

INNOVATION AND KNOWLEDGE BASED COMPETITIVENESS – CORPORATE PRACTICE AND ECONOMIC POLICY IN HUNGARY¹

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International competitiveness of countries and corporations is the function of their knowledge-based economic performance. Economic positions among countries and inside countries are redistributed on the grounds of success or failure in knowledge based economic activities. It is not a coincidence that innovation performance is again in the limelight, for market success of companies can be maintained temporarily, only in the short run by cost-effectiveness and improved rate of return. Permanently positive market position can be achieved only by launching successful new products and services. Companies, especially in the times of economic crisis, have to meet two requirements at the same time. On the one hand, firms are to improve cost-effectiveness in order to be succeed in the price-competition, on the other hand they are to intensify their activities to launch differentiated innovative products and services in order to increase market potential, growth-rate and market success. Firms need to rethink their relation to innovation and customers. The key in this renewal process is the successful innovation management and innovation marketing.

Innovation and corporate competitiveness

Market conditions of innovations have drastically been changed in recent years. Due to the recent economic crisis it is especially true that most market reached saturation point and international competition became more and more intense, there are a lot of overcapacities in the majority of industries, consumers are overwhelmed with the supply of different products and services. Launching of new competitive products and services *requires complex harmony (interplay) of technologies and competencies* in which firms must meet abundance of norms, compatibility expectations and specifications, i.e. *the multi-component, expensive innovation process must be managed efficiently* both inside the organization and in their relationships. It is more and more complicated for companies to find or create unmet market demand. Risks of the R&D and market launch of new products are growing with increasing development costs, shortening product life-cycle and growing uncertainty of meeting customer preferences.

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For the market success of innovations a firm needs to show more than pure creativity, ideas or technological abilities (Piskóti, 2006). Seeking innovation opportunities can only be successful if the firm has got a future-oriented strategy in which innovations must play an important role. It must be accepted that *the possession of technological know-how is nowadays less important than the deep knowledge of consumer groups and users with attractive growth potential*. These consumers will serve as the primary target market of innovative products. *Wide range of sources of innovative ideas must be utilized* including customers, suppliers, sales staff, customer service, competition analysis, external research institution and internal R&D. A successful company must be in a position of collecting and analyzing innovation related information through an active search and filtering process. *Quick transformation of promising innovation ideas into development projects, speed of the implementation and the well-timed market launch (time strategy) is crucial*. Innovation marketing within the frame of systematic innovation management is necessary to ensure the customer-oriented development of innovative products (Gemünden 2000). The more and more complex market becoming a network of companies and the more and more knowledge and innovation-oriented competition make it inevitable and relevant, i.e. require modeling and analyzing the success of innovations – including but not limited to product innovations – and as a consequence optimizing innovation activities of firms. *Innovation is nothing else than creativity filtered by competition*. Innovations based on R&D results are often poorly marketed and/or do not meet customer preferences. Poor new product launches occur when the focus of communication is not placed on the customer benefits but only technological terms; when the selection and management of channel is wrong; when price positioning is not optimized. It is also a problem when the innovation lacks clear customer benefit(s), i.e. innovation does not solve customer's problem; it does not consider system and synergy effects; and/or it has no technological, technical newness or uniqueness.

The quintessential of successful innovation is the concentration on customer benefit(s) and the efficient market launch. Customer benefits must be relevant, recognizable and easily communicable. From this point of view it is not important that value-added (gain) stems from original product feature or additional utility related to the product (e.g. design or transaction process). *Accordingly, successful innovative firms state that innovation is not only a technological or engineering question but also a fundamental marketing task and therefore they consider innovation as a market-oriented management model*. So the market factors in the innovation process are not external parameters, but internal variables.

Research objectives

In this paper we present the results of a two year research project of which most important objective was the analysis of the influencing factors of successful market innovations. We managed to identify the key success factors of innovations and the relationship among them based on our empirical research findings. We also identified the most important logical relationships between variables influencing innovation based competitiveness. We aimed to create proposals for development directions of corporate strategies as well as the elements of supporting economic policy.

