for the continuity of activities and a sustainable structure (Gibson, Hassan and Tansey, 2013). In addition, planning, organizing, execution and auditing within the framework of innovation and change taking into account the environmental, social and economic impacts of activities in achieving sustainability activities must be carried out (Linnenluecke and Griffiths, 2010). Until the 20th century, businesses use irresponsible resources and environmental impact can adversely affect the economic performance of businesses can be said not considered (Gibson, Hassan and Tansey, 2013). In recent years, many large-scale businesses, both in-house and outside the organization, have been seen to attach importance to sustainable activities (Clayton and Radcliffe, 2018). Businesses need to fulfill their responsibilities towards consumers and the environment, as well as sustainable human resources towards their employees in a sustainable manner (Garvare and Johansson, 2010). Because in order for innovation and change to be successful, human resources are needed. Performing sustainable models in innovative and creative management, performance-oriented organizations have now made sustainability a corporate understanding and incorporated into their vision (Clayton and Radcliffe, 2018). Within this scope, the impact of innovation management and reengineering on sustainability is examined. The hypotheses examined and tested within this scope are:

H1: Innovation management has the positive effect on sustainability.

H4: Re-engineering has the positive effect on sustainability.

Financial and Growth Performance

With the development of competition, it has become increasingly important for businesses to regularly calculate and compare their performance to tables (Örs, Takil and Altin, 2015). Performance is to maintain the activities of an employee, a group, or a business in order to reach the targeted point in a business, what it can reach as a result of these activities and what is about the qualitative and quantitative measurement of what you can achieve (Kanten and Darma, 2017). The combination of financial and growth performances in quantitative measurement valuations constitutes the overall performance of businesses (Bititci, 2016). Businesses that achieve high performance increase their profitability as well as provide the interests of their stakeholders. The success of the financial performance of enterprises who want to increase and maintain their profitability in the long term, increase the income of their employees, providing products to the customer with better quality, effective and has efficient production functions, as well as positive results (Lappalainen and Niskanen, 2012). Businesses achieve this performance by managing the resources they have and using these resources in their operational, investment and financial activities (Javed and Akhtar, 2012).

Businesses that manage their resources correctly, plan and implement their management activities can be in an advantageous position to improve their performance. Therefore, innovation and change are important for businesses. Managers should manage their business processes taking into account all the positive and negative factors that have an impact on the performance of their businesses (Aydın, 2019). Financial measurements, which are one of the most important indicators reflecting the performance of a business, according to Bayyurt (2007), are obtained from financial statements. Financial statements are an indication of how much businesses can reach their economic goals and express their financial performance. According to İskenderoğlu (2008), growth is the changes and developments that occur from the material and human elements of a business. In order for these changes and developments to be successful, innovation activities must be managed well and the change must be done correctly and on time. The performance of a business informs interested people who study the current state of the business, its current resources, growth rate, while on the other hand, its potential power in the conditions in which the business is in shows (Raffoni et al., 2018). Businesses with high growth performance have bigger resources and market share, so they are more breakthrough and stronger in competitive areas. They can also work in more profitable areas in jobs that require high capital. Businesses that have improved growth performance can be borrowed at smaller interest rates than low-performance businesses because they are less risky. In addition, low performance businesses fail in innovation activities and change, but at the same time due to failure to work with high and less efficiency of borrowing costs can be noted that they remain in the state. Within this scope, the impact of innovation management and reengineering on financial and growth performance is examined. The hypotheses examined and tested within this scope are:

H2: Innovation management has the positive effect on financial and growth performance.

H5: Re-engineering has the positive effect on financial and growth performance.

Methodology

Surveys were collected and analyzed from 680 white-collar employees working in energy companies. Since the scale created is also sent to foreign employees, the form has been prepared in both Turkish and English to increase the comprehensiveness of its articles. 723 returns were received from submitted surveys, but 680 scales were included in the study due to missing markings. This sample size of 680 units is a size that can be seen enough and therefore analyzes have been made. As a result of preliminary analysis, there was no question to be removed. IM factor 15, S factor 10, FGP factor 11 and RE factor 10, were measured with statements. The survey link was left active for 30 days without restrictions on the duration of the survey, and the participants were relieved in giving answers by providing anonymity. It is aimed to prevent Common Method Variance problem that may arise through these. IBM SPSS 25 program from calculating descriptive statistics in demographic dimensions and other factors dimensions of the study, LISREL package program for validating factor analysis and hypotheses SPSS PROCESS V3.4 plugin was used for testing all. In the measurement of the dimensions of the model consisting of four factors (IM, S, FGP, RE), a 5-point Likert Scale ranging from "Absolutely Disagree" to "Absolutely Agree" was made. Innovation Management scale, Küsbeci (2013) and Mazzarol, Reboud and Volery (2010) has been benefited from the work. The work of Akbaba (2016) was benefited on the scale of the reengineering. The work of Çankaya and Sezen (2015) was benefited on the Sustainability scale. Antoncic and Hisrich (2001) and Zahra, Neubaum and El–Hagrassey (2002) on the Financial and Growth Performance scale.

