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"Organizational Innovation in the Manufacturing Sector and the Knowledge Intensive Business Services"

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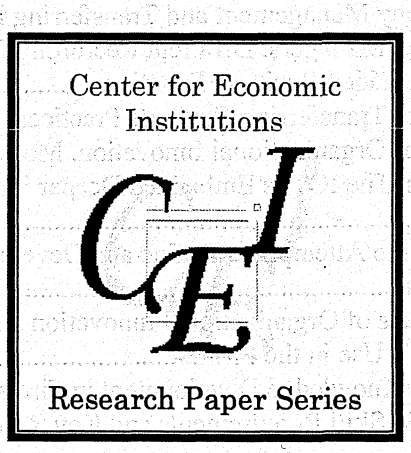

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Executive summary

Using the results from a company survey of manufacturing and knowledge-intensive business service (KIBS) sectors in Hungary conducted in 2008 in the framework of the Hungary-Japan joint research project entitled "Multinationals and Local Resources," we examined the following issues: (1) main structural characteristics of firms, (2) composition of management and patterns of transferring business practices, (3) diffusion and drivers of organizational innovation, and (4) skill requirements and knowledge development practice in firms. Our focus is on the diffusion of organizational innovation and the firm level knowledge development practice.

Evidence on the demography of the firms surveyed indicates that, in both the manufacturing and KIBS sectors, the so-called *de novo* firms (Martin, 2008) are dominating. In other words, the overwhelming majority of surveyed firms were established following the collapse of the state-socialist political and economic system. The largest segment of the manufacturing firms was created at the beginning of the 1990s, while the majority of the KIBS firms were more recently established after the millennium. The Hungarian ownership represents the largest share in both sectors (almost two thirds of the companies investigated); however, within the group of manufacturing firms, the share of foreign ownership is twice higher than that in the KIBS sector. Regarding membership of a company group, we found that the majority of firms (four-fifths) are operating individually, without company group membership, which in itself does not help the organizational learning process and innovation. In the case of group member firms, the location of the headquarters has a great variety. KIBS firms are supervised by the Hungarian headquarters, while the manufacturing firms' headquarters are in foreign countries, mainly in Germany and Austria, but also in Japan.

Regarding the company size and organizational architecture of the firms, we may say that small firms with a flat organization are dominant. In spite of this common feature, in the manufacturing sector, the share of medium-sized firms is more than twice higher than

that in the KIBS sector. Concerning the organizational architecture of the firms investigated, especially among the KIBS firms, the flat organizational structure represents the dominant pattern.[1]

Regarding the roles of international versus internal (home) markets and the sources of competitiveness of the firms, differences and similarities of the sectors are found. Concerning the market structure, the KIBS firms are focusing almost exclusively (94.7 %) on the Hungarian market. While the manufacturing firms have a more balanced distribution between the Hungarian and foreign markets, the manufacturing firms are more active in both the domestic and foreign markets. Results on the sources of competitiveness highlight the following: the most important factors of competitiveness in both sectors are quality, flexibility, and speed to respond to market requirements. Contrary to the public belief in Hungary, prices, customer orientation, and the importance of the skilled labor force are of less importance than the three factors listed above. It is noteworthy that, in the KIBS firms, the role of the skilled labor force is more important than price or customer orientation among the factors shaping the competitiveness of the firms.

The survey results on the composition of company management and on the patterns of transferring business practices suggest that the local managers are dominant in foreign-owned firms in both sectors. However, among manufacturing firms, the percentage of foreign managers (expatriates) is almost twice that in KIBS companies. Comparing the nationality of managers in various business functions, we may say that, in such fields as accounting, finance, organization production, and customer service, local managers are playing a decisive role. It is noteworthy that, in such a high-value-added business function, such as R&D, the significant presence of foreign managers characterizes the manufacturing sector. Nearly every second managerial post is occupied by foreigners. On the other hand, in the KIBS firms, slightly more than one-fifth of R&D managerial

[1] The term "lean-organization" in our research indicated the minimal distance between managers and the rank-and-file workers or, briefly, a less hierarchical organization. This type of organization is often characterized by the "controlled autonomy" in work, reflecting the concern of employers to balance the needs of exercising control over employees and, at the same time, encouraging their creativity (Edwards-Geary-Sisson, 2002).

positions are occupied by foreigners. Regarding the recruitment patterns of foreign managers, we also found sectoral differences. The percentage of managers recruited from company headquarters in the manufacturing sector is larger than that in the KIBS. Mobility among Hungarian managers in the company group network is limited mainly to the managerial rank. In other words, local employees without managerial positions have none or a very limited opportunity to work in other firms belonging to the same company group. In this sense, it is noteworthy that, in the manufacturing sector, the number of Hungarian nationals working abroad in other member firms of the company has been substantially increasing since 2003.

The dominating pattern of transferring foreign business practices into the Hungarian firms is the so-called creative adaptation or hybridization. According to the international evidence in the field of Human Resource Management (HRM), locals generally have more autonomy in the development of business practices.

As a core topic of this research, we examined the diffusion and drivers of organizational innovation. Here, we also found certain similarities and differences between the manufacturing and KIBS sectors. Identifying the diffusion of organizational innovation, we made a distinction between radical or "structural organizational" and incremental or "procedural organizational" innovation. By and large, the diffusion of less radical or incremental innovation characterizes both sectors. However, in the KIBS sector, forms of structural organizational innovation, such as "project-based work," are more often used than in manufacturing firms, but the "interdisciplinary working groups" are more widely diffused in the manufacturing sector. Regarding the incremental version of organizational innovation or "procedural organizational innovation," three sectoral patterns were identified as more widely employed in the manufacturing firms than in the KIBS sector: "quality assurance/auditing systems," "delegating quality supervision," and "job rotation". Firms operating in this sector were using "benchmarking" more extensively than manufacturing companies. Regarding the drivers of organizational innovation, we confirmed that the key motif is to improve the efficiency of daily operations of the company in both sectors. However, in the KIBS firms, the renewal of the knowledge base

and the improvement of quality and customer services are also regarded as important factors of organizational innovation. Due to the special, integrative feature of Information and Communication Technology (ICT), during the company survey, we gave increased attention to the embeddedness of this technology into a firm's practice. In both sectors, surveyed firms use ICT as a tool to reduce the cost of communication and coordination. In spite of this common pattern, the KIBS firms are employing ICT more intrinsically in their business practices than the manufacturing companies. For example, the share of firms using ICT in research is twice as large in the KIBS sector than in manufacturing.

Regarding skill requirements, we made a distinction between types of skills, such as formal education, competence, and social skills. In both sectors, the following skills are dominantly required by employers: "professional-technical skills," "reliability," and "experience-practical skill." Surprisingly enough, skills, such as problem-solving, creativity, managerial skills, ICT knowledge, and language knowledge, are of less importance. Evaluating the knowledge development practice in the firms, we were interested in learning the value of the so-called "knowledge-based" (learning as acquisition) and "experience-based" (learning as participation) forms of knowledge development. The former type of knowledge development relates to the formal educational training often documented by certification, and experience-based knowledge refers to job-related (OJT) learning. Both in the manufacturing and KIBS sectors, the "experience-based" or "situational learning" plays a dominant role, and "formal training" is given less importance. Beyond this general pattern, the following slight differences were identified: in the KIBS sector, employers have more "training-friendly" attitudes in general. Employers in this sector support, more than those in manufacturing firms, the participation of their employees in both the formal standard education system and company-organized and -financed courses, too. Finally, managers/employers in the surveyed firms were asked to assess the importance of external knowledge sources (e.g., customers, suppliers, and educational and research institutes) and the company's knowledge-generating process. In both sectors, the external actors are playing significant roles, especially customers, suppliers, and service providers. In addition to this common pattern, firms in the KIBS sector are relying more often on a larger variety of external

knowledge sources than manufacturing companies for the development of their knowledge base.

Foreword: Distinction between System-specific and Generic Changes in the Central European Economies

i. Different Cycles of the Transformation Process in the Post-socialist Economies

Our objective in this study is to gain a better understanding of various features of organizational innovation and how knowledge is used in the manufacturing and business service sectors in Hungary. The project was funded by the Ministry of Education of Japan (Grant No. 19402023), the Nomura Research Fund, the Tokyo-maritime Research Fund, and the Hungarian Academy of Sciences. The authors owe a particular debt to Jim Treadway who conducted a careful and creative editorial work.To better understand the lessons drawn from the Hungary-Japan joint company survey, it is necessary to highlight the specific contexts of the generic and social-economic system of the firms investigated. Changes related to globalization are often considered to be generic, in contrast to system-specific changes, for example, including the transformation from a state-planned to a market economy in Central European post-socialist countries. Analyzing the impacts of these generic changes, we stress the important filtering role of the macro-level national institutions (e.g., labor market regulations, training system, societal values, and norms regulating the collective behavior of economic and social actors). The mainstream literature emphasizes a strong convergence of the institutional patterns in the process of globalization, regardless of whether they are structurally institutional or culturally ideological (Ritzer, 1993). However, there is another trend in the literature, in which various labels, such as "societal approach" or French regulation school, are used; the representatives of this trend differentiate between micro- and macro-institutional patterns of society, such as the labor relations systems, the educational, legal, and financial systems, and various elements of the welfare state. In this view, the macro institutions only change along a historical perspective. In this context, the "path-dependency" model of institutional development has strong relevance (Grabher-Stark, 1997; Zysman, 1994). Namely, the effects of globalization are absorbed or mediated by these macro-patterns of institutions, and the various trajectories or paths of economic development are actually

their outcomes. Hage described the situation in the following manner in a paper written in 2000:

> "What makes these systems macro is that they apply to the entire society and typically have been institutionalized for long time periods. A very common element is that there are multiple organizations involved, in which a variety of complex social roles are enacted. In contrast, simple micro-institutional patterns ... represent relatively simple patterns or norms and/or laws, involving few actors with relatively simple and frequently repetitive social roles, and these patterns have been relatively recent .... Simple institutional patterns such as ... quality work circles may diffuse throughout the advanced industrialized countries but complex patterns will not."[2]

It seems obvious that the "filtering function" of these micro- and macro-level institutions has a significant effect on the innovation capacity of business organizations (firms) that will vary from country to country. In literature stressing the importance of the institutional specialization of the national economies, we will rely on the theoretical stream, which is labeled as the 'variety of capitalism' (VoC) view (Hall-Soskice, 2001) and adopted to the "transformation economies" of Central and Eastern Europe (Martin, 2008).

