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**„CHALLENGES FOR ANALYSIS  
OF THE BUSINESS AND THE ECONOMY”**

– SCIENTIFIC CONFERENCE 2012 –

DCM-Verlag

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Cover design and illustrations: DCM Druck Center Meckenheim

**eBook edition:**

published by DCM-Verlag

ISBN 978-3-927535-89-3

**eBook data conversion and store management**

DCM Druck Center Meckesheim GmbH

[www.druckcenter.de](http://www.druckcenter.de)

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In this book the authors address different topics that are related to actual questions in their business or research activities. The scientific conference held in Wildau/Germany in autumn 2012 gave each of them the chance to discuss the ideas with their colleagues. The presentations and the following discussions and talks were shaped through the analysis of different ways of how to come to a practical useful solution.

In order to follow a case-study approach the following articles describe a wide range of applications for different mathematical and management-oriented methods. Quantitative methods should be seen as one part of a problem solving process or in decision making. See Anderson 2011 for other details.

Based on a model, the business analyst and the researcher can determine a usually almost optimal solution. Three different categories of models can be defined: In the prescriptive models e. g. linear programming, the dependencies of the variables as well as values of the independent variables are known. In predictive models e.g. regression analysis, the researcher tries to find a function to describe the relationship between the given variables from which the values are known. In the case of descriptive models, the independent variable values are mostly uncertain. For more details see Ragsdale op. 2011, pp. 6. The main challenge is to test the goodness of fit of the calculated results. Methods like Bootstrap and Jackknife are often used under these circumstances. See Davison and Hinkley 1997.

In the current status of the world wide economy optimization is more and more inevitable. In particular the start of the recent banking crisis in September 2008 sowed all market participants that a mixture of the misleading use of innovative financial products in combination with stressing the boundaries of mathematical models lead to faults that threaten the stability of the world economy. Models based on historical data have been shown to be systematically lacking. See Steil 2009, p. 14.

In order to find and to evaluate possible solutions to end the crisis further research is clearly necessary and will be useful. This book can also be used to add some valuable points of discussion.

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# The relationship between innovation and firm performance: Case of shoe industry in Turkey

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### Abstract:

In this study, we investigate the relationship between innovation (product innovation, strategy innovation, process innovation and market innovation) and firm (market) performance in shoe industry in Konya, Turkey. The findings of the research indicated that product innovation, strategy innovation, process innovation and market innovation were positively and significantly correlated with market performance. Regression analysis results show that market innovation had positive effect on market performance.

### Introduction

Organizational innovation often has been conceptualized as a process consisting of a number of relatively distinct phases that involve the proposal for change and its later adoption and implementation (Aiken et al., 1980: 633). In this frame, Damanpour and Gopalakrishnan (2001: 47) define innovation adoption as an organization's means to adapt to the environment, or to preempt a change in the environment, in order to increase or sustain its effectiveness and competitiveness. It is also known as successful performance of creative ideas in organization (Eshlaghy and Maatofi, 2011: 116).

Innovation can also be better understood by the four dimensions proposed by Henard and Szymanski (2001) of product innovation, strategy innovation, process innovation and market innovation and which represent four alternatives for innovation (Vila and Kuster, 2007: 20).

*Product innovation* is a process that includes the technical design, R&D, manufacturing, management and commercial activities involved in the marketing of a new (or improved) product (Alegre et al., 2006: 334).

*Strategy innovation* has been studied in-depth and two approaches can be identified: radical strategy innovations and incremental strategy innovations. Radical innovations are the least safe as they imply a greater proportion of experimentation and interactive problem solving requiring greater flexibility and a higher learning curve from the organization. Incremental innovations are safer and imply a larger percentage of planning and execution thus requiring greater efficiency and understanding (Vila and Kuster, 2007: 21).

*Process innovation* is defined as new elements introduced into an organization's production or service operations (e.g., input materials, task specifications, work and information flow mechanisms, and equipment) to produce a product or render a service (Damanpour and Gopalakrishnan, 2001: 48).

*Marketplace characteristics* capture elements that describe the target market and include market potential, competitive activity, and the intensity of activity (i.e., turbulence) in response to new product introductions (Henard and Szymanski, 2001: 364).

Product innovation is what we create, and strategy innovation is what we should do to create it, process innovation reflects what we have available to do that. In summation, process innovations include, among other aspects, issues relating to new skills and abilities, a greater concern for market orientation and the development of interdepartmental communication (Vila and Kuster, 2007: 20-21).

The adoption of innovation is generally intended to contribute to the performance or effectiveness of the firm (Hult et al., 2004: 430). Firm performance has become an important component of empirical research in the field of strategic management. Firm performance, or effectiveness, is a multifaceted phenomenon that is difficult to comprehend and measure (Snow and Hrebiniak, 1980: 318).

Business Performance, which reflects the perspective of strategic management, is a subset of the overall concept of organizational effectiveness (Venkatraman and Ramamujam, 1986: 803) and can be defined as the achievement of organizational goals related to profitability and growth in sales and markets share, as well as the accomplishment of general firm strategic objectives (Hult et al., 2004: 430-431).