Research Model

Based on literature review, data were analyzed to determine the relationship between statistical concepts due to a quantitative approach. They were used arguments to judge the impact on the dependent variable in a quantitative research test (Thomas, Nelson and Silverman, 2015).

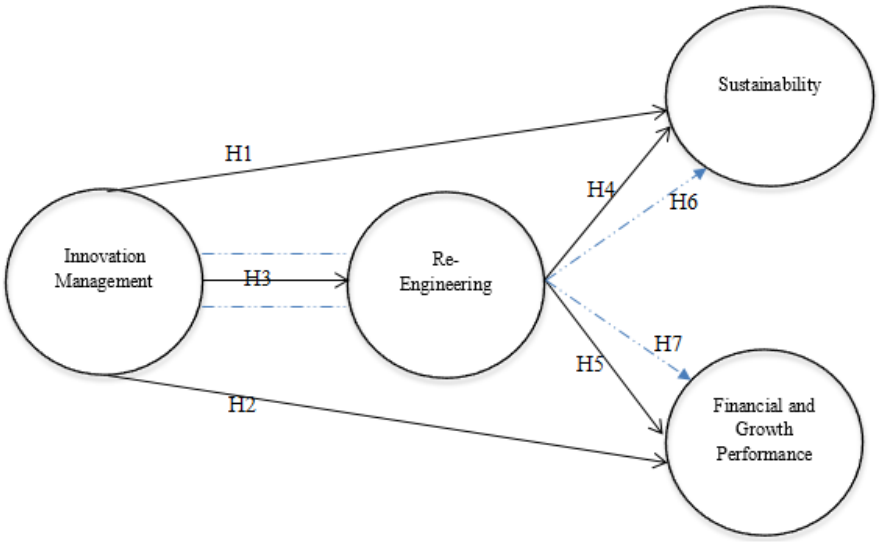

Figure 1. Research Model. Source: author own elaboration.

The accuracy of the model given in Figure 1 between IM, S, FGP and RE is investigated. The created model is subjected to analysis. Direct effect of IM variable on S (H1), FGP (H2), and RE (H3), direct effect of RE variable on S (H4) and FGP (H5), and also on the relationship between IM and S (H6). The mediator effect on the relationship between FGP (H7) was analyzed. The IM variable was an argument for H1, H2, and H3 hypotheses, while it created the dependent variables S, FGP, and RE. Similarly, in H4 and H5 hypotheses, RE is independent, while S and FGP dependent variables are shown. H1-H5 hypotheses were reported by analysis by PROCESS V3.4 with simple linear regression with a dependent argument. The mediator effect analysis of RE for H6 and H7 hypotheses were also made and reported with PROCESS V3.4 plugin.

Results

At the beginning of the study, it is necessary to reveal the extent to which the data supports the model. For this purpose, Validating Factor Analysis —CFA— in LISREL program, the results of the tests for the loads of expressions according to the factors and the significance level of 0.05 expressions for the factors in the meaningfulness level of expressions in Table 1 is given.

Factor analysis collects interrelated data under the same set or factor by looking at the correlation relations between the data and is examined in two groups: descriptive and verifiative. It's called "factor." The creation of these factors is the main function of factor analysis and the correlations between expressions/substances are applied in this factorization. Expressions that do not correlate with other expressions or correlate very high with one or more expressions are removed from the analysis (Sönmez Çakır, 2020). Before the data is subjected to factor analysis, it is necessary to determine whether the correlation matrix is a unit matrix and whether the data set is suitable for Factor analysis. To do this, it is necessary to first look at the Kaiser Meyer Olkin —KMO— value of the data and the Bartlett Test result. The KMO value above 0.60 and the Bartlett test result less than 0.05 indicates that the data is suitable for factor analysis and the correlation matrix is not a unit matrix. During the analysis, KMO: 0.923 and Bartlett test result, it was found to be 0.000 and it was decided that the data was appropriate for factor analysis. CFA is one of the first generation data analysis techniques (Hair Jr. et al., 2017). In order to determine whether the 4-factor structure established for the model is provided by the data, CFA was made and the results obtained are presented.