In the development of the so-called "transformational economies," and, hence, in the modernization of the Hungarian economy, there were clearly visible development cycles. In the 1990s, the undoubtedly positive effects of Foreign Direct Investment (FDI) are clearly evident. For example, this FDI development includes growth in productivity, higher occupational rates export growth, the spread of leading-edge management, organizational practices, and technological spillover effects. In this respect, especially in the context of the present financial and economic crisis, it is necessary to call attention to the unique knowledge-creating and innovative roles of multinational corporations

[2] The following observations by Hage (2000: 313) are also noteworthy: "Macro or complex institutional patterns are strategic for two central problems current in social theory today. First, they systematically relate macro-institutional analysis to the meso-level of organizational analysis. Second, they explicate why there are path-dependencies in some aspects of society and not in others."

(MNCs). As Lam (2008: 2) noticed, "... because of their structural positions spanning diverse institutional contexts and their ability to transfer knowledge across national borders, recent research has emphasized the learning and knowledge creating aspects of foreign direct investment and overseas subsidiaries as a source of competitive advantage." In addition to the brief list of positive outcomes, there are gaps in the earnings levels between Hungarian- and foreign-owned companies. Furthermore, the low intensity of product and process innovation is characteristic of the Hungarian-owned companies and not of the foreign or jointly owned firms.

In the last two decades, asymmetrical patterns of economic modernization shaped the organizational morphology in the economy (Makó - Illéssy, 2007). The direct effects of this unbalanced nature of the Hungarian economy were also described by a Hungarian economist when, in connection with an analysis of the structure of economic growth, Bélyácz (2008) emphasized that: "...the main problem is with the structure of economic growth. The foreign-owned companies, who produce the lion's share of exports, provide half of the annual growth in gross domestic products (GDP)... the income of the market-dependent domestically-owned companies (not those depending on state-led demand) only contributes to a very modest degree to the (net) increase in national product...If there is no research and development in these companies, if the most basic aspects of innovation remain unknown, if the technical-technological capacities of any eventual investments are at a low level, the workforce is unskilled or unable to develop their skills, then the elementary conditions for successful investment will be lacking" (Bélyácz, 2008: 3-4).

Other economists also point out that, for further modernization, the economy must be set on a new course. For instance, Miklos Szanyi argues that "the sources of formerly attractive factors have become exhausted. Now investors are attracted by other investment factors. Taking into consideration the conditions for investment which remain, the absorptive capacity of the country is exhausted. The decline experienced on both the supply and demand side indicates we have reached the end of the capital-attraction phase.

In order to revive interest in further capital investment, the creation and reinforcement of a new attractive environment will be necessary" (Szanyi, 2003: 10).
The new course for economic development involves a much closer participation with the 'learning economy' than currently observed and the creation of a more balanced economic structure. In connection with this latter point, we emphasize the vital significance of an increased future involvement of small and medium-sized businesses in the international division of labor in the form of higher valued-added activities.

On the basis of international research experiences, we can state that, in order for the actors in the economies of Central Europe, including Hungary, to participate in the fast-developing learning economies, it is vital that the negative tendencies discussed above be reduced in a substantial degree. Regarding the new trajectory of economic development, we use the term 'learning economy' rather than the currently more widespread 'knowledge-based economy.' As Nielsen and Lundvall have stressed, the term 'learning economy' does not simply place emphasis on the important role of knowledge, since this has always been a key factor in economic success, but, rather, on the capacity to learn continuously, to adapt to changing environments, and to acquire the new competencies necessary for this, and the ability to update existing knowledge, all of this in the context of the current economic environment (Nielsen-Lundvall, 2003: 3)[3]

The ability to learn is equally important for any economy, whether on an individual, firm, or national level. In this paper, we focus primarily on the analysis of learning at the meso or firm level. In other words, the unit of analysis is the firm and its collective capacity to learn that we refer to as organizational learning. The exploitation of opportunities to connect to the global economy offers a special role of organizational innovation that *we may characterize as learning organizations*. It is of particular importance that firms that adopt new organizational values and solutions are encouraging individual and especially

[3] This is especially true for Information Technology. The authors refer to a publication of the German Education Ministry, according to which half of the knowledge acquired during a higher education course is out of date a year after graduation, while, for other branches of knowledge, this process takes an average of eight years.

collective learning through implementing various forms of organizational innovation (e.g., multi functional working groups and team work).

In this context, we again emphasize that the innovation achieved by firms operating in Hungary is extremely modest in comparison with that in developed nations. In addition to the generally low level of innovation, we maintain that this phenomenon is linked to significant inequalities. The innovation activity of indigenous firms (both in terms of process and product innovation) is far lower than that performed by foreign-owned firms and firms with mixed ownership.[4] As is suggested in Table 1, this tendency remained unchanged between the two survey periods.

Table 1: Form of ownership and firm innovation activity in the Hungarian economy, 1999 – 2005*

Structure of firm ownership	Percentage of innovative firms			
	Innovative firms		Non-innovative firms	
	1999-2001**	2004-2005***	1999-2001**	2004-2005***
100% Hungarian ownership	13.4 %	17.3 %	84.9 %	82.7 %
Mixed ownership	31.5 %	30.5 %	65.8 %	69.5 %
100% foreign ownership	17.6 %	30.1 %	78.5 %	69.9 %

* process and product innovation
**Iwasaki, I. (2004), p.111
*** based on calculations by Zsuzsa Szunyogh (KSH, Hungarian Central Statistical Office)

Although there is an almost general consensus among innovation researchers that innovation has a positive impact on a company's competitiveness, the majority of analysis focuses on the technological (product or process) innovation alone, while ignoring the important role and effect of organizational and socio-cultural innovation. This trend is by no means limited to Hungarian social scientists and practitioners. The Oslo Handbook, produced by Eurostat and the OECD, which offers guiding principles for European innovation researchers to collect and analyze data, originally focused on technology-orientated product and process innovation alone. Not until the third edition,

[4] The OECD came to a similar conclusion, which established that 75-80% of Hungarian R&D expenditure originated from firms in foreign ownership (OECD, 2007: 124-125).

published in 2005, were the non-technology-related fields of marketing and organizational innovation added. Now, according to the 2004 *Community Innovation Survey*, financed by the European Union, the Union's economic backwardness relative to the U.S.A. or Japan can be primarily traced back to the lack of so-called non-technological innovation (organization and marketing) rather than to the lack of technological innovation (European Commission, 2001).

According to the European Competitiveness Report and other outcomes from other international surveys, the advantage that the U.S.A. enjoys over Europe is not contrary to popular belief, the result of a higher level of technological innovation. American firms lead in their ability to innovate in organizational and management terms as well as in marketing methods. New business models, innovative sub-contracting methods, and the integration of product and brand management play a key role in the introduction of technological innovation into new markets.

Especially, in the present global economic and financial crisis, the so-called non-technological innovation represents a missing link that prevents European firms from taking advantage of the opportunities offered by new technology and other challenges of the present condition. [5] In this connection, we emphasize the following relationship, which is well-known to organizational sociologists: technological and organizational changes are inter-related, and only the joint optimization of these two systems is a source of enhanced economic performance.[6] For example, the new methods of working (e.g., teleworking and mobile working), the spread of project- and network-based firms (PBF), are not, contrary to popular belief, simply dependent on the availability and use of ICT.

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[5] According to the latest review on the impact of the global financial and economic crisis, despite the downturn, entrepreneurs are enjoying a worldwide renaissance, and the U.S.A. still leads the world. Wooldridge, A. (2008) Global heroes (special report on entrepreneurship) *The Economist*, March 14th, pp. 3-19.

[6] In fact, this is the so-called socio-technical concept elaborated by researchers at the *Tavistock Institute of Human Relations* in London during the 1960s, which emphasized the significance of the joint optimization of the social and technical systems from the point of view of work group performance. Our conception is based on the more modern variant of the socio-technical approach, called "social-technical system design: STSD." This term indicates the principles and norms of the division of work that exert a positive influence both on the quality of the work completed and on the organizational (firm) performance (see Nielsen, 2007).

Both domestic and international experiences highlight the significance of the mutual influences of the technological and social-organizational innovations.

In the next section, before presenting the results of the company survey on organizational innovation in a comparison with the manufacturing and business service sectors in Hungary, we outline the growing role and some features of the service sector representing a generic shift in economic activities since the last decades of the 20th Century.

ii. Generic Shift in Economic Structure: Great Challenges of Services

Since the last decades of the 20th Century, we have witnessed the specific growth of the service sector at the expense of the manufacturing one. Some scholars are qualifying this change as a historical shift in the structure of economic activities, and others even refer to a service sector revolution. In a rather simplistic way, the wealth of nations can be attributed to agriculture two centuries ago, to manufacturing a century ago, and to the service sector now, producing 70-80 % of GDP in developed economies. In contrast, the share of the service sector in the GDP in developing countries is 52 %, and that in the Central European Post-Socialist countries ranges from 58.4 % to 62.9 %. Another noticeable feature of these changes is the rather different development dynamics in the manufacturing and the service sectors. Globally, the KIBS sector enjoyed 23.6 % productivity growth accompanying with 20.2 % employment increase. On the other hand, 28.8 % productivity growth and 22.8 % employment decline were registered in the manufacturing sector (Sako, 2006: 500).

Globalization of the service sector is a rather new phenomenon, and in this sense, it is noteworthy that the roles of the following three drivers are as follows:

(1) delocalization (outsourcing and off shoring) of generic business services;
(2) intensive and deeper use of ICT in the service (business service) creation; and
(3) radical shift in the global labor market at the end of the 20th Century.

In spite of the fact that the service sector is covering a greater variety of activities than the manufacturing one, only 10% of the service sector is involved in international trade, while it is more than 50 % in the case of the manufacturing (UNCTAD, 2004: 97). The smaller share of the service sector in international trade may be explained by the special characteristics of its products. For example, in the majority of cases, it is difficult to store a significant part of the service sector's product, production, and consumption of service, as they occur simultaneously. This feature of the service sector results in weak tradability, and, therefore, at the beginning of the 21st Century (2003), despite the heavy use of ICT,

service represented only 1.8 billion USD in the work trade, in contrast to the 7.4 billion USD share of the manufacturing sector (WTO, 2005).

In spite of these difficulties, the share of Foreign Direct Investments (FDI) in the service activities has increased in the last decades of the 20th Century. For example, in the 1970s, the sector represented only 25 % of the total inward FDI; in 2002, this share increased to 60 % (UNCTAD, 2004). Within the subsectors of the services (e.g., transportation, telecommunications, real estate, catering, and hotels), the role of FDI is especially noteworthy in the field of business services. MNCs, with the help of ICT, are a delocalizing growing part of their business service activities within the global value chain (GVC).

