

Organizational innovations and their behavioral background¹

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Organizational innovations have always played a Cinderella role in the innovation literature, compared to product and technological innovations. Even though the role they play in economic development does not lag behind of these later types at all. Neglecting organizational innovations explains the fact that today there is no consensus about their definitions, about their measuring, about how to interpret them, even though, as a result of the information and communication revolution, networking, this organizational transformation that is fundamentally changing the workings of the economy is unfolding in front of our eyes. According to the authors, both versions of networking – within or outside of the firm – are present in all significant organizational transformations: from transforming rigid vertical firm structures into networks of loose autonomic units to new forms of cooperation between firms. In the second part of the paper the authors present the results of their research relating to organizational innovation based on an online survey of 302 firms. Organizational innovations are highly important in such countries – like Hungary –, which do not have enough financial resources to carry out significant product and technological innovations. However, according to the survey, in the case of organizational innovations we perform poorly even compared to the other types of innovation. The final consequence is that the social context and the attitudes and behavioral forms closely related to it are determinative in explaining our backwardness in the area of organizational innovation.

Keywords: organizational innovation, typology of organizational innovation, networking, organizational behavior, attitudes and factors influencing innovation

1. Introduction

When we talk about innovation even economists often exclusively think of product or technological innovations. That is neglecting other types of innovations, including primarily organizational innovation, which is not only a subjective impression but convincingly proven by the Internet search results related to the topic. If we type “product innovation” and “organizational innovation” into the search fields of one of the most commonly used database, our conjecture is confirmed:

Product innovation hits:	3. 900 000	(Google)	1. 914	EBSCO
Organizational innovation hits:	338 000	(Google)	667	EBSCO

2. The undeservingly neglected version of innovation

Organizational innovation was undeservingly pushed into the background. Organizational innovations carried the world forward not less than new products or the revolutionarily new technologies. Organizational innovations produced impressive results centuries before the Industrial Revolution. It is enough to allude to the smashing productivity increasing influence of the appearance of the manufactories. A unique example of organizational innovations of

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the pre-capitalist times is the Arsenal of Venice, the operation of the armory and ship manufacturing giant owned by the city state.

"The Arsenal of Venice was founded in 1104. By 1500 the shipyard/armory was the largest industrial complex in the world (...) and produced nearly one ship every day (!), and at its height, employed 16,000 people. It employed production methods of unparalleled efficiency that predated Henry Ford with long time, including:

- assembly lines
- the use of standardized parts
- vertical integration
- just-in-time delivery
- time management
- rigorous accounting
- strict quality control and
- specialized workforce" (*Crowley* 2011, p. 64.).

The fact, that Venice was able to be the queen of the seas for centuries, is owed to the above mentioned organizational innovation. In the capitalist era the “groundbreaking” organizational innovations was no less important, such as the production line of Henry Ford, the franchise-system of McDonald’s or the kanban ‘just-in-time’ system introduced at Toyota.

3. The theoretical approaches and the types of organizational innovations

Despite the exceptional importance of organizational innovations, the theoretical treatment of them is quite problematic. There is no dominant theory in the field. “The existing literature on organizational innovation is diverse and scattered. There is no consensus on a definition of the term ‘organizational innovation’, which remains ambiguous” (*Armbruster et al* 2008, p. 645.).

According to *Lam* (2011) there are three main approaches to organizational innovation:

The first stream of organizational theories focus predominantly on the structure of innovative organizations and its effects on product and process innovations (*Lawrence–Lorsch* 1967, *Mintzberg* 1979).

The second stream of the literature underlines the importance of organizational learning (*Argyris–Schön* 1978, *Prahalad–Hamel* 1990, *Senge* 1990, *Nonaka–Takeuchi* 1995, *Nonaka–von Krogh* 2009).

The third stream builds up models of organizational change and try to understand how organizations change (*Thompson* 1967, *Hannan–Freeman* 1984, *Burnes* 1992, *Kotter–Schlesinger* 2008).