Table 1. CFA results

İtems of Factor	Factor Loadings	İndicator Reliability	p-Value
IM1. A multi-faceted communication system is used in the institution where I work and the opinions of all employees are received.	0.735	0.540	0.000
IM2. Trainings are given in order to ensure the development of personnel in the institution I work.	0.761	0.579	0.000
IM3. Innovative steps are being taken in line with customers' demands.	0.712	0.507	0.000
IM4. Project groups are established in the institution where I work and development studies are provided.	0.761	0.579	0.000
IM5. In the institution where I work, decision-making authority within production/service activities is common to all employees.	0.779	0.607	0.000
IM6. All of the staff in the institution where I work knows the objectives of the enterprise in the best way.	0.789	0.623	0.000
IM7. Innovation studies carried out in the institution where I work are easily perceived.	0.796	0.634	0.000
IM8. Employee participation is increasing thanks to innovation management in the institution I work for.	0.803	0.645	0.000
IM9. Innovation management increases quality in the institution I work for.	0.839	0.704	0.000
IM10. In my institution, innovation management increases the level of flexibility.	0.838	0.702	0.000
IM11. Innovation management ensures that the institution I work for achieving its objectives.	0.792	0.627	0.000
IM12. Innovation management provides continuous improvement in the institution where I work.	0.822	0.676	0.000
IM13. In the institution I work for, innovation management increases the diversity.	0.802	0.643	0.000
IM14. In my institution, innovation management increases the speed of innovation.	0.776	0.602	0.000
IM15. Information exchange between staff and departments is provided at the institution where I work.	0.839	0.704	0.000
S1. The institution I work with increases R & D activities.	0.735	0.540	0.000
S2. The institution I work with makes new investments in the field of innovation.	0.780	0.608	0.000
S3. Product/service quality is increasing in the institution where I work.	0.647	0.419	0.000
S4. There is a positive improvement in the environmental position of the institution I work for.	0.736	0.542	0.000
S5. Investments in social projects (education, culture, sports) are increasing in the institution where I work.	0.763	0.582	0.000
S6. The institution I work for is experiencing an increase in the welfare of all stakeholders.	0.672	0.452	0.000
S7. Training opportunities given to employees in the institution where I work are increasing.	0.777	0.604	0.000
S8. In the eyes of customers, the image of the institution I work for is increasing.	0.768	0.590	0.000
S9. In the institution I work with, there are significant improvements in relations with all stakeholders (e.g. non-governmental organizations, employees, customers).	0.737	0.543	0.000

İtems of Factor	Factor Loadings	İndicator Reliability	p-Value
S10. Customer complaints are decreasing in the institution I work for.	0.705	0.497	0.000
FGP1. Average net profitability is increasing compared to capital.	0.702	0.493	0.000
FGP2. Average net profitability before tax is increasing.	0.638	0.407	0.000
FGP3. Net income from basic activities is increasing.	0.756	0.572	0.000
FGP4. The financial success of new products/services offered to the market is increasing.	0.655	0.429	0.000
FGP5. The overall level of success in financial terms is increasing.	0.725	0.526	0.000
FGP6. The annual average increase in sales is increasing.	0.750	0.563	0.000
FGP7. The number of new products/services offered to the market is increasing.	0.786	0.618	0.000
FGP8. The increase in the number of employees is increasing.	0.727	0.529	0.000
FGP9. The increase in the number of new customers is increasing.	0.781	0.610	0.000
FGP10. In general, the position in the competitive environment in the market is good.	0.706	0.498	0.000
FGP11. In general, the level of profitability is good.	0.778	0.605	0.000
RE1. In the institution where I work, the reengineering aims to change rather than to develop the system.	0.780	0.608	0.000
RE2. One of the most important common features of the processes applied in reengineering in the institution I work with is the removal of standardization.	0.754	0.569	0.000
RE3. In my institution, reengineering pushes aside all the rules and practices of the past.	0.799	0.638	0.000
RE4. In my institution, change means starting business from scratch.	0.762	0.581	0.000
RE5. In the institution where I work, information is excused in order to compare with similar businesses.	0.806	0.650	0.000
RE6. Reengineering includes inventing, exploration, creativity and synthesis.	0.739	0.546	0.000
RE7. Reengineering must be managed by top managers to be successful.	0.740	0.548	0.000
RE8. Reengineering predicts rapid and radical changes.	0.789	0.623	0.000
RE9. Allows the change of structures of organizations from hierarchy to simplicity.	0.680	0.462	0.000
RE10. Reengineering, in some cases, leads to the recreation of the organization's identity, the structure and basic strategies of its products and services.	0.624	0.389	0.000