ICT is an important driver and/or enabler of internationalization of services. The dramatic decline in the telecommunication costs, decreasing importance of the physical distance ("death of distance") and the extensive use of ICT assist in the geographical redistribution of data storage and processing (e.g., outsourcing the data processing activities of accounting and wage departments, medical diagnosis, and logistical activities). Finally, ICT facilitates the standardization of services. This is the process of "productizing services" in the service sector. However, the infiltration of servicing is also evident in the manufacturing sector. "Firms with saturated markets for their products try to increase their profitability by developing services related to their products or by shifting their activities in the direction of services. For example, in such globally well-known manufacturers as the American IBM or the German Siemens, the fastest growing part of their turnover is generated from service activities. This process is often called "servicing products."

Radical changes in the nature of the global labor market are regarded as the third factor for the high speed of internationalization of services. As a result of the participation of such countries as China, India, and the former Soviet-bloc countries in the global labor market, today, in the global labor market, 2.93 billion people are competing with each other, while only 1.46 billion workforces were active on the global labor market before

these historical changes. An eminent U.S. labor economist, Richard B. Freeman (2005), labeled this enormous shift in the global labor market as a "great doubling" with a far reaching impact on labor in both the developed and developing economies. The above-mentioned countries before the collapse of the state-socialist political-economic system and before ending their economic isolations (e.g., India), the workforce in these countries rarely did compete directly with those in the developed countries. One of the most important impacts of this historical shift on the global labor market is, among others, increased wage competition not only in the low-level blue collar jobs in the manufacturing sector but also in the best and worst paid white collar jobs. Contrary to widespread public belief, these developing (or emerging) economies are increasing their highly skilled labor force rather fast with the future aspiration to improve their present position in the GVC of both manufacturing and services. In this regard, it is important to stress the following: even before the 2008 global financial and economic crisis, China launched various initiatives to increase the share of high-value added products in total exports and made remarkable progress in R&D (e.g., nanotechnology; more than 750 MNCs created R&D capacity). In addition, by 2010, the number of Chinese PhD students in engineering and natural sciences will outstrip that of similar categories in the U.S.A. Finally, it is noteworthy that, besides China, Indonesia and Brazil had doubled the number of university graduates between 1980 and 1990.

It is quite probable that the radical changes in the global labor market and the impact of the present global financial and economic crisis, in spite of the temptation of "economic nationalism" in some countries, may result in a slowdown but not a reversal of this trend.

After presenting drivers and enablers of globalization in services, we have to stress again that the term of service is covering wide ranges of activities, from such low-paid work as "McJobs" to the highly remunerated and creative jobs of the "knowledge workers." In this paper, we deal with the KIBS jobs and compare them with manufacturing ones, as thematically structured in the following sections:

1. Design of the research, sampling, and research method

2. General structural (demographic) characteristics of the firms surveyed
3. Composition of management: Roles of the foreign and local managers
4. Diffusions and features of organizational innovation
5. Patterns of knowledge use and development

1. Research Design, Sampling, and Research Method

1.1. Need to Map Organizational Innovation in Manufacturing versus the Business Service Sector in Hungary

Similarly to the international trend, the economic performance of the service sector increased significantly in the last decade in Hungary. In 2007, almost two-thirds of the GDP was generated by the service sector. Table 2 indicates the share and growth of the service sector in comparison to that of industry and agriculture in selected Central Eastern European economies in an international comparison. It is clear that the share of the service economy is higher in the core country group of the EU-15 than in the enlarged group of the EU-27.

Table 2: Contributions of Economic Sectors in the GDP: Comparing Some CEE Economies to Various Groups of EU Countries (1995-2005)(%)

	1995			2000			2007		
Country	**Agriculture**	**Industry**	**Service**	**Agriculture**	**Industry**	**Service**	**Agriculture**	**Industry**	**Service**
EU-27	8.4	28.6	63.0	7.1	26.9	66.0	5.8	24.9	69.2
EU-15	5.0	27.5	67.5	4.2	25.8	70.1	3.4	23.5	73.1
Czech Republic	6.4	40.5	53.1	4.8	39.1	56.0	3.5	38.1	58.4
Hungary	8.2	33.1	58.7	6.6	33.8	59.6	4.7	32.5	62.8
Poland	269	29.7	43.5	27.5	26.3	46.2	n.d.	n.d.	n.d.
Slovakia	9.3	37.1	53.9	5.7	34.8	59.4	3.6	34.3	62.1

Source: EUROSTAT, Labor Force Survey (LFS).

Note: n.d. = no data

In the case of Hungary, between 1992 and 2006, the productivity growth in the service sector (measured by the share of gross value added/capital) was higher than that in manufacturing. The service sector is playing a crucial role in employment generation. Between 1995 and 2006, 90 % of new jobs were created in the service sector, and,

interestingly enough, more than every second new employment (57 %) was created in the so-called knowledge intensive business services (KIBS)[7] (ERM Report, 2008).

The improvement of economic performance was rather unequal in the very heterogeneous service sector. For example, in an evaluation of the gross value added per capita, such firm level performance indicators as turnover, export, profitability, and employment growth were higher than the average in the KIBS (Hamar, 2005).

In relation with the innovation performance of the economy, we have an abundance of knowledge on technologically related product and process innovation in the manufacturing sector (Schienstock - Hamalainen, 2001). From the 1980s, a renewed interest has been underway to better understand, from theoretical perspectives (such as those obtained from organizational design schools, cognition, learning perspectives, organizational change, and various adaptations in research), the complex, dynamic, and multi-level relationship between organization and innovation, especially in the service sector (Salter - Tether, 2006; Lam, 2005). In this context, it is necessary to call attention to the similarities and differences of organizational innovation and patterns of knowledge use between the KIBS and manufacturing firms. The literature dealing with service sector innovation can be classified into two contrasting themes: the first theoretical line stresses the particular character of the innovation in the service sector (e.g., the key role of organizational development, extensive use of external knowledge source, higher priority of training, and collective practice of knowledge development) in comparison with the manufacturing sector (Leiponen, 2004, 2003; Salter - Tether, 2006). The second stresses the similarity of innovation in the service and manufacturing sectors and refuses the "black" and "white" views (Pavitt, 1984; Evangelista, 2000; Evangelista - Savona, 2003; Miozzo - Soete, 2001).

In the Hungarian academic community, there is a scarcity of systematic research on organizational innovation in general and, especially, with regard to the comparison of its characteristics in the KIBS and manufacturing sectors. To overcome this gap, the

[7] The composition of the KIBS is presented in detail in Section 1.2.

Research Group of Sociology of Organization and Work at the Institute of Sociology Hungarian Academy of Sciences recently initiated a pilot survey to identify the main features of the organizational innovation using its strong involvement in several EU funded projects.[8]

However, this paper is the first presentation of a company survey with the objective to better understand the diffusion and drivers of organizational innovation and the practice of knowledge development comparing the manufacturing and KIBS sectors in Hungary. The company survey was co-financed by the Ministry of Education of Japan (Grant No. 19402023), the Nomura Research Fund and the Tokyo Maritime Research Fund, and the Hungarian Academy of Sciences. The international research consortium composed of the following institutional partners: the Institute of Sociology of the Hungarian Academy of Sciences (HAS) (Budapest), the Institute of Economics of Hitotsubashi University (Tokyo), and the Institute for the World Economics, HAS (Budapest).

1.2. Sample of the Company Survey and Sampling Method

The Hungary-Japan joint company survey was designed to gain insightful information into the manufacturing and business service firms in Hungary.[9] There is no generally accepted definition for 'business services; this category covers rather heterogeneous economic activities. In our study, based on the review of the international literature and with the intention to produce internationally comparable data, the knowledge-intensive service activities offered for other companies are defined as 'business services,' such as IT services (both software and hardware), administrative and legal services, and R&D.[10] Table 3 contains the activities selected for the purpose of the company survey.

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[8] In this respect, our participation in the following EU-supported international projects is noteworthy: "Work Organization and Restructuring in the Knowledge Society" (WORKS, Integrating and Strengthening the European Research Area – CIT3/CT/2005-006193, 6th FP, 2005/2009, "Measuring the Dynamics of Organization and Work (MEADOW – Priority 7: Citizens and Governance in a Knowledge-based Society – 028336, 6th FP, 2007-2010).

[9] Regarding the service sector, the following classifications were often used (Salter-Tether, 2006): (1) traditional service (e.g., personal service), (2) system service (e.g., airlines and banking), and (3) knowledge-intensive business service (KIBS). The main focus of our research is on activities classified under the KIBS.

[10] For more details, please see Makó-Illéssy-Csizmadia (2008).

Table 3: NACE[11] codes of knowledge-intensive business services

NACE code	Activity
62	Computer programming, consultancy, and related activities
63	Information service activities
649	Other financial service activities, except insurance and pension funding
661	Activities auxiliary to financial services, except insurance and pension funding
662	Activities auxiliary to insurance and pension funding
69	Legal and accounting activities
70	Activities of head offices; management consultancy activities
71	Architectural and engineering activities; technical testing and analysis
72	Scientific research and development
73	Advertising and market research
743	Translation and interpretation activities
773	Renting and leasing of other machinery, equipment, and tangible goods
78	Employment activities
8110	Combined facility support activities
8122	Other building and industrial cleaning activities
8220	Activities of call centers
855	Other educational activity

Partly due to the lack of available resources and in order to make an international comparison possible, the sample in manufacturing was limited to the following sub-sectors: textile and clothing products, machinery, and the automobile, pharmaceutical, and electrical industries. These sub-sectors represent different 'maturity cycles' in respect to the technology used, work organization, and knowledge-use practices. The so-called 'mature' industrial sectors are the textile and clothing industries, machinery, and car industries, and the "new" sectors are the pharmaceutical and electrical industries together with computer equipment producers. Table 4 presents the manufacturing sectors surveyed.