The various approaches are separated from each other by the Great Wall of China; there are some overlaps between the various streams. The organizational innovations realized in practice can be classified in several ways. *Armbruster et al* (2008) highlights two significant points when grouping organizational innovations:

1. Do innovations take place inside the organizations or – by crossing its boundaries – in the inter-organizational field?

2. Do innovations in question affect the organizational structure itself; or rather they only change the processes taking places inside a given structure? Based on this we can organize and differentiate four types of organizational innovations a matrix:

Figure 1. Typology of organizational innovations. Are there any similarities between them?

		Focus of Organisational Innovation	
		Intra-Organisational	Inter-Organisational
Type of Organisational Innovation	Structural Innov.	<ul style="list-style-type: none"> • Cross-functional teams • Decentralisation of planning, operating and controlling functions • Manufacturing cells or segments • Reduction of hierarchical levels • ... 	<ul style="list-style-type: none"> • Cooperation/networks/alliances (R&D, production, service, sales, etc.) • Make or buy/Outsourcing • Offshoring/relocation • ...
	Procedural Innov.	<ul style="list-style-type: none"> • Team work in production • Job enrichment/job enlargement • Simultaneous engineering/concurrent engineering • Continuous Improvement Process/Kaizen • Quality Circles • Quality audits/certification (ISO) • Environmental audits (ISO) • Zero-buffer-principles (KANBAN) • Preventive maintenance • ... 	<ul style="list-style-type: none"> • Just-in-time (to customers, with suppliers) • Single/dual sourcing • Supply Chain Management • Customer quality audits • ...

Source: Armbruster et al (2008, p. 647.)

4. Theoretical considerations: The theoretical background of organizational innovations

If we are searching for a common core in the seemingly quite heterogeneous types of innovations, introduced in the table, we can conclude that most innovations point to the same direction: to "internal" or to "external" networking. The revolutionary changes leading to networking can be characterized by the followings:

- In the 20th century, beginning with the 80s, in the most developed countries and sectors with varying intensity, but everywhere the deconstruction of the traditional hierarchic firm took place: the vertical corporation characteristic of the industrial era are being broken down both from the inside and from the outside. The rigid organizations appropriate for the industrial societies gave way to looser organizational solutions.
- Decentralization inside the firm increases the independence of teams, empowers the autonomous units, and the firms are also transformed from inside by the special network of teams.
- Cooperation between firms and the development of networks blur the boundaries of the firm: rigid economic units have been replaced by organizational configurations significantly more flexible than the previous ones.
- Behind the two interweaving trends (the inside and outside networking) stands the informatization of the economy and its transformation into a knowledge economy. All of the above mentioned organizational innovations can be and should be interpreted in this context.

Already at the beginning of the loosening up process of the corporate structure the question arises: whether all these changes can be understood as the revitalization of the

market, or we are talking about something else? The deconstruction, the softening up of the firms, logically was considered first as the strengthening of the market, coordination to the expense of hierarchies. If we contrast firms indeed, as coordination of hierarchic forms to markets, it becomes logical that their deconstruction involves the strengthening of the market.

However, this simplified approach later was followed by more nuanced analyses. They did not perceive the internal and external networking of firms as the strengthening of the market, but rather they were talking about it as an increasingly larger 'intermediate zone' developing between the market and the hierarchy through organizational innovations (Zenger–Hesterly 1997). The most spectacular organizational innovation, the development of networks, was captured by the great figure of organizational theory, Oliver Williamson, as the new combination of the already existing two basic coordinating forms, highlighting the innovative organizational forms (for example network corporations) as mixes, hybrids of the market and the hierarchy at various proportions (Williamson 1987). Holland and Lockett pointed out the contradictory nature of the process, emphasizing that although organizational innovations introduce strong market incentives to firms, but to counter this/as opposed to this, hierarchic control is being partially extended to markets (Holland–Lockett 1997).

Albert-László Barabási went even further and – considering the network as the broader form – described 'the market as a form of the network: "In reality, the market is nothing but a directed network. Companies, firms, corporations, financial institutions, governments, and all potential economic players are the nodes. Links quantify various interactions between these institutions, involving purchases and sales, joint research project, and so forth"' (Barabási 2002, p. 208.).