Firm performance is classified into two dimensions namely objective and subjective performance. Subjective performance deals with organizational culture, setting, human resources and other abstract outputs; on the other hand, it comprises employee satisfaction, customer satisfaction, quality and innovation performance. Unlike subjective performance, objective performance that is measured with numbers easily in-

cludes revenue growth dependent on marketing and financial management success profitability and market share. As understood from the explanations, market performance in the study is dealt with objective criteria

Increasing firm performance is based on some antecedents. This study focuses on innovation. In this frame, the aim of the study is to investigate the relationship between innovation (product innovation, strategy innovation, process innovation and market innovation) and firm (market) performance in the shoe industry in Konya, Turkey.

In literature, it is emphasized that innovation has a positive relationship with organizational performance (Albors et al., 2008; Damanpour and Gopalakrishnan, 2001; Eshlaghy and Maatofi, 2011; Hongming et al., 2007; Hult et al., 2004; Lin et al., 2008; Low et al., 2007) and can lead to better organizational performance. In the light of these studies, the following hypothesis will be tested:

**H1:** There is a positive relationship between product innovation and market performance.

**H2:** There is a positive relationship between strategy innovation and market performance.

**H3:** There is a positive relationship between process innovation and market performance.

**H4:** There is a positive relationship between market innovation and market performance.

### Sample

The sample of the research covers the shoe industry in Konya (101 companies), Turkey. Out of many businesses participated in the study, 32,7% of the businesses operate in regional area, 64,3% in national area, and 3,1% in international area. Considering business years, 10,0% of the businesses operate in 5 years and less, 14,0% between 6-10 years, 41,0% between 11 and 15 years, 18,0% between 16 and 20 years and 17,0% in 21 years and more. 88,1% of the businesses is managed by proprietors, only 11,9% of the businesses is managed by proprietors and professional managers. In total budget in terms of research and development activities, 8,9% of the businesses remains inactive for R&D activities, 55,4% of the businesses allocate 3 percent and less of the total budget, 30,7% of the businesses allocate 4-6 percent of the total budget for R&D activities. Taking into the numbers of employees consideration, 78,2% of the businesses employ 49 and less employees, only 21,8% of the businesses employ 50-149 employees.

### Measures

The survey has been used as a data collection method in the research. Market performance was designated as the dependent variable in this study, while innovation (product innovation, strategy innovation, process innovation and market innovation) were considered as the independent variables.

Innovation was measured with 24 items 5-point Likert scale (1=strongly disagree, 5=strongly agree) developed by Henard and Szymanski (2001). The items were classified in terms of the four dimensions of product innovation (5 items), strategy innovation (5 items), process innovation (11 items), and market innovation (3 items). Cronbach's alphas were as follows: 0.88 for product innovation, 0.83 for strategy innovation, 0.86 for process innovation and 0.67 for market innovation.

On the other hand, market performance was measured with five items 5-point Likert scale (1=strongly decrease, 5=strongly increase) developed by Karabag (2008). The Participants compared their performance today to performance three years ago. The scale showed adequate reliability. The Cronbach's alpha coefficient was 0.78.

### Research Findings

Table 1 reports means, standard deviations, correlations among variables, and cronbach's alpha coefficients.

**Table 1: Descriptive Statistics and Inter-correlations among Study Variables**

	Mean	Std. Dev.	1	2	3	4	5
1. Product innovation	3,94	0,61	(0,88)				
2. Strategy innovation	3,57	0,64	,693**	(0,83)			
3. Process innovation	3,62	0,49	,731**	,753**	(0,86)		
4. Market innovation	3,67	0,55	,555**	,510**	,700**	(0,67)	
5. Market performance	3,67	0,53	,384**	,354**	,336**	,376**	(0,78)

\*\* Correlation is significant at the 0.01 level (2-tailed).

As it seen in Table 1, product innovation ( $r=0,384$ ;  $p<0,01$ ), strategy innovation ( $r=0,354$ ;  $p<0,01$ ), process innovation ( $r=0,336$ ;  $p<0,01$ ), and Market innovation ( $r=0,376$ ;  $p<0,01$ ) were positively and significantly correlated with market performance. The results supported H1, H2, H3 and H4.

The regression analysis was carried out to determine the efficacy level of the sub-dimensions of innovation on market performance.

**Table 2: The results of regression analysis for market performance**

Independent variables	$\beta$	S.E.	t-value	Sig.	Tolerans	VIF
Product innovation	0,193	0,124	1,555	0,123	0,414	2,413
Strategy innovation	0,144	0,123	1,167	0,246	0,387	2,583
Process innovation	-0,151	0,194	-0,778	0,438	0,265	3,770
Market innovation	0,254*	0,125	2,039	<b>0,044*</b>	0,503	1,987
F				5,924		
Adjusted R <sup>2</sup>				0,165		
R <sup>2</sup>				0,198		
Std. Error of the Estimate				0,48752		
Significance level				<b>0,000**</b>		

Dependent variable: **Market performance**

\* p<0,05; \*\* p<0,01

As for the regression analysis results in Table 2 suggest that the overall model was significant (Adjusted R<sup>2</sup>= 0,165; F<sub>(4,96)</sub>= 5,924; p<0,01). The interrelation of four independent variables (product innovation, strategy innovation, process innovation and market innovation) was taken into account, and the R<sup>2</sup> (0,198) was significant at the 0,01 level. This means that 19,8% of the variance in market performance was significantly explained by the independent variables. Among independent variables, market innovation was found to be the most important in explaining the variance in market performance as the highest beta value was 0,254 (t=2,039; p= 0,044).

**Keywords:** Innovation, firm performance, shoe industry

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