[11] NACE: 'Statistical Classification of Economic Activities' – an international statistical systems for classification and registration of economic activities. Source: http://ec.europa.eu/competition/mergers/cases/index/nace_all.html

Table 4: NACE codes of manufacturing sectors surveyed

NACE code	Sectors
13	Manufacture of textiles
14	Manufacture of apparel
15	Manufacture of leather and related products
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
26	Manufacture of computer, electronic, and optical products
27	Manufacture of electrical equipment
28	Manufacture of machinery and equipment
29	Manufacture of motor vehicles
30	Manufacture of other transport equipment

In the first quarter of 2008, according to the National Register of Economic Organizations compiled by the Hungarian Central Statistical Office, 4,049 companies with 10 or more employees were registered in the field of business services, while 2,345 were registered in the manufacturing sectors. In order to statistically represent the organizational population, 200 companies were selected from each of the manufacturing and business service sectors based on the multi-stage stratified sampling method. Here, the basic economic activity of the firms captured by the NACE code was used as the stratification variable. This sampling method ensured equal chances to all companies belonging to the population surveyed to be selected in the sample and reflected to the heterogeneity of the organizational population as well. In other words, the sampling reflects to the fact that the number of the companies operating in different economic activity categories varies within the population surveyed. For instance, there are more IT companies within the field of business services than facility management providers or more clothing companies within the "matured" manufacturing industry than the pharmaceutical ones. The sampling frame was restricted for companies employing at least 10 persons. Firms with 0 to 9 employees were excluded because, according to the previous research experiences, these firms are hardly available for surveys and, on the other hand, since the division of labor within these firms is rather underdeveloped, organizational innovation characterizing larger firms is absent (Valeyre et al., 2009).

1.3 Structure of the Questionnaire and Characteristics of the Data Collection

The fieldwork took place between June and July of 2008, and the survey was divided into two stages as a result of the summer holiday season. In order to ensure the quality of the data collection, specific steps were taken. In addition to the 200-element sample in both sectors investigated (business services/manufacturing), additional address lists of 400 companies each were used to reduce the expected refusal rate of the target population (managers and/or employers). To ensure data quality, personal interviews were conducted with top managers of the firms surveyed. Before starting the fieldwork, the interviewers and their coordinators were trained by the experts at the Institute of Sociology of Hungarian Academy of Sciences. The coordinators randomly supervised the interviewers by follow-up phone calls to respondents. The quality insurance covered the data recording and the compilation of the database as well. During the data recording, an automatic control system and internal logical investigations were applied by using special algorithms to avoid any possible failures. In cleaning the raw data set, pilot analyses were carried out, and the contradictory answers were filtered. As a result of the multi-level monitoring of data collection, the final database in the business services was restricted to 196 cases and, in the manufacturing services, to 191 cases, ensuring the validity and internal coherence of data. To guarantee the statistical representativeness of the survey, the data sets were weighted. The final database is statistically representative of the organizational population surveyed, i.e., the 4,094 companies operating with at least 10 employees in business services and the 2,354 companies operating with at least 10 employees in the manufacturing sectors investigated.

In designing the questionnaire, we made a "benchmarking exercise" to review the Hungarian and international surveys dealing with various features of organizational innovation. Among other things, we have been learning extensively from such surveys as the Danish DISKO (Danish Innovation System in Comparative Perspective) survey carried out five times between 1993 and 2006 by the Aalborg University Business School, the Community Innovation Surveys (CIS) carried out six times by Eurostat, the Continuous Vocational Training (CVTS) survey carried out in 1999 and in 2006 by Eurostat, and several Europe-wide surveys organized by the European Foundation for the

Improvement of Living and Working Conditions (Dublin). In the case of the European Labor Foundation surveys, it is important to mention the various waves of the European Working Condition Surveys (EWCS) and the Establishment Survey on Working Time and Work – Life Balance (ESWT). Regarding the pre-history of the Hungarian company surveys dealing with organizational change and innovation, the methodological and empirical lessons learned from the Regional Innovation System (REGIS) survey (EU 5th Framework Program) must be mentioned. Within the six European regions covered in the survey, firms operating in the Székesfehérvár region (Hungary) were investigated in 1995 (Makó, 1998). Using this theoretical concept and methodology for the project, a company-level survey was repeated at the beginning of 2000 in the Dunaújváros micro-region (Makó-Simonyi, 2003). Finally, in 2007, the Research Group of Sociology of Organization and Work (Institute of Sociology) Hungarian Academy of Sciences launched a pilot survey to test questions measuring the diffusion of new organizational value or institutional standards in more than 500 industrial firms (Makó-Illéssy-Csizmadia, 2007).

The questionnaire used in the company survey in both the KIBS and manufacturing sectors was finalized after the pilot study, which aimed to test the validity of the questionnaire within the cluster of firms (n=36) belonging to the "Magyar Outsourcing Szövetség" (Hungarian Outsourcing Association) comprising leading firms in the KIBS sector. The finalized questionnaire, composed of 43 questions, has four thematic sections:

1. General characteristics of firms. This section contains a description of the architecture of the organization (e.g., length of operation and size), ownership, market structure, types of activities, and type of technology employed.

2. Composition of Management and Institutional Transfer of Business Practices. This section includes a report of firms in which foreign managers are employed and an examination of the share of foreign versus local managers, the recruitment practice of foreign managers, and the generic business functions occupied by them. In addition, this

section indicates the degree of autonomy in the local subsidiaries in developing their business practices.

3. Diffusion and Drivers of Organizational Innovation. In addition to mapping the differences and/or similarities of forms of organizational innovation, this section contains an examination of the degree of embeddedness of the ICT in the business practices in the sectors surveyed. Regarding the forms of organizational innovation, the drivers of innovation are also identified.

4. Characteristics of Knowledge Development Practice. In this section, the dominant combination of the required skill or competencies is identified. In assessing the training practices of the firms surveyed, we tried to understand not only the roles of the formal training and education in the skill formation of employees but the importance of the so-called on-site (*in situ*) learning. In addition, particular attention was given to the role of the various external knowledge sources in skill development.

2. Results of the Company Survey on Organizational Innovation and on the Practice of Knowledge Development (Manufacturing versus Knowledge Intensive Business Service (KIBS) Sectors)

The evidence presented is based on data collected in a 2008 company survey that involved firms employing more than 10 persons in manufacturing and KIBS in Hungary. In this paper, we present a preliminary descriptive analysis of the survey results using variables such as ownership, company size, and the year in which the firm was established.

The remainder of this section is organized as follows: Subsection 2.1. includes a description of the key structural characteristics of the firms surveyed; Subsection 2.2. presents the composition of the management and the patterns of adaptation of business practices in the case of the foreign-owned firms; Subsection 2.3. gives an examination of the various features of the organizational innovation and their drivers; Subsection 2.4. gives a description of the training and knowledge development practices of the companies.

2.1. Organizational Demography, Markets, and Source of Competitiveness of Firms

2.1.1. Ownership Structure of Surveyed Firms

One-fifth (21.1 %) of the firms in the KIBS sector were incorporated (established) in the last four years, and one-fourth (24.7 %), from 2000 to 2003. In this sector, less than one-tenth (6.5 %) of the firms were established in the period of state socialism (i.e., before 1990). On the other hand, in the manufacturing sector, the share of new firms established in 2000 and afterward did not reach 15 % (13.7 %), but more than one-tenth of them (14.1 %) operated in the state-socialist economy. The peak year of the company establishment in the KIBS sector was at the beginning of the new millennium, when the growth rates of the firms were as follows: 9.8 % in 2004, 7.2 % in 2003, and 7.9 % in

2000, while, in the manufacturing sector, the peak year of company creation was 1996, when more than one-tenth (10.3 %) of the new companies were established. These facts indicate that the great majority of the manufacturing firms were established during the first half of the 1990s, while KIBS firms were created in the new millennium. With regard to the ownership structure of the surveyed firms, we confirmed that the firms belonging to the KIBS sector were younger than those in the manufacturing sector, their share of foreign ownership was smaller, and state ownership was higher. In both sectors, the majority of firms are domestically owned. However, the share of foreign-owned firms is twice higher in the manufacturing sector than in the KIBS sector (21.3 % versus 10.3 %). The composition of the firms' ownership is shown in Table 5.

Table 5: Ownership Composition of Firms: Manufacturing and KIBS Sectors

Types of ownership	**Manufacturing sector N=191**	**KIBS Sector N=196**
100 % foreign ownership	21.3 %	10.3 %
Majority foreign ownership	7.3 %	7.7 %
Majority Hungarian private ownership	2.8 %	5.0 %
100 % Hungarian private ownership	62.4 %	64.0 %
Majority state-owned	1.0 %	1.2 %
100 % state-owned	4.1 %	8.1 %
Other	1.0 %	3.7 %

Note: Test for equirity between the two sectors: χ^2=14.513, p=0.024.

In summary, the great majority of the surveyed firms belong to the *de novo* segment (Martin, 2008) of the Hungarian economy. They were created after the collapse of the state-socialist economy. In addition, the KIBS firms are very young and dominated by domestically owned firms. In the more mature manufacturing sector, the foreign-owned firms represent a significant share (21.3 %) of the companies surveyed.

Membership with a company group plays an important role in the learning and innovation capacity of the business organizations. Group firms tend to be more innovative than non-group firms (i.e., independent enterprises) (Nielsen, 2006). In both sectors, group companies form a minority among the surveyed firms: 20.4 % in the manufacturing sector and 18.2 % in the business service sector. In the business service sector, the Hungary-based company groups dominate, while the manufacturing sector is

dominated by the foreign-owned ones. Looking at the headquarters ownership in the manufacturing sector, the headquarters are located in Germany (33.3 %) and Austria. It is noteworthy that, in 5.1 % of the cases, Japan is the host country for the company headquarters in the manufacturing sector. In the KIBS sector, the foreign headquarters are dispersed in 10 countries, and Austria is the dominant location for the company headquarters.

2.1.2. Size and Organizational Architecture of Firms: Dominance of Small and Flat Organizations

Table 6 shows the company size of the surveyed firms. In both the manufacturing and service sectors, the share of small firms (i.e., those with 9 to 49 employees) is rather high: slightly more than every second manufacturing firm (52.6 %) and almost four-fifths (78.7 %) of KIBS firms belong to this category. It is also noteworthy that there are twice as many medium-sized manufacturing firms than there were in the business service sector (37.3 % versus 16.6 %). The share of large firms is rather modest; however, their presence is more visible in the manufacturing sector than in the business service sector (8.4 % versus 4.6 %).

Table 6: Size of the Firms: Manufacturing and KIBS Sector

Size of the firms	Manufacturing sector N=191	KIBS Sector N=196
9 – 49 persons	52.6 %	78.7 %
50 – 249 persons	37.3 %	16.6 %
250 – 999 persons	8.4 %	4.6 %
1000 – 4999 persons	1.0 %	0.0 %
5000 – 9999 persons	0.7 %	0.0 %

Note: Test for equirity between the two sectors: $\chi^2 = 29.801$, $p=0.000$.