The deconstruction of the firms, the external and internal networking is approached more dynamically by one of the authors of this study, Katalin Szabó in the book co-authored with Éva Kocsis. According to this:

"The network is such a specific area of transactions, where the given transactions are marketized and placed under the scope of the hierarchy, depending on which can solve them cheaper, which way it is more efficient. Thus, the network is a type of 'turntable' on which the rapid/fast play-switches between the market and the hierarchy take place. (...)We could also say, that the network customizes the organization, in other words, it always sets up an organizational framework that fits the solution of the given problem by the combination of the market and the hierarchical elements fitting to the given cases. (...)The switches between the market and the hierarchy, which took place earlier on a historical scale, taking long years and decades in a given area, accelerate and become common in the era of uncertainty and complexity, and they demand such organizational framework which is able to serve the demands for rapid changes" (Kocsis–Szabó 2000, pp. 199–200.).

The flexible and rapidly changing organizations, in which the basic coordinating forms, namely the market and the hierarchy change according to the circumstances, are the only special organizational reflections of the economic changes taking place as the result of the product and technological innovations. Thanks to the information technology and the Internet the previously clear boundaries have faded, have become relative in all areas and in all aspects. Not only can the innovative organizational solutions be considered as hybrids, changing mixes of the market and that of the hierarchy, but the products, as well. The information filled 'smart' products and services overlap, often it is even difficult to tell if we are dealing with a product or a service. The previously 'clear' economic roles are mixing, in the transactions sometimes the buyer takes over the role of the seller. On the Internet they are the buyers recruiting more new buyers of the product.

In this hectic and uncertain environment the firm is in a constant 'switched-on' state, and the teams organized for a given task belong to the firm only to a certain extent, but at the same time, they cross over its boundaries. Also within the firms, the previously built walls that separated the departments and divisions are coming crumbling down. The boundaries of the previously well-defined professions also started to blur: 'multiple competencies and qualifications' are basic job market demands and they are also following a worldwide trend. The real problem of the basic units of the work organization is that they do not know who the boss is, who appraises the performance of the members and who decides about the compensation. Previously these questions could not even arise since the hierarchy was solid and clear. The acceleration of the economic process implies that also in the organizations a special 'indeterminacy relation' begins to prevail. This can be detected in almost all organizational innovations introduced in Figure 1².

5. Synergy between the various types of organizational innovations and the postmodern economic environment

However, the organizational innovations, the breaking down of the hierarchies, the blurring of the boundaries, are spreading since the 80s of the 20th century – as it became evident from the above – they did not take place independently from the product and the technological innovations, rather they took place in a strong connection with them. "Although there exists a large literature on the adoption and diffusion of innovations, only a very limited part considers the joint adoption of a range of innovations. (...) They have then argued that the simple adoption of technological innovations alone is not sufficient to gain competitiveness; the full benefit of those technologies is only achieved if they are accompanied by a cluster of related innovations" (*Battisti–Stoneman* 2010, p. 202; 188.). If we pick almost any of the innovations from Figure 1, all of them are more or less in a strong interrelation with technological innovations, more closely with information technologies and the advent of the Internet. "Advances in information technology - the convergence of computing, networks, internet, and video technologies - that have the potential to radically affect the socioeconomic system, from global commerce to personal life styles and to enable new organizational forms" (*Lewin et al* 1999, p. 544.). Toyota's just-in-time system would operate with difficulty without constant information technologies and Internet background, but the flat organization 'simplifying' the hierarchic levels would have not developed before the computer age.