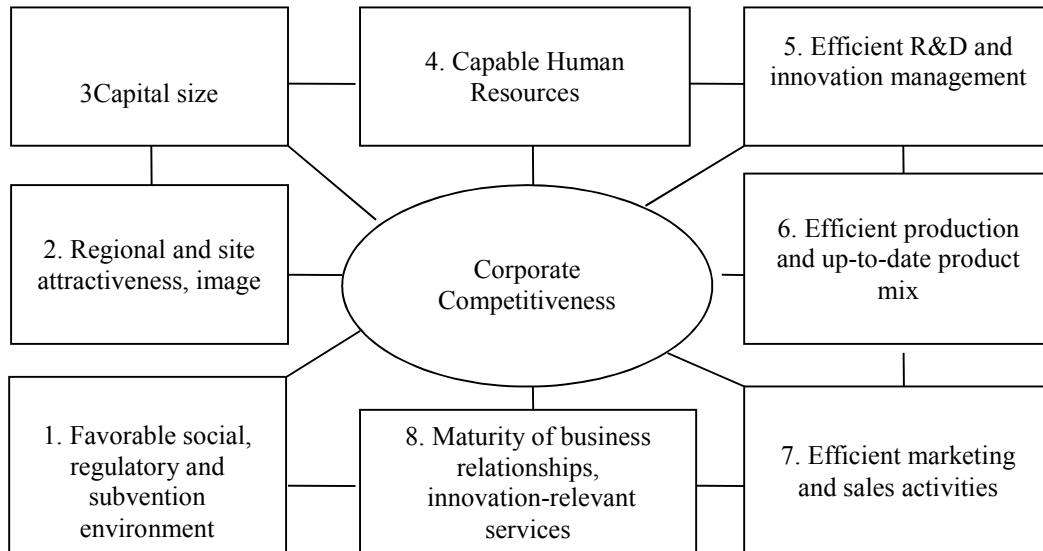
Factors influencing successful innovations

Henard and Szymanski (2001) identified four dimensions of the drivers of new product success. According to their findings product advantage, market potential, meeting customer needs, predevelopment task proficiencies, and dedicated resources have the most significant impact on new product performance. They grouped the driver variables into 4 dimensions entitled product characteristics, firm strategy characteristics, firm process characteristics and marketplace characteristics. Product characteristics is made up of 5 variables: product advantages, product meets customer needs, product price, product technological sophistication and product innovativeness, whereas firm strategy characteristics include marketing synergy, technological synergy, order of entry, dedicated human resources and dedicated R&D resources. Firm process characteristics can be described as a function of structured approach, predevelopment task proficiency, marketing task proficiency, technological proficiency, launch proficiency, reduced cycle time, market orientation, customer input, cross-functional integration, cross-functional communication and senior management support. Last but not least, likelihood of competitive response, competitive response intensity and market potential are considered as variables of marketplace characteristics.

We assume that firm strategic characteristics have direct impact on process characteristics, which, by their impact on product characteristics have indirect effect on market success of innovation. Besides, we also assume that strategic characteristics, process characteristics and product characteristics also have direct impact on the market success of innovation. Product characteristic dimension is made up by product advantage, meeting consumer needs, product price, technological sophistication, product innovativeness variables. Successful product innovations – as the result of market competitiveness of firms – presume the efficiency of the

other innovation related activities (process-, organizational- and marketing innovations), for which the active relationship with external market and regulatory environment is also inevitable (see Figure 1).

Figure 1: Factors of innovation-based competitiveness of companies



Source: Piskóti (2006:280.o.)