In addition to the size of the firms, we examined the organizational architecture in the establishments surveyed. In this sense, one of the most interesting organizational features that may significantly influence the flexibility and learning capacity of an organization is the number of levels separating the highest and lowest positions in the occupational hierarchy. In both sectors, more than two-thirds of the firms have, at most, two

hierarchical levels. However, it is noteworthy that the larger share of the firms in the KIBS sector have none or only one hierarchical level between the highest and the lowest positions in the occupational hierarchy. When compared with the manufacturing companies, 66.8 % of the firms versus 40.1 % in the KIBS sector have only one or no levels dividing the highest and lowest positions.

2.1.3. Manufacturing Firms Have a More Balanced Market Structure than KIBS firms

During the survey, we interviewed the managers, representing the employers. They were asked to indicate their market share and its structure or the share of primary and secondary markets making up the total sales. Although, in a different degree, the Hungarian market (domestic product market) is playing a crucial role in both sectors. KIBS firms are selling their products primarily and almost exclusively in the domestic market (95 %). Less than one-fifth (17 %) of the KIBS firms are present in the European market as well. The market structure is more balanced in the manufacturing sector, in which slightly more than one-half of the firms (55.9 %) is primarily focused on the domestic market, even though almost two-thirds of them sell their products in 27 countries of the EU. In this sense, it is noteworthy that the market in the post-soviet countries (e.g., Russia and Ukraine) is of minor importance in both sectors, and this is especially true for the KIBS firms. More firms are focusing on the North American markets than on the markets of the countries with which the Hungarian economy developed economic ties for more than four decades during the state-socialist political and economic system. Table 7 illustrates the market composition and its relative importance for the firms surveyed.

Table 7: Market Distribution: Manufacturing and KIBS Sector

Types of markets	Manufacturing sector (N=191)		KIBS Sector (N=196)	
	Primary market	Secondary market	Primary market	Secondary market
National market	55.9 %	25.8 %	94.7 %	3.4 %
EU-15 countries	47.2 %	17.7 %	10.5 %	4.8 %
New Member States (NMS)	14.6 %	30.0 %	6.5 %	8.0 %
North America	4.3 %	5.0 %	2.4 %	1.5 %
Russia, Ukraine	3.7 %	8.7 %	1.5 %	1.5 %
Asia	2.6 %	8.1 %	1.9 %	2.3 %
Others	38.7 %	61.3 %	1.5 %	-

2.1.4. Sources of Competitiveness: Quality and Flexibility with Slight Sector Variations

During the survey, company managers were asked to assess the role of 11 factors shaping the competitiveness of their firms. As is shown in Table 8, in both sectors, the following three factors play a decisive role: (1) quality, (2) flexibility, and (3) reliability. Surprisingly, price, customer orientation, and skilled labor force are also important, but to a somewhat lesser degree when compared with the three factors listed above. KIBS firms answered that continuous product development and variety of services also play an important role in retaining their competitiveness. "Image," "brand," and "lobbying" play the most insignificant roles in both sectors.

In spite of the small differences between the two sectors, the following points are noteworthy: first, managers in manufacturing firms, in comparison to those in the KIBS firms, reported higher values for each factor listed in Table 8. Secondly, "quality" and "customer orientation," in comparison with "price" in the KIBS sector, have more influence on the competitiveness of the firms.

Table 8: Sources of Competitiveness: Manufacturing vs. KIBS sector

Factors of competitiveness	Manufacturing sector	KIBS Sector	*T-statistics*	*Significance*
Quality	4.84	4.55	*31.259*	*0.000***
Reliability	4.74	4.65	*6.490*	*0.011**
Flexibility and speed	4.74	4.50	*22.430*	*0.000***
Experience	4.58	4.45	*8.077*	*0.005***
Customer orientation	4.56	4.28	*16.759*	*0.000***
Price	4.53	4.27	*17.927*	*0.000***
Skilled labor force	4.36	4.41	*.867*	*0.352*
Continuous development of products and services	4.18	3.93	*16.904*	*0.000***
Variety of products and services	4.15	3.93	*17.652*	*0.000***
Image and brand	3.81	3.67	*4.619*	*0.032**
Lobbying	3.06	2.89	*20.094*	*0.000***

Note: Factors of competitiveness were measured by managers on a 5 point-scale, where 1 is the least important factor and 5, the most important one.
**: Significant at the 1% level, *: at the 5% level.

In addition to the factors responsible for the firms' competitiveness, we wanted to know, in the case of the firms belonging to a company group network, the intensity of competition within a group (internal) market and the external markets of the group members. In this regard, the survey results indicate that, in the case of the manufacturing sector, competition in the external market is extremely intensive, while, within the company group, it was assessed as average. In the case of the KIBS sector, the overwhelming majority of group firms (nine of 10 companies) did not notice any competition; however, on the external market, the competition was strong.

3. Composition of Company Management and Transferring Business Practices

In this section, we outline the composition of management and the autonomy of the local management to create business practices in subsidiary units of foreign-owned companies. In our previous experiences (Makó-Nemes, 2003: 105-142), the presence of foreign

managers (expatriates) played a key role in transferring managerial competence and methods into subsidiary firms, especially in the first period of a company's creation (e.g., acquisition, green-field investment), as the market economy developed in post-socialist countries. Many scholars dealing with transformation economies characterized this early period with the term "knowledge-deficiency," indicating that the managers socialized in the period of state-socialism most often did not possess market consistent competences (Thompson, 1993). In the last two decades, local managers successfully acquired the necessary working standards to be successful in managing the firms. However, foreign managers (expatriates) still play crucial roles in assisting their local colleagues in the fields of innovation-related activities (e.g., R&D).

3.1. Dominance of Local Managers. Different Recruiting Patterns by Sector. Expatriates in High Value-added Business Functions.

Managerial positions are occupied by foreign experts in fewer than one of every 10 firms (7.9%) in the KIBS sector. In the case of the manufacturing sector, the share of foreign managers is almost double (16.4 %).

Regarding changes in the size and composition of management in the period investigated (2003 and 2007), in the KIBS firms, the number of foreign managers is slightly higher, while the number of local staff members is markedly higher by one and one-half times. As a result, the total number of managers in the KIBS firms increased by 35 %. In the manufacturing sector, we may identify a rather different pattern of changes in the composition of management: the number of foreign expatriatess increased by 40 %, while the share of local managers is only 21 %.

Regarding the patterns of recruitment, it is noteworthy that, in 2003, the great majority (two thirds) of foreign managers were transferred from the headquarters (from the mother company), and fewer than one-tenth of them came from other group firms. We also confirmed that one-fourth of foreign managers were recruited from firms operating outside of the company group. During the last couple of years, this recruitment pattern did not change in the manufacturing sector, with the only exception that more managers

were recruited from other member firms of the company group. In the KIBS sector, we may identify rather different recruitment patterns in 2007. Only two-fifths of the managers came from the mother company, which is a significant decrease from the number in 2003. It is noteworthy that the share of managers who were recruited from other member firms of the company group doubled over that in 2003.

There are noticeable differences in the mobility pattern of managers and rank-and-file employees between the two sectors surveyed. In other words, in the KIBS sector, only a few Hungarian employees in non-managerial positions had the opportunity to work abroad at another member firm of the company group. On the other hand, in the manufacturing sector, the share of Hungarians working abroad at another member firm of the company group increased substantially (20.7 %) since 2003.

In the firms employing foreign managers, we tried to identify the type of generic business functions (services) assigned to them. In the fields of accounting and finance, Hungarian managers played a dominant role. In the manufacturing sector, locals were exclusively in managerial ranks, and, in the KIBS sector, the majority of the managerial positions were also filled by locals. However, in the manufacturing sector, the share of foreign expatriatess was extremely high in the R&D fields. In fact, almost every second manager was a foreigner (46.9 %), and, in the KIBS sector, foreign managers held slightly more than one-fifth (23 %) of R&D supervising jobs. In the field of organizing production, locals were dominant (65.9 %). It is obvious that, in the customer service field in both sectors but, especially, in the KIBS, locals played a decisive role. In this business function, the share of locals in the manufacturing sector was 78.5 %, in comparison with 83.6 % in the KIBS sector. Similarly, in the field of the HRM, locals play a dominant role. However, it is noteworthy that, in the KIBS sector, relatively more foreign managers are working in the fields of quality control (QC), HRM, and finance, while, in the ICT-related fields and customer service, local managers are playing a decisive role. See Table 9 for more details.

Table 9: Share of foreign managers and locals in the various fields of activities in the firms employing expatriates

Fields of business functions	Manufacturing sector N=34		KIBS Sector N=32	
	Foreign managers	Hungarian managers	Foreign managers	Hungarian managers
R&D	46.9 %	53.1 %	23.0 %	63.9 %
Sales and marketing	28.7 %	63.5 %	17.4 %	72.6 %
ICT	20.4 %	79.6 %	6.9 %	80.8 %
Production management	19.8 %	65.9 %	16.4 %	70.5 %
Customer service	12.4 %	78.5 %	5.9 %	83.6 %
HRM	9.9 %	88.4 %	22.4 %	72.5 %
Quality management	9.2 %	85.2 %	27.7 %	60.0 %
Accounting and finance	2.0 %	98.0 %	19.3 %	80.7 %

3.2. Dominant Pattern of Transferring Business Practices: Hybridization

There was an extensive debate in the 1990s concerning the degree of autonomy of subsidiaries of foreign firms (e.g., Japanese automobile plants in the U.S.A.) in developing or hybridizing their business practices. The concept and practice of hybridization is generally interpreted as a mixture of the host and the foreign countries' (e.g., mother country of the MNCs) business practices.

In the survey, we first asked our respondents working with a foreign company group about their degree of autonomy in creating business practices in general, and, in addition, we asked them to assess their autonomy in creating their HRM system.

Local managers in manufacturing firms are not free to operate their business processes autonomously from the mother company. In both sectors, the vast majority of firms are using the strategy of "creative adaptation" or "hybridization" in developing their business practices. This means that, for Hungarian foreign-owned firms, the "standards" and

"guiding principle" of the headquarters play the role of a "benchmark" in creating local business practices. Local managers, however, still have a certain degree of autonomy in developing management methods and organizational structure of the firm. In the majority of firms governed by the headquarters, the local managers are generally free to develop business practice. The minority of firms are copying the business practices of their mother company. Finally, it is noteworthy that the role of customer experience is less important in developing the original business practices. Table 10 is an illustration of the degree of autonomy enjoyed by local managers in creating local business practices. The statistical test did not confirm any significant differences between the two sectors investigated. These empirical results support the idea that transferring business practices between the parent companies and local subsidiaries of the MNCs is more influenced by the socio-economic institutional framework of the parent company than by any sectoral requirements (Lam 2008).