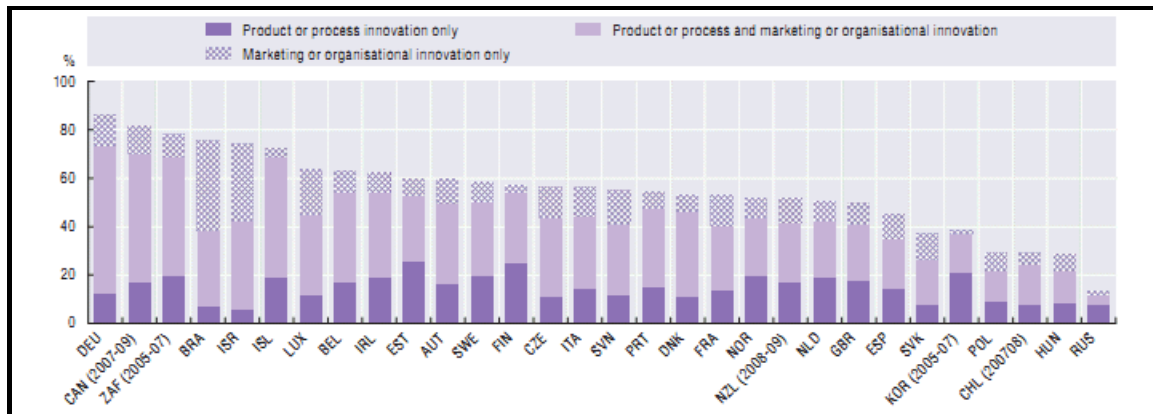
In 1958 Harvard Business Review published an article called *Management in the 1980s* by Harold J. Leavitt and Thomas L. Whisler. It predicted that the computer could do to middle management what Black Death did to fourteenth-century Europeans. So it has/says: If you are part of the middle management and still have a job, do not enter your boss's office alone. GE Lighting's President John D. Opie says: "There are just two people between me and a salesman - information technology replaced the rest". In a world of expensive, centralized computing, it might have happened that way. But distributed computing redistributes power. Goodyear's Vice President, Frederick Kovac says: "It used to be, if you wanted information, you had to up, over, and down through the organization. Now you just tap in. Everybody can know as much about the company as the chairman of the board. That's what broke down the hierarchy. It's not why we bought computers, but it's what they did" (*Stewart* 1993, p. 73.).

As it would have been impossible to run the first multinational firms at the turn of the 19th and 20th centuries without the telegraph and the telephone, in the same way it would be

² For more details on these processes see: *Szabó–Hámori* 2006.

impossible to apply supply changes management or outsourcing without the technological achievements and products of the IT revolution. The synergy between the Schumpeterian forms of innovations and the multiple innovations are also realized on the firm level. The next figure shows that the majority of the innovative firms realize not only organizational or technological innovations, but they realize all types of Schumpeterian innovations at the same time.

Figure 2. The rate of the manufacturing firms that attained the various strategic mixes of innovation – in an international comparison



Source: OECD, based on Eurostat (CIS-2008) and national data sources, June 2011.

The various types of innovations assume each other and not only in the sense where the firm, which is inclined to innovate in the area of technological innovations, is mostly open for organizational or marketing innovations, as well. There is a synergy at work between the various innovations, the technological change assumes new organizational forms and new products often demand new marketing perspectives. We empirically tested some of the described interrelations in regards to organizational innovations as part of a comprehensive innovation survey.

6. Empirical research results on organizational innovation

We carried out the survey between March 24 and August 15, 2011, among firms in the central region of Hungary with the help of an online questionnaire. The request to fill out the 52 item questionnaire was sent to about 3500 potential respondents. We focused on the owners and the managers of the SME sector, but we also included large firms in our survey in order to gain a more comprehensive picture of the topic at hand. SMEs amounted to 76% of the total sample. In regards to the sectors, the majority of the respondents was from the industrial (28%) and the business services (36%) sectors.

Altogether we received 302, fully completed questionnaires back. The survey is non-representative, but it covers the various sectors and age groups. In our opinion the survey is upwardly biased as it was answered mainly by people sensitive to the topic of innovation. The sample is better in many senses than it could be expected, based on international statistics. We have analyzed the innovation activity at the firms by dividing it into 4 areas and 3 types.

