4 The Effects of Market Orientation on Product Innovation*

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Abstract

In the literature, market orientation is defined as a business culture or behaviour that leads to business success. Its influence on product innovation is one way to enhance business performance. The goal of this paper is to analyse the impact of behavioural components of market orientation on the introduction of product innovation regarding its novelty. Research of this type was the subject of the Lukas and Ferell (2000) study. Following their approach, but hypothesising different relationships, research on the impact of the behavioural components of market orientation on product innovation in Croatian companies was conducted. The intensity of the market orientation components is measured using the MKTOR scale developed by Narver and Slater (1990), whose approach to market orientation is accepted in this paper.

Keywords: customer orientation, competitor orientation, interfunctional coordination, product innovation, MKTOR
JEL classification: M31

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1 Introduction

Companies make great efforts in their attempt to be more successful in meeting the needs of their consumers than their competitors, consequently to achieve a better position in the market and better business performance. The needs of consumers and the activities of competitors often stimulate companies to introduce to the market either quite modified or new products, or to supplement their product line by new products. It is by innovation that companies try to improve their business performance and their market share.

Market orientation in a company contributes to an improved understanding of the market. The philosophical background of market orientation is the concept of marketing, the basic assumption upon which it is founded. The systematic study of market orientation began at the beginning of the 1990s. In this respect important are the works of Kohli and Jaworski (1990) and Narver and Slater (1990) who began to study market orientation through a number of activities related to the marketing concept in business. The authors view market orientation from different angles. Kohli and Jaworski (1990) define market orientation in terms of organisational behaviour, or activities relating to business, according to marketing principles, whereas Narver and Slater (1990) study it in terms of organisational culture. In line with this, Kohli and Jaworski (1990) point out three groups of activities which characterise orientation: (1) generation of market intelligence relating to present and future customers' needs, (2) dissemination of intelligence across departments within the organisation and (3) the organisational responsiveness. Narver and Slater (1990) view market orientation as a unidimensional construct made up of three behavioural components: customer orientation, competitor orientation and interfunctional coordination and two decision making criteria: long-term focus and profit focus.

In addition to the above mentioned authors the concept of market orientation has been addressed by a number of others (Day, 1993; Deshpandé and Farley, 1998; Deshpandé and Webster, 1989) who in their studies, to a varying extent, advocated the basic assumptions of the above mentioned approaches. Lafferty and Hult (1999) singled out four characteristics often cited in literature which are all

independent of approach. They are as follows: customer orientation, the importance of intelligence dissemination, interfunctional coordination of market activities, and responsiveness to market activities by undertaking appropriate actions.

It is worth mentioning that the mentioned approaches are not quite opposite or contradictory. As construed by Kohli and Jaworski, market orientation as an element of organisational behaviour (1990) means the thorough operationalisation of the marketing concept. This concept is grounded on the key activities of a company which operates according to the market concept principles. On the other hand, Narver and Slater (1990) integrate the essence of market concept in a better way by including under the market orientation concept all the attributes of the marketing concept and by pointing out the long-term perspective of profit making. According to them, marketing orientation constitutes an element of business culture, the acceptance of which leads to positive results in business. Viewed from this perspective, Narver and Slater's approach may be considered more coherent. This approach has been adopted in this paper as the theoretical basis for studying the impact of components of market orientation on product innovation.

The two main approaches provide two methods of measuring market orientation: MKTOR (Narver and Slater, 1990) and MARKOR (Kohli, Jaworski and Kumar, 1993). These methods were used as a starting point for a number of other procedures developed to measure market orientation (Ruekert, 1992; Deng and Dart, 1994; Narver, Slater and MacLachan, 2004).

In the studies addressing the influence of market orientation on business performance, the view prevails that the relationship between these two variables is positive (Greenley, 1995; Hooley et al., 2000; Langerak, 2001; Kahn, 2001; Cano, Carrillant and Jamarillo, 2004; Zhou et al., 2005.; Gainer and Padanyi, 2005.; Kara, Spillan and DeShields, 2005; Bhuian, Menguc and Bell, 2005; Hult, Ketchen and Slater, 2005; Ó. González-Benito and J. González-Benito, 2005). Most of the studies dealing with market orientation impact were founded on research carried out in developed countries, especially in the USA. The positive impact of market orientation on the business performance of firms in transition countries has been proved in Hooley et al. (2000). According to the results of that study, the adoption

of market orientation by firms in the countries in transition has shown positive impact. Further, the authors point out that market orientation in transition economies seems particularly useful for achieving good business performance in view of the market turbulence in these countries.