Table 10: Autonomy of local managers in creating business practices in subsidiary firms of the foreign companies

Sector (Sample size)	Manufacturing sector (N=34)	KIBS Sector (N=32)
A) The method of developing business practices (Test for equirity between the two sectors: χ^2= 5.483, p=0.360)		
a) Autonomously but within the framework of the company group guidelines	43.2 %	39.1 %
b) Adapting to the local conditions of the mother company standards	29.2 %	22.1 %
c) Using the standard of the mother company and further development	11.0 %	8.1 %
d) Adopting mechanically (copying) the standards of the mother company	10.9 %	8.7 %
e) Learning from the customer	5.7 %	8.3 %
f) Independently creating business practices	0.0 %	13.6 %
B) ***Pattern of developing business practices*** (Test for equirity between the two sectors: χ^2= 3.583, p=0.167)		
a) Creative adaptation: Hybridization	83.4 %	69.3 %
b) Copying	10.9 %	8.7 %
c) Original development	5.7 %	21.9 %

Looking at the creation of HRM practices,[12] the great majority of subsidiary firms of foreign companies respect, to a certain degree, the local institutional and labor market regulatory system. This means that the hybridization process is dominant. According to several studies dealing with the institutional transfer of business practices (e.g., Ishikawa –

[12] In relation to the hybridization of Human Resource Management (HRM), Adler (1999: 75-80) made a distinction among the following five theoretical strands: 1) The Rational Design View, in which the type of activity or technology of firm shapes the optimal organizational framework for HRM; 2) The Culturalist Approach, in which adaptation is necessary only in the cases in which the cultural differences between the host and mother countries are significant; 3) The Strategic Strand, in which the firm indicates that the foreign firm is following a diverse strategy (e.g., geocentric, ethnocentric, and administrative heritage) in controlling the local actitivity of its subsidiary firm; 4) The Institutional Approach, in which the HRM practice in the subsidiary firm is shaped by the "identic structures" in the subsidiary and mother firms or by the forces of "isomorphism;" and 5) The HRM Practice, which, according to the resource-dependent view, is, in the local subsidiary, the result of the following three forces: mother company, subsidiary firms, and other local institutions. These approaches are explaining in a rather different way the hibridization of business practice (e.g. HRM). For instance, in the logic of an "institutional view," Scott (1991) notes that, in the case of the HRM practice, the pressure to legitimate is much stronger than the pressure for efficiency. In the argument of the "resource-dependency strand," the production practice is less dependent on external actors than it is in the field of HRM, and, according to the "strategic explanation" for the headquarters of the MNCs, the financial performance of the subsidiaries is more important than the tools or methods used.

Makó – Warhurst, 2006; Koike, 1998; Kennedy – Florida, 1991), in the case of the HRM, firms, independently from their sector specificity, have greater autonomy than they do in transferring business practices in general. From this viewpoint, the words of the former President Fujio Cho of the Toyota Motor Manufacturing Company in Kentucky (U.S.A.) (Adler, 1999: 86) have special value:

> "I told people here that the (Japanese) coordinators were teachers on production issues and TPS, but that they were the students on the office areas, such as Legal, Human Resources, and Public Affairs."

It is not at all surprising that the number of firms which are copying the mother company Headquarters' system is lower for the case of transferring HRM practices than for that of copying business practices in general (see Tables 10 and 11 for a comparison).

Table 11: Patterns of transferring HRM practices into subsidiary firms of foreign companies

Sector (Sample size)	**Manufacturing sector (N=33)**	**KIBS Sector (N=33)**
Modes of Transfer (Test for equirity between the two sectors: $\chi^2 = 2.630$, $p=0.452$)		
a) Consistent with the local and the headquarters' requirements	41.9 %	30.4 %
b) Local practice created independently from the headquarters of the mother company	37.9 %	36.2 %
c) Adapting the headquarters' HRM system to the local conditions	14.1 %	27.6 %
d) Mechanically copying the HRM practices of the headquarters of the mother company	6.0 %	5.8 %

4. Diffusion and Drivers of Organizational Innovation. More Similarities than Differences between Sectors. The ICT Is Embedded Deeper into the Practice of KIBS Firms

4.1. Short Overview of the Attempts to Define and Develop the Typology of Organizational Innovation

Organizational and technological innovations are interactions, and, even before the Second World War, Schumpeter (1934) recognized the interrelatedness of innovation and went beyond that to focus exclusively on the technical side of innovation. In his view, technological and organizational innovation were interrelated and Lam wrote that Schumpeter "...saw organizational changes, alongside new products and processes, as well as markets as factors of "creative destruction." (Lam, 2005:115). Schumpeter made a distinction among the following five types of innovation:

1. New product
2. New production methods
3. New markets
4. New sources of supply
5. New forms of organization

Other innovation researchers, following the Schumpeterian intellectual heritage, are looking at the innovation as "... a complex phenomena including technical (e.g., new products and new production methods) and non-technical aspects (e.g., new markets and new forms of organization) as well as product innovation (e.g., new products or services) and process innovation (e.g., new production methods or new forms of organization)."[13] Based on these considerations, the authors distinguished four different types of innovation: (1) technical product innovation, (2) non-technical service innovation, (3) technical process innovation, and (4) non-technical process innovation, understood to be organizational innovation.

[13] Armbruster et al., 2008: 644-645.

Unfortunately, in spite of the abundance of literature on organizational innovation, there is no consensus among innovation researchers regarding the definition of the term "organizational innovation." In this respect, Lam (2005: 116) categorized the literature as follows representing the different interests and issues to identify and assess:

(1) Organizational design theories deal primarily with relationships between structural forms and the capacity of an organization to innovate (Mintzberg, 1979; Teece, 1998).
(2) The organizational change and adaptation (development) theory is used to understand the ability of an organization to overcome the forces of stability (inertia) and adaptation/change in the context of a radical shift in its environment and technological setting. Innovation represents the capacity to answer or respond to the challenges created by radical shifts in an organization's external environment (Hannan–Freeman, 1984; Child, 1997).
(3) The third theoretical stream focuses on the micro-process level of how an organization understands the characteristics of knowledge creation and learning within an organization. This organizational cognitive approach explains the interplay between learning and organizational innovation (Nonaka–Takeuchi, 1995; Senge, 1990; Amiable, 1988; Argyris–Schön, 1978).

In addition to the efforts (Lam, 2005) to classify the various theoretical streams, the Schienstock (2004) innovation matrix intends to integrate key dimensions or organizational innovation. This approach goes beyond those theoretical strands that made a distinction between isolated (cumulative) and integrative (holistic) innovation (Alasoini, 2003). In the Schienstocks' classification attempt, one dimension of classification relates to the "core" components of an organization, and the other refers to the changes taking place in the "relations" of the core components. Using these two dimensions, the matrix shown in Table 12 describes the possible types of organizational innovation.

Table 12: Typology of organizational innovation*

Relations between the core components of the organization	Core components of the organization	
	Not changing	**Changing**
Not changing	***Incremental innovation*** (e.g., Participation of employees in quality control)	***Modular innovation*** (e.g., cross-functional or interdisciplinary project team)
Changing	***Architectural innovation*** (e.g., lean organizations)	***Radical innovation*** (e.g., project-based firms, PBF)[14]

**Source:* Shienstock (2004: 18)

In this perspective, the cumulative or incremental type of organizational innovation does not result in changes in the core elements of an organization or in their relations, which shape the interest and power relations of the firm. Job rotation and job enrichment, which remain in the scope of an individual workplace, are the organizational methods belonging to this type of organizational innovation. According to Schienstock (2004), the modular version of organizational innovation, such as a cross-functional project team, changes the content of the core element of an organization but does not modify the relations among them. Contrary to the incremental and modular types of organizational changes, architectural innovation, such as the decentralization of responsibilities and decision within an organization, may result in a shift in the existing balance of interest and power relations. Similarly, such radical innovation as the creation of project-based firms (PBF) may modify both the core elements and their relations within the firms. In translating these major forms of innovation into the language of organizational learning, the incremental or modular forms of innovations require a single-loup or first-level mode of learning and radical innovation represents a double-loup or second level (holistic) form of organizational learning.

Armbruster et al. (2008), implicitly adopting Schienstock's (2004) theoretical classification of organizational innovation, are developing an item-oriented typology of organizational innovation. In their definition of "organizational innovation as the use of

[14] See Whitley (2004).

new managerial and working concepts and practices" (Armbruster et al., 2008: 646), the item-oriented typology of organizational innovation also makes a distinction between structural and procedural organizational innovation and the intra-organizational and inter-organizational features (using Schienstock's categories, the incremental and modular innovation are equal to the category of process innovation, and the architectural and radical innovation are identical to structural organizational innovation).

Armbruster et al. (2008) elaborated an item-oriented typology of organizational innovation convenient to empirically measure (monitor) organizational innovation using the tool of organizational surveys.

The groups of an "item-oriented typology of organizational innovation" are as follows:

1. *Structural organizational innovation*, which may modify the divisional structure of organizational functions, hierarchical levels, and information flow, or, in general, the organizational architecture of the firm.

2. *Procedural organizational innovation*, which may change the process and operation routines within the firms, such as improving the flexibility of manpower and the use of knowledge through the implementation of team work, just-in-time (*Kan-Ban* in Japanese), or quality circles.

3. *Intra-organizational innovation* that is taking place within an organization, and

4. *Inter-organizational aspects of innovation*, which refer to new organizational forms and processes that exist beyond the organizational border of the firm.

4.2. Diffusion and Drivers of Organizational Innovation

Our company survey was designed to focus exclusively on intra-organizational innovation, and it was not our intention to cover new organizational forms (e.g., networking firms), which are beyond the scope of the individual firm's organization.

Regarding intra-organizational innovation, the diffusion of both structural and procedural organizational innovation was investigated. The following structural and procedural forms of organizational methods were assessed by our respondents:

a). Structural organizational innovation:
- Project-based work;
- Lean or flat organization;
- Inter-professional (functional) working groups.

b). Procedural organizational innovation:
- Quality assurance or continuous improvement process (e.g., ISO, TQM);
- Collecting suggestions from workers;
- Teamwork;
- Benchmarking; and
- Job rotation
- Delegation of quality assurance to workers (decentralization).