We have differentiated four areas of innovation:

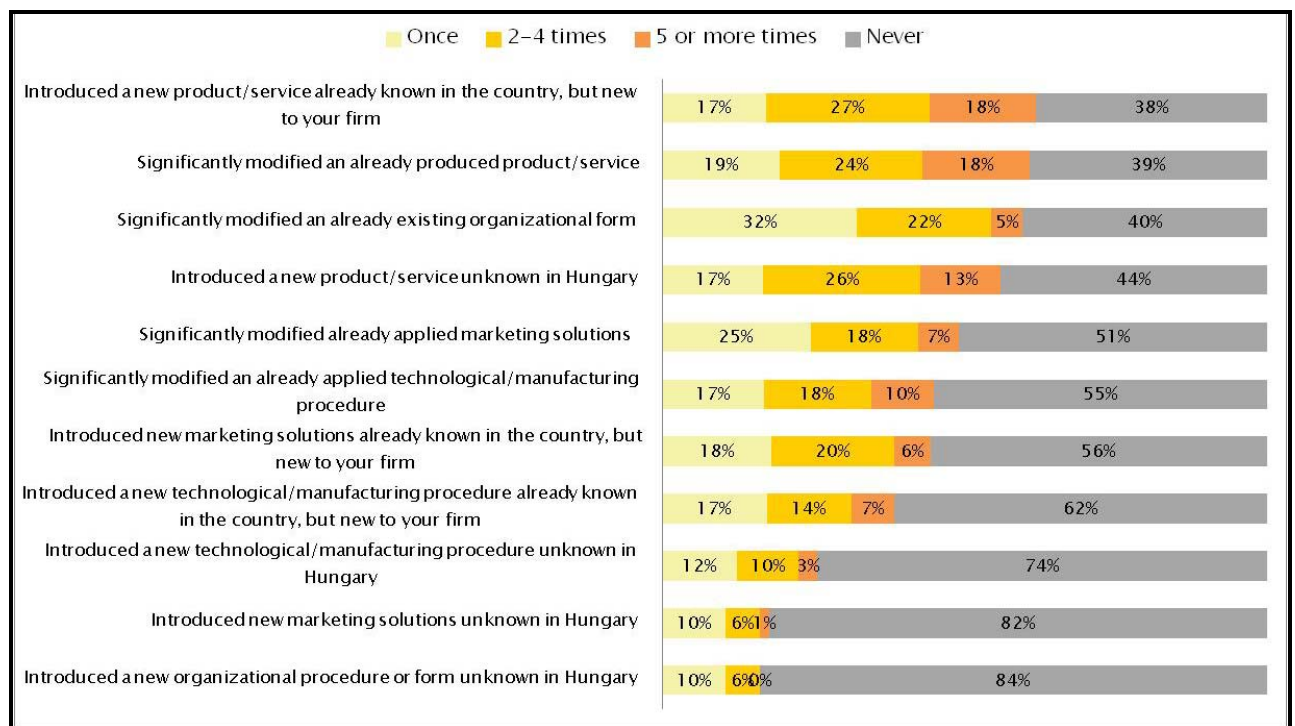
1. product/service
2. technology/manufacturing
3. organizational procedure or form
4. marketing solutions

We also have made a definite difference between tree types of innovations:

- The first category includes those innovations that can be considered as *completely unknown solutions in Hungary*.
- The second category includes those innovations that are *known in the country, but the firm has not yet employed them*.
- We included those changes in the third category where *the products, in technology, in organization, etc. are not considered new at the firm, but they are based on significant modifications*.

We asked the respondents to provide the number of various types of innovations during the past 5 years. We did not analyze those innovations in a separate category that can be considered as new in global terms, because in such sample size/having this many of samples, it would not show a detectable percentage. By introducing the category of ‘others’, respondents were allowed to indicate such innovations, as well. The two types of categorizations were combined in the next figure.