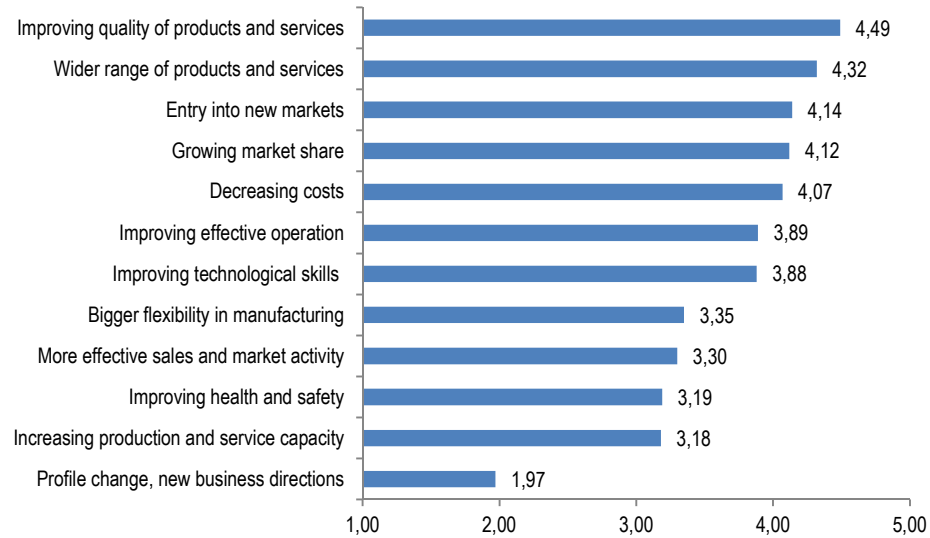
Sampling

In order to achieve our research objectives we carried out a questionnaire survey. Population size is 1774 companies operating in Hungary with R&D activities. Sample size is 94 companies, which means 9,8% confidence interval at 95% confidence level.

Survey results

As survey result we could achieve a diverse description of practice of enterprises having R&D activity. *In innovation activity of enterprises development of new products and services dominate (82%) that is completed by process-innovations (51%). There are relatively rarely organisational innovations, less than one third of the enterprises (29%) had an activity like this in the recent years.* It is particularly remarkable that marketing and market innovation are not typical; they were not or just hardly and rarely implemented into the comprehension and practice of innovation. The relationship of marketing and innovation is interpreted in a narrow sense and appears less often than the traditional fields of innovation.

Figure 2: What goals does your innovation and research and development activity have?



Source: Compiled by the author

Among the goals of R&D and innovation activity – as follows from the previous – improving quality of products and services appears primary that is followed by wider range of products and services. Secondary importance is featured by market goals, entry into new markets, growing market share in the existing markets. Improving effectiveness of internal operation, decreasing costs, improving technological and production skills have tertiary importance. Improving the effectiveness of marketing – because of neglecting marketing innovations- is less decisive, important. It appears as typical consequence, requirement. Issue of health and safety are not part of primary developmental goals. It is obvious that growing capacity is less preferred in the current recessive economic situation. Companies use innovation for the improvement of existing entrepreneurial skills and profitability. New function, changing profile is not usual at all. Majority of companies asked during the research have own R&D activity. 40% of them give assignments to other companies, organisations. 10% of them buy innovation results, licenses. During self-assessment on comparing innovation activity of the company to the most important competitors, 6% was stated to be the best, 39% told they were better than their competitors, while 49% evaluated their own performance to be similar to the competitors. Survey also concentrated on the self-assessment of strategic capabilities, companies had to evaluate R&D, marketing, manufacturing and human resource conditions – availability of innovation and new product development were said to be good. Among the effectiveness criteria of innovation oriented economic growth, innovation cooperation, network existence, operation and their realisation in Hungarian practice become more important. (Szanyi 2001, Agárdi-Kolos 2005, Piskóti 2006, Kolos 2006, Csizmadia-Grosz

2012.) On the basis of innovation and knowledge oriented economic development aspiration of the European Union, in the Hungarian regional and economic developmental practice - e.g. Hungarian Pole Programme – several financial support forms appeared that motivates the establishment and operation of innovative cooperation, clusters, and networks. Unfortunately, just few results of them can be found in the Hungarian economy. Intensity of innovation cooperation can be evaluated as low. Beside university and tertiary education research relationship; consumer, supplier cooperation emerge while professional, entrepreneurial multi-player cluster type of organisational relationships can be rarely found that go beyond the direct business processes. About 50% of the companies cooperate with less than five organisations and only about 18% can be characterised by relationship with more than ten partners. Of course, non-innovation relationship is larger at every company.

Figure 3: What kind of research and developmental units mentioned below do you cooperate with during your research and development activity and innovation processes?