Among the various new managerial practices, "structural organizational innovation" is less often used than "procedural organizational innovation." This is not by chance because structural organizational innovation affects the "core" components within the organization and their relationships. These types of changes require modification in the balance of power and interest relations of various actors in the organization. On the other hand, successful procedural innovation can be carried out without a radical shift in the core components and their relationships within an organization.

After this brief theoretical and methodological introduction, it is clear that such forms of procedural organizational innovation, such as a quality assurance system, collecting suggestions from employees, team work, and delegation of quality control to the employees, are the most widely used forms of organizational innovation in the manufacturing and KIBS sectors. In contrast, a flattening organization, inter-disciplinary working groups, and project-based work, which belong to the category of structural

organizational innovation, are less diffused. In addition to these similarities between the two sectors, some noticeable differences were also registered.

In the case of structural organizational innovation, the "project-based work" is used to a larger extent in KIBS firms than in manufacturing ones (34.9 % versus 22.1 %). Interdisciplinary working groups are more popular in manufacturing firms than in KIBS ones (20.5 % versus 10.3 %).

As we expected, the various forms of procedural organizational innovation diffuse at a higher rate than structural organizational innovation. However, in the following cases, important sector differences are found in the field of procedural organizational innovation. For example, quality assurance or quality-auditing systems are more often used in the manufacturing sector than in the KIBS sector (51.6 % versus 21.9 %); similarly, delegating quality supervision to rank-and-file workers is more widely used in manufacturing firms than in KIBS firms (45.2 % versus 23.7 %). The same pattern can be observed in the case of job rotation. It is employed in every fourth manufacturing firm (26.1 %) and in less than one in every 10 KIBS firms (9.7 %). It is noteworthy that the practice of benchmarking is more frequently used in the KIBS sector than in the manufacturing firms (37.3 % versus 27.0 %). See Table 13 for more details.

Table 13: Diffusion of new ('leading edge') managerial practices

Types of Organizational Innovation*	Manufacturing sector N=191	KIBS Sector N=196	*T-statistics*	*Significance*
I. *Structural organizational innovation:*				
Project-based work	22.1 %	34.9 %	*35.304*	*0.000***
Flat or lean organization	7.5 %	10.3 %	*0.342*	*0.559*
Inter-professional (inter-disciplinary) working groups	20.5 %	13.4 %	*11.843*	*0.001***
II. *Procedural organizational innovation:*				
Quality Assurance and Auditing Systems (e.g., ISO and TQM)	51.6 %	21.9 %	*75.519*	*0.000***
Collecting suggestions from employees	44.9 %	49.7 %	*1.949*	*0.164*
Team work	41.5 %	41.7 %	*0.196*	*0.659*
Benchmarking	27.0 %	37.3 %	*11.045*	*0.001***
Quality control carried out by rank-and-file employees	45.2 %	23.7 %	*70.091*	*0.000***
Job rotation	26,1	9,7	*104.605*	*0.000***

Note: Attempts to classify different types of organizational innovation based on the approach of Armbruster et al. (2008: 646-647)
**: Significant at the 1% level, *: at the 5% level.

In monitoring the diffusion of organizational innovation, we used another, broader category. In addition to evaluating nine types of new managerial practices and concepts, we asked our respondents to provide information regarding the diffusion of the following larger classes of organizational innovation. In this case, we did not make any distinction between "structural" and "procedural" organizational innovation. Our primary objective was to compare our survey experiences with the data collected in the latest European Community Innovation Survey (CIS):

1. New methods in organizing work (i.e., collecting suggestions from employees, team work, job rotation, and lean organization);

2. Creating new methods to renew external relations (networking)[15] with other firms and public institutions;
3. Implementing new business practices[16] that have an impact on the organizational and labor process; and
4. Introducing new knowledge management methods to improve the quality of information processing and facilitate knowledge sharing.

In addition to the issues listed above, we also asked the respondents whether their companies had implemented organizational innovation in one or several fields of their activities. Finally, the respondents were asked to answer the reasons for the lack of organizational innovation in the reference period of 2005 - 2007.

According to the survey results, in both the manufacturing and the KIBS sectors, the most popular form of organizational innovation is new methods of organizing work. We found that nearly 40 % of the surveyed firms implemented new techniques of work organization (i.e., team work and job rotation): manufacturing: 39.8 %; and KIBS firms: 39.3 %. The second in order is the development of new forms of networking with external partners in both the business community and public service. Almost one-third of the firms surveyed initiated changes in methods maintaining external relations. For firms operating in the KIBS sector, the renewal of external relations appears to be more important than it does in the manufacturing sector. It is noteworthy that the implementation of new business practices, especially of those involving new knowledge management methods, is diffused to a lesser degree than that of new methods for organizing work or of a new form of networking with external actors of the firms investigated. See Table 14 for more details of the survey results on this matter.

[15] The content of external relations or networking was as follows: alliances, partnerships, and delocalization of business functions.
[16] The new business practices covered such activities as supply change management, reengineering business process, leaning organization, renewal education, and training system.

Table 14: Diffusion of bundles of organizational innovation (multiple answers)

Groups of organizational innovation	Manufacturing sector N=191	KIBS Sector N=196
New methods in organizing work (i.e., suggestion system, team work, and job rotation)	39.8 %	39.3 %
Creating a new method to renew external relations	26.9 %	29.9 %
Implementing new business practices (i.e., reengineering business process and supply chain management)	24.6 %	26.1 %
Introducing new knowledge management methods	17.7 %	18.2 %

In comparing the quantity of new organizational forms, we may say that a slightly larger share of the KIBS firms than of manufacturing companies initiated organizational changes in more than one field of activities: 32.2 % versus 25.1 %. In the manufacturing sector, more than every fourth (26.7 %) and, in the KIBS, every third firm (34.6 %) did not intend to renew their work organization in the period concerned (2005-2007).

After identifying various types and forms of organizational innovation, our respondents were asked to assess the drivers of organizational changes or the implementation of the new organizational forms. In both sectors, the most important driver or motive of organizational changes is the improvement of the efficiency of daily operations. This factor is followed by the motives to improve quality and customer service, to strengthen internal cooperation within the firm, and to better adapt to the changes in a firm's environment. Surprisingly, the outsourcing or delocalizing business services received the lowest assessment among the factors driving organizational changes in both the manufacturing and KIBS sectors. See Table 15 for more details.

Table 15: Driving Forces behind Important Organizational Changes*

Drivers of Organizational Changes	**Manufacturing sector**	**KIBS Sector**	***T-statistics***	***Significance***
Improving daily efficiency of work	5.56	4.28	*10.625*	*0.001***
Improving quality and customer service	4.35	4.04	*15.776*	*0.000***
Strengthening cooperation within the firm	4.30	3.91	*13.677*	*0.000***
Adapting to the environmental changes	4.23	3.95	*6.135*	*0.014**
Renewal of product and services	4.17	3.76	*5.396*	*0.021**
Renewal of the existing knowledge base	4.15	4.04	*6.377*	*0.012**
Due to increasing size of the firm	3.42	3.39	*43.782*	*0.000***
Due to outsourcing business functions	3.16	2.94	*8.421*	*0.004***

Note: Drivers of organizational changes were assessed by managers on a 5 point-scale, where 1 = least important and 5 = most important factor.
**: Significant at the 1% level, *: at the 5% level.

Finally, regarding the diffusions and drivers of organizational innovation, we asked our respondents about the possible constraints. As Table 16 shows, the key reason for the lack of organizational innovation is that, before the reference period (2005-2007), changes had been carried out; however, no further steps in modernizing work and organizations were necessary. Such constraints as the lack of necessary financial resources, shortage of a skilled labor force, or resistance of either employees or managers are among the least important constraints of organizational innovation. The statistical test did not confirm any differences between the sectors in this respect.

Table 16: Reasons for the absence of organizational innovation*

Explanation for the lack of organizational innovation	**Manufacturing sector**	**KIBS Sector**	***T-statistics***	***Significance***
There was no need for organizational innovation from 2005 to 2007	3.10	3.18	*0.190*	*0.663*
Organizational innovation was implemented before 2005; since then, there had been no need for further changes	2.90	3.60	*5.660*	*0.018**
Lack of financial resources	1.77	1.62	*7.135*	*0.008***
Skill shortage	1.72	1.42	*6.438*	*0.012**
Resistance of employees and managers to change	1.44	1.38	*7.081*	*0.008***

Note: Employers interviewed assessed these items on a 5 point-scale, where 1 = least important and 5 = most important factor explaining the absence of organizational innovation.
**: Significant at the 1% level, *: at the 5% level.

4.3. Development of ICT Use in the Firm

It is a commonly shared view among the scholars of organizational innovation and the learning economy that, from the last decades of the 20th Century, the learning or knowledge economy became a catchword among the communities of policy makers and academics. This was attributed to the forces of globalization and the growing use of information and communication technology (ICT). According to Ramioul et al. (2006), in contrast to previous technological changes (e.g., automatization), due to its integrative character, ICT represents an "organizational technology" which offers to the actors concerned in this process specific opportunities to shape the division of labor and the practices of knowledge use. In this sense, Nielsen (2006: 15-16) added that, during the so-called "take-off" period of the ICT in the mid-1980's,

> "The more narrow rationalization phase dominated up to the end of eighties; than in the early nineties a more organic, pervasive and information-oriented approach to the use of ICT started to emerge. The importance of thinking new ICT into, as an integrative part of, new managerial and organization forms became more widely recognized. Even though rationalization was still an important function, information and communication came to be seen as more and more important functions. This development of ICT from pure rationalization towards information and communication functions is in line with the view held by Zuboff (1985); the phases, however, are not "clean" ... we still empirically presume rationalization to be an important function in the use of ICT."

In long quotation from Nielsen above, we call the attention of readers to the various degrees of embeddedness of ICT in the everyday management practices of business firms. It is widely known that ICT plays various crucial roles in the every day life of the firms.[17]

[17] For example, in the U.S.A., more than 70 % of the ICT equipment is purchased by service companies. The selection, implementation, and integration of this technology are key factors in their business success (Chesborough - Shphrer, 2006).

From this perspective, we wanted to understand the degree of involvement of ICT in the management of the surveyed firms. Our results support the evidence obtained from firms in the KIBS sector, i.e., that ICT is more intensively used in the KIBS sector than in the manufacturing sector. This may be explained by the probability that "... ICT process innovation is often a necessary prerequisite for the service innovation in this industry" (Nielsen, 2006: 56).