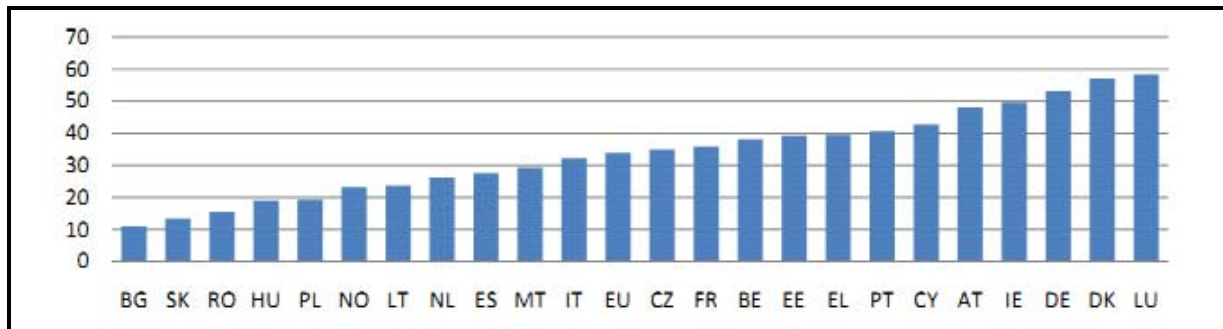
Figure 3. The number of innovations in firms according to the innovation areas and types during the past 5 years



Source: Own survey, 2011 (statistical data processing by Erika Hlédik)

We can see in Figure 3 that the general statement made at the beginning of our study about the inimical approach to organizational innovations is true. While the proportion of the firms, introducing unknown, new products in Hungary is 66%, and 13% of these firms introduced more than five such innovations in the 5 years under examination, in the case of organizational innovations these numbers are 10 and 0%. The situation is similar in the case of the marketing innovations. 82% of the firms taking part in the survey indicated that they had not introduced any kind of marketing innovations that can be considered new in the country. The figure below, which indicates the achievements of the Hungarian SMEs in an international comparison, shows a somewhat better picture than our survey, since 18% of the SMEs, taking part in the European survey, reported organizational innovations.

Figure 4. SMEs using organizational innovation (% of total SMEs)



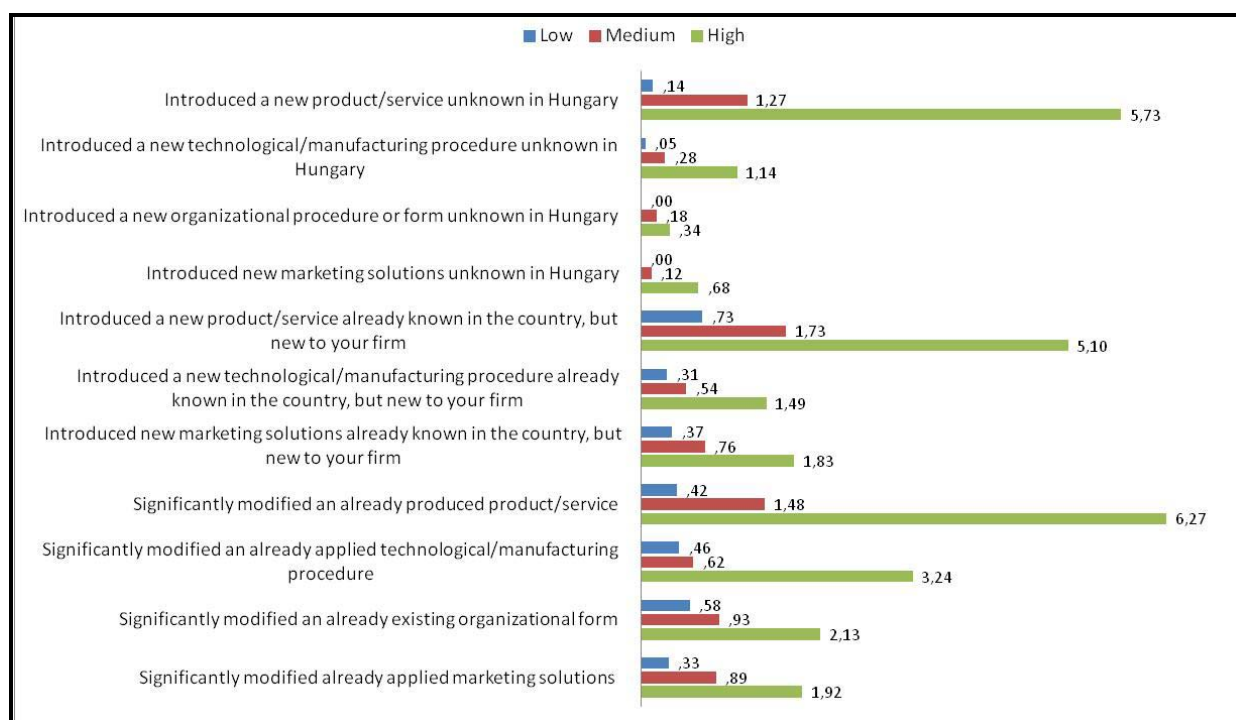
Source: *European Innovation Scoreboard, 2007.*