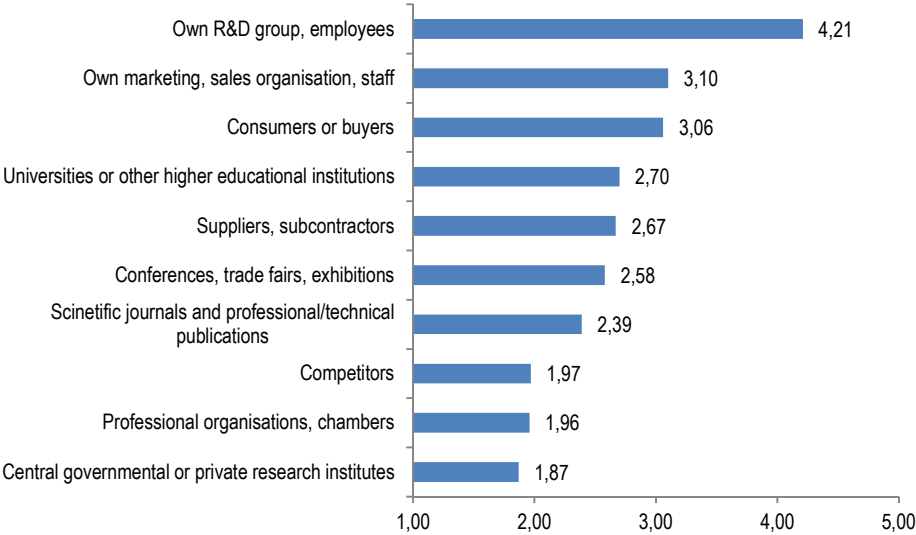


Source: Compiled by the author

More moderate corporate practice of R&D innovation process cooperation and its less deep differentiated character shows that *innovation* seems to be less dominated in innovation clusters – in international practice its *more opened model* is more widespread. Clusters are becoming more important innovation sources – in international countries- manufacturers, service providers, suppliers, research and educational institutes and others contribute to the value forming process of the given area to a bigger extent. With more effective cooperation enterprises are more successful than operating in an isolated way, but the extent of success depends the activity of the enterprise. These provide a favourable condition for the so *called open-innovations*. It is obvious that Hungarian clusters also have to change for its success, clusters have to change their economic logic and specialise. Clusters can provide starting

advantage for enterprises, innovations, therefore they can be created not only in old, traditional, but new geographic premises as well for example with outsourcing. Strong clusters can benefit from advantageous cluster specific premise conditions (competitive environment (incentives, laws. concurrency) demand conditions, suppliers, service providers) and different availability of possibilities like labour-force, know-how, research institutes and venture capability. Within concrete developmental process, beside the expansion and intensity of external cooperation, professional relationships also play an important role. Definitely R&D, production, sales, and marketing organisations dominate in product developmental activity and planning to which other, for example the staff of logistic, customer service, human resource units also connected with smaller intensity.

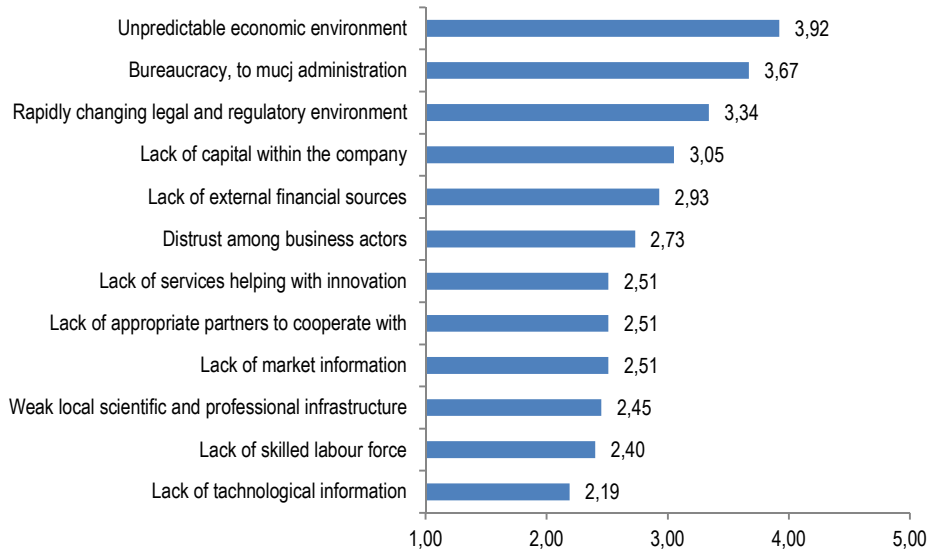
Figure 4: From the following information sources which ones did you use for your research and development activity and innovation process?



Source: Compiled by the author

About one third of the companies asked during the research (36%) told to have usual, intensive cooperation, about fifty percent of them (46%) also said frequent meetings. Internal coordination and its market orientation can be also an important efficiency aspect in the innovation processes. The sources of investigated product-innovations were primarily from own R&D and marketing, sales organisations, employees directly. It is a sign for strengthening of market orientation that many initiations come from customers, suppliers, competitors and professional meetings.