In respect to market orientation in Croatian firms, the results have revealed that the highest level of market orientation is present in small and medium size enterprises (SMEs) in the manufacturing sector (Rajh and Božić, 2005). In addition, it was noted that companies which are more market oriented derive a higher proportion of their income from exports and also a higher proportion of income from innovation.

As product innovation is considered to be a prime determinant of company growth and a factor that enhances its performance, a question arises as to how market orientation impacts new product development. A literature review shows a difference of opinion as to this linkage. Quite a number of studies reveal a positive influence of market orientation on new product introduction (Kohli and Jaworsky, 1990; Ruekert, 1992; Deshpandé, Farley and Webster, 1993; Slater and Narver, 1994; Atuahene-Gima, 1996; Gatignon and Xuereb, 1997). On the other hand, there are studies that reveal an opposite effect of market orientation, on the basis that noticeable market orientation leads to imitation and makes discontinuous innovation development more difficult (Bennett and Cooper 1979; Lawton and Parasuraman, 1980), or that consumer orientation makes commercialisation of new products more difficult (Christensen and Bower, 1996; Leonard-Barton and Doyle, 1996).

In order to establish the impact of market orientation on product innovation Lukas and Ferell (2000) break down the overall concept into behavioural components (as specified by Narver and Slater, 1990) and analyse their impact on the introduction of individual product innovation with regard to the degree of novelty. The results of their study suggest that consumer orientation increases the number of discontinuous innovations and decreases the number of continuous innovations, thus contesting consumer orientation as being the cause of incremental innovations. Contrary to expectations, Lukas and Ferell (2000) revealed that interfunctional coordination does not lead to the creation of radical

innovation. Strongly emphasised interfunctional coordination favours the introduction of new products as extensions to present product lines and decreases the imitation of competitors' products; however, it does not enhance radical innovations.

This study also addresses the influence of components of market orientation on the introduction of innovation of a different degree of novelty in Croatian companies. Bearing in mind that different kinds of product innovation may contribute to business performance in different ways, the importance of market orientation on business performance may indirectly be explained by the influence of market orientation components on the introduction of a product of a specific degree of novelty. However, the focus of this study is exclusively on the relationship between market orientation and innovation and we do not want to suggest that any type of product innovation is superior in respect to its contribution to the overall business performance. We believe that giving preference to any type of product innovation does not necessarily lead to superior business performance. Just introducing an imitation of a competing product with some slight modifications can hardly lead to an extraordinary advantage over competitors and high profit. On the other hand, focusing only on the development of exclusively discontinuous innovations would hardly lead to a high profit. Such a focus would actually lead to the creation of products that competitors will imitate and with minimal investment realise the highest benefits at the moment when accepted by consumers.

The relations among variables as suggested in the study differ from those emphasised in the literature. The reason is that the aim is to point out that market orientation does not necessarily lead to the same performance regardless of company specificities and the market where they operate, and in this way to emphasise its complexity and the importance of the way in which it is construed and applied. The complexity of innovation activities, the outcome which is often quite uncertain, should also be noted.

The study is structured as follows: the empirical study is explained in Chapter 2, the results of the analysis are specified in Chapter 3, while in Chapter 4 basic conclusions are presented.

2 Empirical Research

The approach of Narver and Slater on market orientation has been adopted. Consequently, market orientation is defined in terms of business culture consisting of three behavioural components: consumer orientation, competitor orientation and interfunctional coordination. Consumer orientation as defined by Narver and Slater (1990) includes current and future customer needs in the target market so that a firm is able to continuously deliver products and services of superior customer value. Competitor orientation relates to monitoring and understanding of competitors' short-term strengths and weaknesses and their long-term capabilities and strategies. Interfunctional coordination refers to the coordinated use of all available resources of a firm in the process of creating superior values for target customers (Narver and Slater, 1990).

In line with the accepted approach, market orientation has been measured by the MKTOR scale developed by Narver and Slater (1990). Another reason for its use here is that its applicability for measuring market orientation has been proved in very different and heterogeneous markets (Hooley, 2000), making it also appropriate for measuring market orientation in the markets of transition countries such as Croatia. The intensity of market orientation components has been measured on a five point Likert scale.