The significant difference can be attributed to the fact that in the EU survey they did not differentiate between the various versions of the organizational innovations. They probably defined organizational innovations in a broader sense compared to our innovation category (see in the last line of Figure 3): organizational innovation completely unknown in Hungary. If we add the proportion of those reporting significant modifications to the category of the completely new organizational innovations in Hungary, we will get a considerably larger value than those found in the EU statistics. According to the figures another 60% of the firms indicated that they had introduced significant modifications to known organizational innovations.

Finally, we categorized the firms into three groups – based on low, medium, and high innovation index (trisection). This way we have three, almost identically sized groups. The ‘high’ group primarily includes those firms that introduced several such innovations that were unknown in the country before, and in their case the number of innovations from almost all innovation types (or areas) was higher on the average than in the other two groups. The ‘low’ group includes those firms which have not introduced innovations that were unknown in Hungary before, and all of their innovation activities were lower on the average than that of the two other groups.

In Figure 5 we can see that while in the case of product innovations the performance of the three groups of firms can be well differentiated, there are much smaller differences in the case of organizational innovations. In other words, firms that are quite active in terms of innovation do not stand out because of organizational innovations, moreover, in this regard they differ much less from the groups showing moderate or weak innovational activity, while in the case of product innovations, the difference is much larger. This again indicates that organizational innovations are being pushed into the background. Especially, as Mátyás Blastik writes in his study: “The significance of organizational innovations is large in the case of those countries, where there is no chance to finance high cost technological innovations. So for Hungary it would be a plausible solution to place a larger emphasis on organizational innovations in order to counterweigh the high costs of technological innovations, and by their deliberate and effective application, the relative lack of capital could be offset” (Blastik 2011, p. 3.).

Figure 5. The number of various innovations in each innovation group



Source: Own survey, 2011 (statistical data processing by Erika Hlédik)

In our research launching study (Hámori–Szabó 2010) we hypothesized that for the reasons behind the low innovational performance of Hungary in an international comparison, we should primarily seek for institutional and behavioral factors. This hypothesis is supported by the studies of numerous outstanding domestic and foreign researchers (North et al 2006, Kornai 2010). This is especially true for organizational innovations, since the organization itself is a part, a basic unit of the society, the social problems and conflicts affect organizations more strongly and more directly than they affect products and technologies. This is also supported by the literature dealing with factors impeding organizational innovations. In Table 1. we contrast the innovation aiding and impeding factors which affect organizational innovations directly and strongly. We summarized the innovation influencing behavioral factors below:

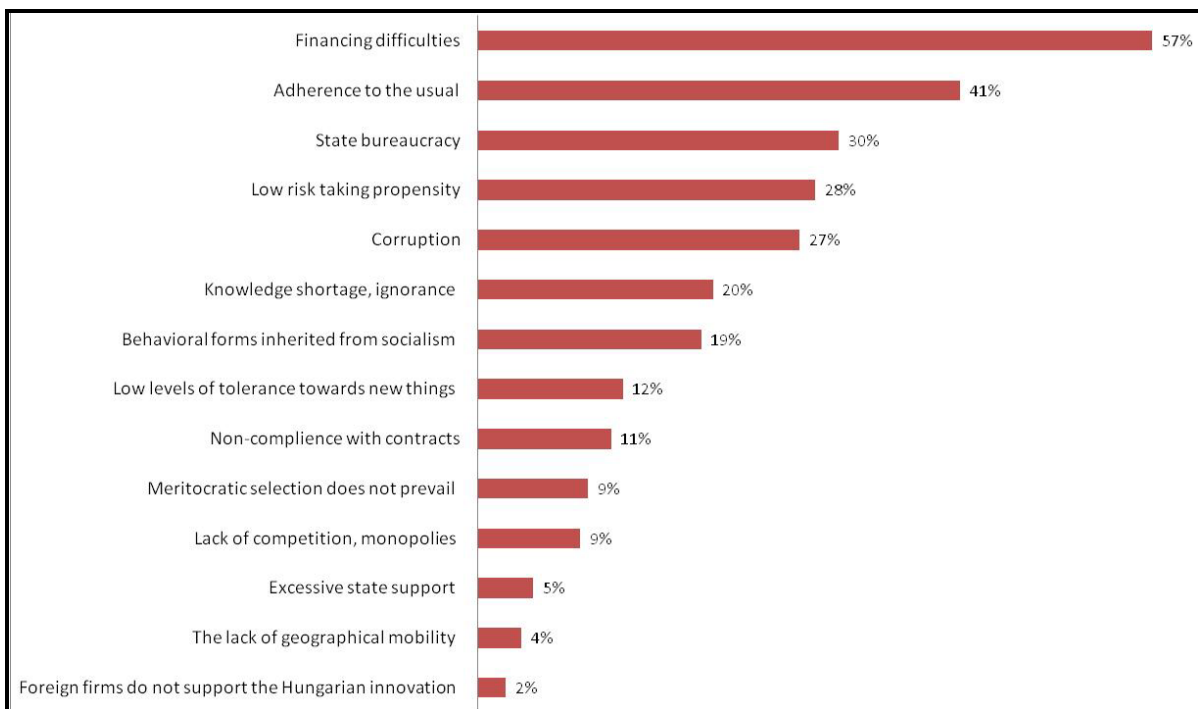
Table 1. Innovation-promoting and innovation-impeding behaviors

Behaviors, promoting innovation	Behaviors, impeding innovation
Inclination to change, flexibility	Adherence to the usual, inflexibility
Autonomous initiative, autonomous action, free decisions	Bureaucratic behavioral forms, vulnerability
High risk taking propensity	Low risk taking propensity
Correct behavior	Searching for corrupt by-passes
Openness, high level of tolerance	Seclusion, low level of tolerance
Rule following behavior in the environment	Contracts, failure to follow rules

Source: own construction

In our questionnaire we included questions about some of these factors. Although as Figure 6 shows, the majority of the respondents (57%) mentioned lack of money as the number 1 barrier to innovations, the behavioral and institutional factors also received prominent places in the figure.

Figure 6. Innovation impeding social barriers



Source: Own survey, 2011 (statistical data processing by Erika Hlédik)

Right after the financial difficulties, the respondents indicated human conservatism, the adherence to the usual, and an institutional and at the same time behavioral factor of the overgrown bureaucracy (30%) as barriers to organizational innovations. This is followed with almost equal measure by the low risk taking propensity (28%), well known for its low levels in Hungary, and corruption (27%). A surprising result is that only an insignificant amount of the respondent (2%) mentioned that the multinational companies settled in the country impede innovation, even though this factor is given a much larger measure in the literature and in the media. According to the international experiences, financial difficulties stand as the number 1 factor among the barriers of innovation, especially in the case of the small firms. (Hewitt-Dundas 2006). Nevertheless, ‘soft’ factors are also mentioned frequently: the low risk taking propensity of management, the bureaucratic behavioral forms are mentioned as the main impeding factors of innovation.

7. Conclusions

Organizational innovations are undeservingly pushed into the background both in theory and in practice, while it is possible to achieve better results by them when having less financial resources than by product and technological innovations.

Because of this fact organizational innovations should receive special attention in countries having worse competitive positions, just as also in Hungary, and in the case of firms that are financed with more difficulties, especially the SMEs.

The most recent organizational innovations – from outsourcing to the autonomous work groups – can be described as a kind of external and internal networking, a particular combination of markets and hierarchies, and their background and the driver is the IT revolutions. This form of innovation is closely related to product and technological innovations.

Among the aiding and impeding factors of organizational innovations ‘soft’ factors and behavioral forms related to organizational culture play an emphasized role.

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