Figure 5: How much do you consider the followings to be the barriers of your innovation activities?



Source: compiled by the author

Mainly external environmental, regulatory conditions, lack of capital are considered to be the barriers of innovation for a long time according to the opinion of the respondent companies. It is very important that beside trust, lack of appropriate partners, professional service providers and market information are considered to be the inhibitory factors of innovation activity by the companies. This is not too promising as for building cooperation, cluster-relationships supporting innovation.

Figure 6: What were typical after the market entry of the new product compared to the other product markets of the company?



Source: compiled by the author

In the second part of the survey we focused on the evaluation of a concrete product developmental project and innovation realization. During the description of the concrete

innovation process, mainly consciously developing, formalized- not efficiently realized in every aspect- process was operated by the companies. Not always consequent validation of market orientation, innovation-marketing is shown by the market researches. Answers do not always refer to the lack of consequent development of market concepts, market entry and time strategies.

Innovation oriented economic policy

Companies having active innovation activity mainly focus on independent optimization, competition, they only want to utilize the possibilities of strategic and operative cooperation to a small extent. That is why national and regional economic policy have dual goal: on the one hand it should help with strengthening direct innovation potential of the companies, on the other hand it should motivate the strengthening of different cooperation forms. Therefore it is possible for the regions, especially areas having knowledge based competitiveness to get support to close up to Europe.

Desirable interventions of economic policy can happen on the basis of an innovation, knowledge based, developmental strategy and program whose most important principles can be the followings:

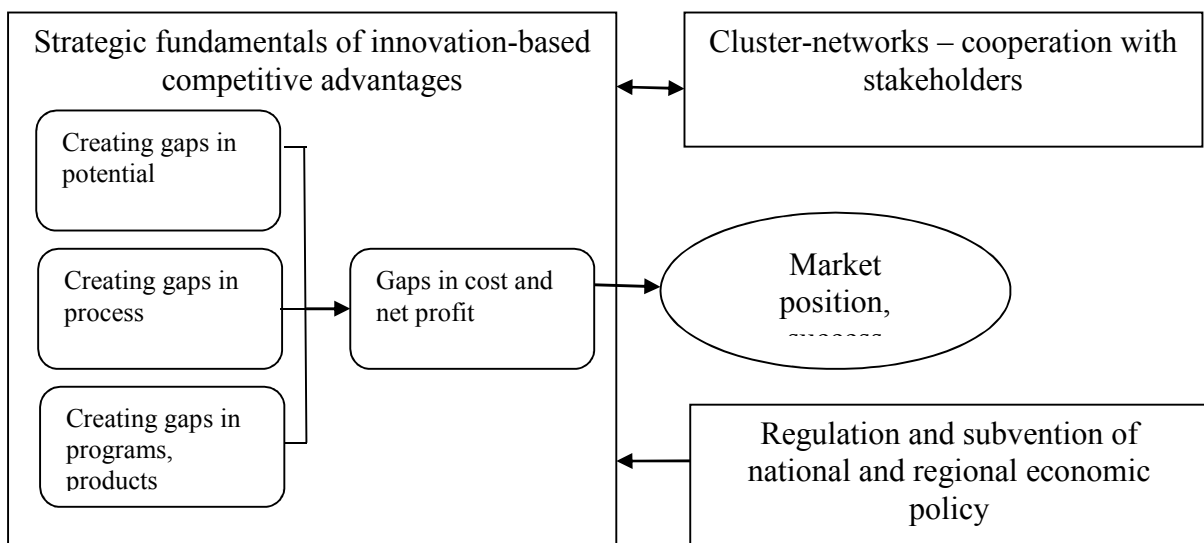
- creating so-called economic developmental competence centres in order to set up region integrated approaches for innovation oriented developments, cooperation,
- developing knowledge based activities with *setting up Science Parks*, developing research infrastructure at universities, research institutes, companies,
- supporting research program, cooperation focusing on regional, priority innovation areas,
- specific development of educational-system, integrating them with economic sphere as users
- development of economic-business cooperation (that can contribute to set up new companies, business cooperation with other firms, support the conditions of contact, and support of services connecting to business decisions, e.g.:
 - high-tech, start-up supporting centres, incubators,
 - thematic, innovative clusters, supporting companies to have network cooperation,
 - developing integration, business services for SMEs, e-commerce, and
 - innovation, venture capital fund, that is financial product developmental cooperation
 - innovation management and marketing counselling

- social type investment incentives, operating town and regional marketing activity that does not only focus on companies coming recently, but also provide further marketing assistance for enterprises operating in the town or region.