Source: author own elaboration.

Factor loads indicate to what extent expressions are associated with the factors. The factor loads of all expressions are above 0.60, and these values indicate that the factors and expressions are appropriate. In the meaningfulness test of the relations of the factors with expressions, all p value values were found to be 0.000. All expressions have an important relationship with the factors of 0.05 significance. Some descriptive statistics and reliability values of the factors that have been formed are given in Table 2. Conformity values obtained from the model generated as a result of the CFA (RMSEA: 0.056; NFI: 0.95; NNFI: 0.94; CFI: 0.95; GFI: 0.93; IFI: 0.91). RMSEA value is 0≤RMSEA <0.10; NFI value ≥0.90; NNFI value değ0.90; CFI value is 0 ≤CFI <0.10; GFI value is 0 ≤GFI <0.10; IFI value değ0.90 indicates that the model has good fit (Erkorkmaz et al., 2013; Sonmez Cakir and Adiguzel, 2020).

Table 2. Descriptive Statistics, Correlations and Reliability Statistics

					Correlations					
Factor	**N**	**KMO**	**Mean**	**S.D.**	**IM**	**S**	**FGP**	**RE**	**AVE**	**CR**
IM	15	0.956*	3.95	0.85	[0.957]				0.62	0.96
S	10	0.893*	4.09	0.72	0.534**	[0.902]			0.54	0.92
FGP	11	0.906*	4.23	0.64	0.505**	0.761**	[0.914]		0.53	0.93
RE	10	0.915*	4.06	0.67	0.574**	0.654**	0.623**	[0.869]	0.56	0.93

Note: *Bartlett test' Sig‹0.05; **Correlation is significant at the 0.01 level; the expressions in square brackets are the Cronbach Alpha values of the factors.

Source: author own elaboration.

In Table 2, descriptive statistical values for factors and KMO values are given as a single factor within each factor. The Bartlett test results for all factors are less than 0.05 and are shown with a single star value above this KMO value. The mean of the IM variable obtained by averaging IM expressions is 3.95 (0.85 standard deviation), the mean of the S variable is 4.09 (0.72 standard deviation), the mean of the FGP variable is 4.23 (0.64 standard deviation) and RE variables were calculated as 4.06 (0.67 standard deviation). The correlation of variables with each other was achieved significantly at 0.01 importance level for all variables. Double asterisks at the end of the correlation coefficients indicate that correlations are important at 0.01. The expressions in square brackets are the Cronbach Alpha values of the factors. Since all Cronbach Alpha values are above 0.85, the scale has sufficient reliability. Average Variance Extracted —AVE— values are a convergent validity value calculated from factor loads. The Composite Reliability —CR— value is also calculated from factor loads. AVE values must be 0.50, CR values above 0.70, while AVE values of the same factors must be smaller than their CR values. All AVE values calculated using factor loads are above 0.50, all CR values are above 0.70, and AVE values for all factors are less than their CR values. This four-dimensional structure has convergent validity and composite reliability values.

After these stages, the result is obtained that the data is suitable for the model. PROCESS V3.4 with SPSS was used to test hypotheses and the following results were obtained.

Table 3. H1-H5 hypothesis results

H	**Independent Variables**	**Dependent Variables**	**Std. β**	**Sig.**	**Adjusted R Square**	**F Value**	**Reject/Accept**
H1	IM	S	0.534	0.000	0.285	271.123	Accept
H2	IM	FGP	0.505	0.000	0.254	231.691	Accept
H3	IM	RE	0.574	0.000	0.328	332.912	Accept
H4	RE	S	0.654	0.000	0.427	506.391	Accept
H5	RE	FGP	0.623	0.000	0.387	430.020	Accept

Source: author own elaboration.