Based on this information, we believe that ICT can be implemented and used in a multitude of functions, such as information processing and communication, and in different fields of activity of the firms, such as routine production, research, and development within the business process. Our survey is designed to identify the functions and fields in which ICT is employed in both the manufacturing and the KIBS sectors.

As shown in Table 17, less than one-half of the manufacturing firms (44.5 %) are using ICT for such basic functions as information processing and internal and external communication, while, in the KIBS sector, more than nine of every 10 (95.2 %) firms are doing so. An integrated company management system or development activities are emblematic fields representing a deeper and more intensive use of ICT. ICT is used within an integrated management system only in every fourth manufacturing firm (25.2 %) but in more than two-thirds of business firms (34.3 %). However, the differences are more contrasting in the use of ICT for developing activities, where the share of firms in the KIBS sector is more than four times higher than it is in the manufacturing sector (44.9 % versus 19.1 %).

Table 17: Use of ICT by function and location in the business process

Function/location of business process	**Manufacturing sector N=191**	**KIBS Sector N=196**
Information processing and communication	44.5 %	95.2 %
Integrating company management	25.2 %	91.7 %
Development activities	19.1 %	82.6 %

5. Skill Requirements and Knowledge Development in Firms

5.1. Slight Differences in Skill Requirements and Key Role of Experience-based Learning

In this section, we analyze empirical experience of knowledge development practices within a firm. According to national and international experience focusing on innovation in general and organizational innovation in particular, "innovation and learning are closely and operationally related to a learning organization." In this respect, we agree with Nielsen (2006: 117), who writes the following:

> "To make learning complete and sufficient, with the innovative mode in focus, it is necessary to combine experience-based and reflective learning with the new knowledge achieved from formal training and education. Only in this way does learning become both knowledge-based and experience-based, and may evolve dynamically in the context of the organization ... Competence development and continuous vocational training must form the two sides of the same coin in the learning organization's employment system, and be complementary to its production strategies."

Skills and formal training are important preconditions for innovation. However, what really matters is the ability of a person to mobilize his/her qualification in a concrete job situation. "While qualifications are individually adopted characteristics, built into and carried out by a person, competence as a concept has to do with specific job situations and assignements, and concerns the capacity of an employee to use his or her qualifications in the job situation ... the potential possiblities to act in a specific assignment, situation or context. In line with this definition, *competence development* as a concept in this context will be defined as continuous development of experiences, skills, influence, possibilities and responsibilities, related to the job situation, tasks and context of the employees" (Nielsen, 2006: 124)

Learning or innovative organization requires the combination of "formal education," "competence," and "social capital." The social capital in the labor process is composed of cooperation capacity and the communication skills of the participants.[18]

Before describing the knowledge development practice of the firms investigated during the survey, we identified the types of knowledge and skills required by the employers surveyed. The most important competences, according to the employers interviewed in both sectors, are as follows:

1. Professional-technical skills
2. Reliability on the job
3. Experience and practical skills

Skills that enhance social capital include "capacity of cooperation," "customer-centered attitude," and "communication skills which are of outsanding importance. It is noteworthy that generic skills, such as "problem solving," "creativity," "management," "ICT knowledge," and "language," are among the least important. In addition to this pattern of skill requirements that is characteristic of both sectors, the language skills of the firms operating in the KIBS sector were more important than those in the manufacturing firms, while "experience and practical skills" and "cooperation" were reported to be more important in the manufacturing sector. Table 18 summarizes the most important skills for the surveyed firms.

[18] Besides the briefly presented classifications of knowledge preconditions for learning or innovative organization, another stream of recent development in workplace theory is noteworthy. This view makes a disctintion between "learning as acquisition" and "learning as participation." Quoting Felstead et al. (2008: 5), "The former refers to a conceptualization, which views learning as a product with a visible, identifiable outcome, often accompanied by certification or proof of attendance. The latter perspective, on the other hand, views learning as a process in which learners improve their work performance by carrying out daily activities." This distinction is similar to the distinction of "formal education" and "competences."

Table 18: Required skills and their importance*

Skills	Manufacturing sector N=191	KIBS Sector N=196	*T-statistics*	*Significance*
Reliability	4.84	4.78	*2.797*	*0.95*
Professional and technical skills	4.73	4.68	*0.174*	*0.676*
Experience and practical skills	4.70	4.14	*46.964*	*0.000***
Cooperation and adaptation	4.60	4.44	*9.183*	*0.003***
Problem-solving capacity	4.58	4.53	*2.425*	*0.120*
Customer-oriented attitude	4.42	4.56	*0.014*	*0.905*
Creativity	4.18	4.23	*4.112*	*0.043**
Communication	4.01	4.47	*0.77*	*0.781*
Management	3.82	3.94	*0.011*	*0.917*
General ICT	3.39	3.94	*0.015*	*0.903*
Language	3.35	3.67	*10.126*	*0.002***

Note: Employers interviewed assessed these items on a 5 point-scale, where 1 = least important and 5 = most important factor, the importance of the skills listed from the company's needs.
**: Significant at the 1% level, *: at the 5% level.

Evaluating the importance of the various methods in knowledge creation used in the firms investigated, we used the following classification of knowledge:

(1) Participation in formal education

(2) Competence development

(3) Improving social capital

In both sectors, experience-based or work-situated ("on-site") knowledge plays a more important role (e.g., consulting with management and other employees, on-the-job training, and visiting professional fairs and expositions) than formal education (e.g., participation in courses/educational schemes and involvement in further training tailored for the needs of the firm). The importance of training with an aim at improving the social capital of employees (workers) (e.g., motivation of cooperation between various organizational units and job rotation) is located between the "competence development" and "participation in formal education." In addition to this common pattern of knowledge development, which is characteristic of both sectors, we identified slight differences. Employers in the KIBS firms, in addition to their knowledge development aimed at

improving the competence of employees, are supporting the participation of employees in standard courses/educational schemes and in training courses promoting the needs of the company more than employers of the manufacturing firms are. Table 19 illustrates the methods of knowledge development employed in company practices.

Table 19: Methods of knowledge development in the firms surveyed*

Methods of knowledge development	**Manufacturing sector**	**KIBS Sector**	***T-statistics***	***Significance***
I. Participation in formal education:				
Standard courses/educational schemes	1.97	2.39	*20,195*	*0,000***
Further training designed according to the needs of the firm	2.69	3.10	*0,727*	*0,394*
II. Competence development:				
Consulting with management/other employees	3.57	3.66	*5,200*	*0,023**
On-the-job training (OJT)	3.23	3.40	*0,285*	*0,594*
Attending professional fairs and expositions	3.07	3.11	*28,776*	*0,000***
Job rotation	2,41	1,92	*19,202*	*0,000***
III. Improving social capital:				
Supporting cooperation between organizational units	3.01	2.95	*2,565*	*0,110*
Team-work	3.04	2.87	*8,036*	*0,005***

Note: Employers interviewed assessed these items on a 5 point-scale, where 1 = least important and 5 = most important factor, the importance of the knowledge development methods employed.

**: Significant at the 1% level, *: at the 5% level.

Training Practice: KIBS Firms Investing More in Formal Training. Essential Role of External Knowledge Sources

Innovation researchers are stressing the interplay between innovative and learning organization. From this viewpoint, on-the-job training (OJT) includes such activities as watching, listening to, and learning from others in the labor process, often called "learning by experiencing" or "learning by interacting." This type of learning is taking place in addition to the traditional training and educational schemes. In addition to this distinction in types of learning, we point out that experience-based skills are firm-specific and not easily transferable and convertible between firms, in contrast to formal education-training base (certificated) knowledge.

While, in the former section, we focused on "experience-based and reflexive" learning, in this section, we deal with knowledge-based learning organized by a firm. In this field, our survey results indicate visible differences between the manufacturing and KIBS firms. As shown in Table 20, in the business service firms, more than every second employee (52.7 %) participated in the previous year of our survey (2007) in a training course organized, financed, or supported in another way (e.g., working time reduction) by the firm,[19] while, in the manufacturing firms, only one-fifth (23.3 %) of employees were involved in this type of company-organized training. Employee autonomy to participate in training is greater in KIBS sector firms than in manufacturing firms (16.1 % versus 7.7 %).[20]

[19] For example, language courses and further professional training.
[20] To be involved in higher education to obtain a second diploma or PhD degree or to attend a conference.

Table 20: Participation rates in the company's supported training

Forms of training and support	Manufacturing sector N=191	KIBS Sector N=196
Courses organized and financed by the firm	14.0 %	31.2 %
Courses selected by an employee but financed by the firm	7.7 %	16.1 %
Courses supported by working time reduction	1.6 %	5.4 %

Our empirical experience supports the following internationally tested pattern: highly educated workers, who are more numerous in the KIBS firms than in the manufacturing ones, are significantly more likely to be involved in further training and education than less qualified employees (Felstead et al., 2008: 14).

With respect to the content of the training, we found that, in both sectors, almost half of the training courses aimed to improve job-related specific knowledge and that two-fifths of the employees were involved in the job-specific + general training. In both sectors, less than 10 % of employees had a chance to participate in training activities improving their generic knowledge and competencies (e.g., language and communication skills).

Finally, regarding knowledge development practices, we also looked at the importance of external knowledge resources. Table 21 is a summary of the importance of the external actors and institutions in generating knowledge in the firms surveyed.

Table 21: External sources of knowledge development (multiple answers)

External knowledge sources	Manufacturing sector N=191		KIBS Sector N=196	
	Regularly	Occasionally	Regularly	Occasionally
Customers	55.9 %	38.4 %	62.9 %	16.3 %
Suppliers, service providers	36.2 %	40.2 %	25.4 %	36.6 %
External consulting	5.9 %	30.5 %	7.2 %	47.0 %
Labor market institutions, professional associations	4.8 %	20.0 %	5.2 %	20.7 %
Educational (training) institutions	3.1 %	30.4 %	6.0 %	23.1 %
Research institutes	1.9 %	18.2 %	4.8 %	14.9 %
Higher educational institutions	1.4 %	23.0 %	4.4 %	23.0 %
Development agencies	0.8 %	11.9 %	0.9 %	25.6 %

The employers' opinions summarized in Table 21 indicate that external knowledge sources (e.g., experience and knowledge of customers), in both sectors but in the KIBS firms to slightly higher degree, are playing a significant role in improving the organizational knowledge pool in the companies surveyed. In addition to the important collective (organizational) knowledge generation role of the customers and suppliers, other external knowledge sources, such as consultancy, labor market institutions, professional associations, and other training institutions and higher education and development agencies, are playing a much weaker role. However, these knowledge sources are more important for the KIBS firms than for the manufacturing ones.

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