Firm innovation has been measured by the number of new products introduced by Croatian firms during the period from 2001 to 2003. Both continuous and discontinuous innovations are included in this analysis. Continuous innovations are new products with only slight or no technological modifications, which are minor improvements, imitations or supplements to a current product line (de Brentani, 2001). On the other hand, discontinuous or radical modifications represent real novelties and unique technological solutions, involving the development and application of new technologies and state of the art in technology and product categories. To better clarify the types of innovations the questionnaire included questions relating to the number of line extensions, products new to the company (both are continuous innovations), and to discontinuous innovations.

2.1 Research Hypotheses

Consumer orientation as a component of market orientation means continuously identifying wants and needs of customers and trying to meet them in order to achieve good business performance. Customer needs change over time and needs for different forms of product arise. Companies, by continuously determining needs, come to better know customers and their needs, thus identifying new forms of products which are missing in current lines. In line therewith, hypothesis 1 of the research is as follows:

H1: *Consumer orientation enhances the introduction of new products into existent product lines.*

Market oriented firms are considered to imitate competitors exactly because of competitor orientation which focuses on discovering the activities of current and potential competitors and comparison of one's own position with the competitor's position. Hence competitor orientation is often accused of fostering the imitation of competitors and consequently of hampering creativity and innovation in a firm. This is the situation if a firm is a follower and is reluctant to change such a position. However, seeking to deduce a competitor's activities does not need to be done only to imitate them. It may also be used to identify competitive opportunities which help the firm to adequately prepare the launching of a product into a market, as well as a stimulus to capture a leading position. It is not necessarily useful to use competitor information only to undertake exactly the same activities as the competition: rather, it may be better to do just the opposite – pursue different strategies and activities. Thus hypothesis 2:

H2: *Competitor orientation enhances introduction of discontinuous innovation.*

Interfunctional coordination enhances unimpeded information circulation within a firm, communication between departments and employees and making common efforts in achieving the firm's goals. In this respect it creates an environment which lends itself to the creation and exchange of ideas firmwide which may result in new products. Such a situation in the firm can contribute to innovative

development of any degree of novelty. Based on the above said it may be construed that:

H3: *Interfunctional coordination positively impacts product innovation.*

2.2 Methodology

Data collection was conducted in the framework of the project "Statistics of innovation in the Republic of Croatia as a basis for defining scientific and technological policies and evaluation of Croatian company competitiveness" (Community Innovation Survey – CIS3). The research includes production and service sector companies having 10 or more employees.

The selection of sample units was randomised using the Croatia business database. The data collection was conducted by a mail survey accompanied by telephone prompts. The sample consists of 567 Croatian companies from the production and service sectors employing 10 or more employees. The sample included both sectors because of the fact that market orientation is applicable in all firms regardless of whether they are engaged in production of tangible products or in the provision of services. In the sample service companies prevail to a slight degree. Service companies account for 55 percent while production sector companies being 45 percent. With regard to the sample structure related to company size, small and medium size enterprises prevail. Small enterprises constitute 75.6 percent, medium ones 18.8 percent, and 5.7 percent of enterprises in the sample are large enterprises.

The hypotheses were tested using the regression analysis. The regression analysis results are presented in the text that follows.

3 Analysis Findings

Table 1 presents the regression analysis results relating to the impact of market orientation components on the introduction of product innovations of a certain degree of novelty. In general, all three models of multiple regression show a high level of statistical significance, thus indicating that the relationships obtained as measured for the sample population are highly probable.

The coefficient value of multiple determination and adjusted coefficients of multiple determination in all three regression models demonstrate that the regression models have explained only a few of the variations. The first model relating to the impact of market orientation component on new products in existent lines has explained only 6.95 percent of variations; the second model has explained 3.83 percent, while the last one has explained 9.07 percent of variations. Since the coefficient of multiple correlation is a monotone non-decreasing function of the number of independent variables, its value can be increased by adding more variables, thus making a model more representative (Šošić, 2004, p. 452). In this study the representativeness of the model has not been increased by adding new independent variables because of the objectives and the very distinct focus of the study on the impact of market orientation components on company innovation.

To establish the quality of the regression models, the extent of multicollinearity was analysed in the models. Multicollinearity in a regression model measures the existence of any narrow linear correlation of independent variables or their approximate linear combination (Šošić, 2004, p. 517). To establish whether the insignificance of individual variables is a consequence of the fact that several variables explain the same part of the dependent variable, analysis of the existence of multicollinearity between independent variables was conducted. To establish in a more precise manner the existence of multicollinearity in model variances, inflation factors, and tolerances (which are actually equivalent measures) have been used, as is usually the case.