Simple linear regression was performed for H1-H5 hypotheses. The relations between them have already been revealed with the correlation process, but these coefficients do not give the direction of the relationship and model coefficients. For this reason, models are created with regression process. Table 3 provides dependent and arguments for each hypothesis, Standard Beta, Adjusted R Square, F value, and Sig. values calculated for the established model. R Square values indicate how much the argument describes the change in the dependent variable. F value values give results related to the significance of the model and Sig. Their values indicate whether the coefficients of the model are meaningful. Sig for all hypotheses. Both F value values indicate that models are meaningful and hypotheses are supported. H6 and H7 hypotheses claim the effect of mediation variable. The results obtained for H6 are given in Table 4.

Table 4. Mediator effect results for H6 hypothesis

Outcome Variable: RE							
	coeff	se	t	p	LLCI	ULCI	S.coef
Constant	2.2722	0.1004	22.6326	0.000	2.0751	2.4693	
IM	0.4533	0.0248	18.2459	0.000	0.4045	0.5021	0.5739
Outcome Variable: S							
	coeff	se	t	p	LLCI	ULCI	S.coef
Constant	1.0518	0.1271	8.2723	0.000	0.8022	1.3015	
IM	0.2006	0.0290	6.9189	0.000	0.1437	0.2576	0.2374
RE	0.5538	0.0367	15.0848	0.000	0.4817	0.6258	0.5176
Outcome Variable: S Total Effect Model							
	coeff	se	t	p	LLCI	ULCI	S.coef
Constant	2.3101	0.1108	20.8407	0.000	2.0924	2.5277	
IM	0.4517	0.0274	16.4658	0.000	0.3978	0.5055	0.5345
Completely standardized indirect effect(s) of IM on S							
	Effect	BootSE	BootLLCI	BootULCI			
RE	0.2970	0.0301	0.2390	0.3579		H6: Accept	

Source: author own elaboration.

A mediator test developed by Hayes (2009) and mediator effect analysis was performed in Table 4. In this test, there are no p value values in mediator effect analysis. The mediator effect is interpreted based on the BootLLCI and BootULCI values. If there is no zero value between BootLLCI and BootULCI values mentioned in a model, the mediator effect is mentioned in the relationship. There is no zero number between BootLLCI (0.2390) and BootULCI (0.3579) values under the "Completely standardized indirect effect(s) of IM on S" line in the table (one of the values must be positive to have a zero value in between). H6 was therefore accepted and RE was considered to be mediator variable in the relationship between IM and S. Also in the table "Outcome Variable: RE" is given the effect of the IM variable on RE. In this process, it can be seen again that the H3 hypothesis that IM is dependent on independent RE (p value: 0.000<0.05). In Table 4, "Outcome Variable: In the S" line, the model results were given if the IM and RE variables are independent, and the S variable is dependent, and the presence of the effect is accepted (p value: 0.000<0.05). The results obtained for H7 are given in Table 5.

Table 5. Mediator effect results for H7 hypothesis

Outcome Variable: RE							
	coeff	se	t	p	LLCI	ULCI	S.coef
Constant	0.2722	0.1004	22.6326	0.000	2.0751	2.2643	
IM	0.4533	0.0248	18.2459	0.000	0.4045	0.5021	0.5739
Outcome Variable: FGP							
	coeff	se	t	p	LLCI	ULCI	S.coef
Constant	1.6667	0.1173	14.2026	0.000	1.4363	1.8971	
IM	0.1644	0.0268	6.1416	0.000	0.1118	0.2169	0.2194
RE	0.4713	0.0339	13.9119	0.000	0.4048	0.4048	0.4971
Outcome Variable: FGP "Total Effect Model"							
	coeff	se	t	p	LLCI	ULCI	S.coef
Constant	2.7377	0.1004	27.2785	0.000	2.5406	2.9347	
IM	0.3780	0.0248	15.2214	0.000	0.3293	0.4268	0.5047
Completely standardized indirect effect(s) of IM on FGP							
	Effect	BootSE	BootLLCI	BootULCI	H7: Accept		
RE	0.2852	0.0296	0.2288	0.3447			

Source: author own elaboration.