Conclusions

On the basis of our empirical analysis it can be stated that harmonizing firm strategy characteristics and process characteristics is extremely important for companies to have successful innovations because strategy characteristics have very strong influence on process characteristics. However, it is more important to optimize product characteristics that are determined by product advantage, meeting customer needs, competitive price, product technological sophistication and product innovativeness, as these variables have the strongest direct influence on the market success of innovation. If we would like to achieve market success through innovation, optimizing product characteristics is insufficient because process characteristics and strategic characteristics also have direct impact on market success, although this influence is much weaker than at product characteristics, but their effects are not negligible at all. Therefore to achieve market success, the optimization of all the three factor groups is needed. Thereby the necessity of marketing-, process- and strategy orientation of innovations and the need for marketing driven product development can be confirmed. International competitiveness of a given region or country is determined by successful market innovations of the companies located there. Therefore, regulatory and subsidiary systems of national and regional economic policies must essentially be focused on supporting innovations to turn ideas into market success. Some of the elements of the desirable innovation-oriented economic policy are presented in this paper.

Figure 7: Fundamentals of innovation-based competitive advantages



References

1. Agárdi I. Kolos K. (szerk.)(2005): A vállalatközi kapcsolatok elemzése, a vállalatközi kapcsolatok egyes területein. Műhelytanulmány, 20. Budapest Corvinus Egyetem, Versenyképesség Kutató Központ, Budapest,
2. Cooper R. G. & Edgett S. (2009) Successful Product Innovation: A Collection of Our Best. Product Development Institute Inc., www.stage-gate.com
3. Csizmadia,Z.-Grosz,A.(2012): Innováció és együttmű-ködési hálózatok Magyarországon in. Bajnóczy-Lengyel-Málovics (szerk.): Regionális innovációs képesség, versenyképesség és fenntarthatóság. JATEPress Szeged, 52-73.o.
4. Drucker P. F. (2008) The Essential Drucker: The Best of Sixty Years of Peter Drucker's Essential Writings on Management (Collins Business Essentials) HarperBusiness, Reissue edition
5. Evanschitzky, H., Eisend, M., Calantone, R. J., Jiang, Y. (2012) Success Factors Of Product Innovation: An Updated Meta-Analysis. Journal of Product Innovation Management, Volume 29, Issue Supplement S1, 21-37
6. Henard, D. H. & Szymanski, D. M. (2001) Why Some New Products Are More Successful Than Others. Journal of Marketing Research, Vol. XXXVIII, 362-375
7. Kolos K.(szerk.)(2006): Vállalatközi kapcsolatok és a versenyképesség összefüggései. Műhelytanulmány 44. Budapest Corvinus Egyetem, Versenyképesség Kutató Központ,
8. Piskóti I.(2006): Az innovációmarketing gyakorlati megoldásai in: Vágási M., Piskóti I., Búzás N.: Innovációmarketing Budapest: Akadémiai Kiadó, 2006. 129-162.o
9. Piskóti I.(2007): Innovációmarketing–marketinginnováció Miskolc, Miskolci Egyetem 154 p.
10. Szanyi M.(2001): Stratégiai szövetségek és tartós vertikális kapcsolatok a magyar gazdaságban Vezetéstudomány, 2. pp. 31-37.
11. Székely M. – Barna I. [2002]: Túlélőkészlet az SPSS-hez, Typotex Kiadó, Budapest
12. Veres Z. [2005]: Szolgáltatásmarketing, KJK-KERSZÖV Jogi és Üzleti Kiadó, Budapest

Summary:

Analysis of factors influencing market success of corporate innovations is a popular topic both in the international and the Hungarian literature. Identification of drivers of new product success and analysis of their relations are very critical for the companies to be successful in their core markets. It is agreed in the literature that firm strategy characteristics, firm process characteristics and product characteristics all influence market success. Our main objective was to develop an innovation model integrating the structural and process elements influencing market success of innovations. We empirically tested our model by SEM and found that market success of innovations was highly determined by product characteristics, but it was also significantly, but to a lesser extent, influenced by process characteristics and the firm strategy.

Keywords:

Innovation, marketing, market success, Hungary