Table 1 **Regression Analysis Results Relating to the Impact of Market Orientation Components on the Introduction of Product Innovations**

	Line extensions			**Product new to a firm but not to the market**			**Discontinuous innovation**		
	Beta coefficient	Standard error	Significance level (p)	Beta coefficient	Standard error	Significance level (p)	Beta coefficient	Standard error	Significance level (p)
Consumer orientation	**0.139**	0.063	0.028695	0.087	0.054	0.104254	0.078	0.057	0.175694
Competitor orientation	**0.253**	0.071	0.000420	**0.225**	0.053	0.000025	**0.412**	0.073	0.000000
Interfunctional coordination	**-0.295**	0.065	0.000007	**-0.270**	0.062	0.000018	**-0.323**	0.075	0.000020
Model significance	0.00000			0.00002			0.00000		
Correlation coefficient (R)	0.264			0.196			0.301		
Coefficient of multiple determination (R^2)	0.069			0.038			0.090		
Adjusted coefficient of multiple determination	0.063			0.034			0.083		

Variance inflation factor values as well as tolerance values in all models and for all independent variables clearly demonstrate that there is no multicollinearity between the independent variables. Specifically, in no case does the variance inflation factor exceed 5 or 10, nor is the tolerance lower than 0.2 or 0.1. This means that the same part of the dependent variable is not explained by two or all three independent variables, in other words the fact that the variable "consumer orientation" significantly impacts (at the level of 5 percent) the introduction of products new to a firm, but not the market nor it impacts discontinuous innovation, is not the consequence of multicollinearity.

Table 2 **Variance Inflation and Tolerance Factors in Regression Models**

	Line extensions		**Product new to a firm but not to the market**		**Discontinuous innovation**	
	Variance inflation factor	Tolerance	Variance inflation factor	Tolerance	Variance inflation factor	Tolerance
Consumer orientation	1.830	0.546	1.866	0.536	1.334	0.749
Competitor orientation	2.313	0.432	1.799	0.556	2.164	0.462
Interfunctional coordination	1.929	0.518	2.498	0.400	2.272	0.440

The results of multiple regression on the influence of market orientation components on the introduction of certain kinds of innovation indicate a significant and positive influence ($\beta = 0.139$, $p = 0.029$) of consumer orientation on the introduction of new products in existent product lines. Its influence on the remaining two kinds of innovation is not significant. This finding supports the hypothesis that consumer orientation encourages the introduction of new products in existent product lines. However, one should bear in mind that competitor orientation also positively influences the introduction of the same kind of innovation and that its impact is stronger than the consumer orientation ($\beta = 0.253$, $p = 0.0004$). It follows that consumer orientation is not the sole and only principal precursor of the introduction of new products to existent lines. Companies that demonstrate a stronger intensity of consumer orientation simply are more inclined to introduce this specific kind of innovation.

Competitor orientation positively impacts the introduction of all kinds of innovation; however, the intensity of this impact is the strongest with discontinuous innovation ($\beta = 0.412$; $p < 0.001$). The above observation supports hypothesis H2, that discontinuous innovation is encouraged by competitor orientation. As competitor orientation positively impacts the introduction of both types of continuous innovation, one should bear in mind that monitoring of competitor activities, their strengths and weaknesses leads to competition imitation. However, the better companies know their competitors, the better the opportunity to develop products which exceed significantly other products offered in the market either by competitors or by the company itself.

The third market orientation component, interfunctional coordination, has a significantly negative impact on the introduction of all three types of innovation. In other words, the higher the intensity of interfunctional coordination, the lower the introduction of any type of product innovation by the company. This is the only market orientation component whose beta coefficient shows a negative relationship. The beta coefficient value does not show significant oscillations in the intensity of impact for different types of innovation ($\beta = -0.295$ for line extensions, $\beta = -0.270$ for product new to a firm and $\beta = -0.323$ for discontinuous innovation). This finding is in contrast to the initial assumption of a positive impact from interfunctional coordination on the introduction of product innovation. Hence hypothesis H3 is entirely rejected.

4 Conclusion

The research in this study focused on establishing the impact of each and every individual market orientation component on the development of a specific type of product innovation. According to the findings, the higher the consumer orientation intensity, the more a company is inclined to supplement existing product lines with new products. This finding is in contrast to the research findings obtained by Lukas and Ferrell (2000), according to which consumer orientation encourages introduction of discontinuous innovation and reduces the number of innovations which are not new to the market.