There is no zero number between BootLLCI (0.2288) and BootULCI (0.3447) values under the "Completely standardized indirect effect (s) of IM on S" line in the table. H7 was therefore accepted and RE was considered to be mediator variable in the relationship between IM and S. Also in the table "Outcome Variable: RE" is given the effect of the IM variable on RE. The results here are the same as the previous table. In Table 4, "Outcome Variable: In the "FGP" line, the model results were given if the IM and RE variables are independent, and the FGP variable is dependent, and the presence of the effect is accepted (p value: 0.000<0.05).

Discussion

It can be noted that the vast majority of businesses make commercial innovations based on competition and realize at least one of the types of innovation. However, discussions continue on how innovations should be managed or managed. Because many companies that fail in innovation management are wiped out of the market where they are. For this reason, almost all businesses need to innovate and undertake a significant amount of innovation in the field of innovation. Businesses develop new organizations can lead to the emergence of other innovations as well as an innovative product and process that can uncover innovations can be said that they are trying to build the organizational structure. According to Damanpour, Walker and Avellaneda (2009), the effect of innovation type on performance was insufficient to explain these relationships. For this reason, Damanpour, Walker and Avellaneda (2009) examined the types of innovation as integrated and examined the performance effect as a whole, not as a single period. So the importance of managing innovation depends on how it positively affects performance. But one should not forget the impact of change in innovation management. American management expert Hammer introduced the concept of reengineering in 1990 for the first

time. Hammer and Stanton (1995) are literally separated from the past of reengineering as one of the important milestone in the history of mankind in his books. If innovation and change are achieved, sustainability of the business can also be possible. The research results are also in this direction. It can be argued that innovation management and reengineering have a positive impact on sustainability and performance. From here, reengineering can be expressed as "reconstruction" and interpreted by many management scientists as a "white page" opening and starting everything again (Aktan, 2003). From this point of view, participation of human resources with high creativity and competent in terms of technical knowledge and skills should be ensured. However, new organization, or in other words, reorganization is a long process, and the loss of time in this process is one of the factors that badly affect the performance of businesses. For this reason, organizations that are conscious of acting planned and programmed are more successful than their competitors.

Conclusion

Factors such as the spread of companies around the world with globalization, developments in trade and technology, activities in production-service areas and becoming more conscious of consumers changing the structure of the market. Businesses develop a variety of methods for product or service to increase market share and superiority in an evolving competitive environment. Businesses need to find more innovative methods as well as traditional practices for competitive advantage. Due to many factors such as rapid response to market demands, quality of products and services, development of growth activities, producing products and services according to customers' requests businesses need to pay attention to their implementation of innovation. The results of the research are in this direction. It can be explained that innovation management has a positive effect on sustainability in the event of successful success. Sustainability, which is one of the three objectives of businesses, is important for the ability to continue its activities. In order to ensure that innovative and creative activities must be managed correctly. However, it also has a positive effect on performance. Success in innovation management can increase revenues both financially and provide growth. Firms must keep their organization and capital structures strong in order to survive in an increasingly competitive environment. Successes created by innovative activities developed in firms can not be long lasting if they can be easily imitated by competing companies. For this purpose, reengineering needs to be carried out regularly in a dynamic structure. The results of the research explain that reengineering has a positive impact on both independent and mediation effect. Innovation in a competitive environment is a continuing activity. For this reason, sustainability can not be achieved through a single innovation implemented. Also, innovation in the product or service must be in integrity with all the activities of the enterprise. The success of firms by competing with competitors in the market depends on the acquisition of strategic methods. Within the scope of reengineering systems such as production, management, marketing, finance, accounting, computing and R&D to enable businesses to realize their goals and objectives and increase their profitability need to think about it. The importance of these functions in the success of strategic objectives is accepted by everyone, but they are not able to develop continuously with the same management idea as the business of reengineering must ensure the change in all functions without disturbing the structure. In the event that reengineering can be successfully realized, both contribute to the success of innovation management, ensuring sustainability and growth and financial performance are positive is affected in the direction. At the same time, in innovation management, businesses must adapt to technological changes in order to ensure the continuity of their competitive attitudes. For this reason, it should be adopted that raising the quality of working individuals will be reflected in business quality. From top management in enterprises to staff working at the lowest level, they need to adopt the understanding that the next process is customer and customer satisfaction is important above all. Increasing skills, knowledge, skills and experience levels in human resources for the success of the business, providing the tools and equipment needed in the processes without delay is important to provide.

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