Regardless of the fact that the research findings demonstrate that consumer orientation does not impact the introduction of discontinuous innovation, consumer orientation need not necessarily be the main and the only factor to blame for making innovation and creativity in the development of new products more difficult, as asserted in the literature. It is more than logical that a consumer oriented company, to better and more completely meet its needs, will keep modifying its products and keep supplementing existing lines with new products. This is supported by the sign and the level of significance of the β coefficient for the "consumer orientation" variable in the regression model.

It is of paramount importance to know what market is in question and what consumers are to be targeted by innovation activities and from whom information will be collected, because this will determine the information we will get. Information collected from consumers or buyers with whom a company cooperates successfully probably is not very likely to stimulate complex innovation departing to a large extent from existing products in the market.

Contrary to the prevailing views that competitor orientation leads to innovation activities being reduced to imitating competitors, the study started from the assumption that this is exactly the market orientation component that encourages development and introduction of discontinuous innovation. The results obtained supported the starting hypothesis. Competitor orientation also encourages the introduction of both types of continuous innovation; however, its intensity is higher for the introduction of discontinuous innovation. This finding clearly indicates the importance of the interpretation and use of information obtained by monitoring competitors. Finding out about competitors' behaviour and about the activities they perform may be used for their immediate imitation, which is a very simple "response" to their activities. If it is in the interest of a firm to be a follower in the market, then decisions on the introduction of new products, which are only an imitation of what competitors already offer in the market, will be made on the basis of information relating to competitors' activities. However, based on the same information, a firm can decide to undertake activities quite different from those undertaken by competitors. In such a way it will achieve or maintain the position of a market leader.

Consumer orientation may function in a very similar way. The study findings demonstrate that the greater the intensity of consumer orientation, the greater is the introduction of new products in existing lines, so that consumer orientation may lead to different effects, as demonstrated by Lukas and Ferrell (2000). If this market orientation component is focused on the identification and meeting of latent needs, then it may be a trigger for the introduction of discontinuous innovation. The effects depend on what the firm or its managers and employees consider a consumer orientation or a competitor orientation. In this case, the views of managers or employees, respectively, about the situation in the market are also important as they are often considered in business decision making.

In contrast to the initial hypothesis of a positive influence of interfunctional coordination on the introduction of product innovation of any degree of novelty, the regression analysis findings demonstrate a significant negative influence. Interfunctional orientation refers to the dissemination of intelligence across a company fostering common efforts by all company departments and all employees to achieve objectives. These activities should certainly contribute to company innovation. However, the higher the degree of interfunctional coordination, the lower the degree of a company's innovation.

Such a finding may indicate that a company is having serious problems relating to the development of new products. Dissemination of information and knowledge is very often definitely not directed towards innovation activities. Interfunctional coordination may contribute to the improvement of business performance, but in Croatian companies this is not achieved by innovation activities. In the specific case of interfunctional coordination, it is essential to assess how the intelligence is used within the company. In Croatian companies intelligence dissemination and common efforts of all departments throughout the company obviously are not focused on the development of new products.

The cause of the problem may be either the domination of individuals who hamper innovation or the resistance of certain managers to accept market orientation or to develop innovation. Both behaviours in line with market orientation principles and innovativeness are values to be introduced at the company level. This in other words means that these values need to be accepted

uniformly across all departments and by all employees. In actual business operation this is not always the case because of the quite frequent resistance of certain individuals. When such individuals are in a position to impose their own values and patterns of behaviour, the effects may be far from the desired ones.

The research in this study is based on a heterogeneous sample which includes companies from the service and production sectors. Companies engaged in various activities have been included as market orientation is deemed to be a concept applicable in companies from all sectors and all activities. However, such an approach may to a certain extent make conclusions relating to specific effects in a specific type of a company rather difficult. For a more profound explanation of the effects of market orientation and related components it is necessary in the analysis to take into account the specificity of a company and the market in which it operates. A follow up study will examine the conditions required for certain effects to be achieved and the reasons for the successful achievement thereof.

Regardless of the extent of the applicability of market orientation, conclusions about the primary manner in which it operates are hard to generalise. There is always a question as to what effects will be achieved, bearing in mind other business factors and why just these effects have been achieved. On the one hand, there are the consumers, market participants whose behaviour depends on a number of social, psychological and cultural factors. Identifying the wants and needs of such market participants is carried out in a continuous fashion, along with monitoring of competitor activities. For the market information to be usable and able to contribute to business performance, employees should be encouraged to work together in order to achieve company objectives. All this evidence shows the complexity of introducing and applying a market orientation into a company's operation. However, benefits arising from its application are worth the effort.

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