Knowledge-Intensive Services: New Leader of Production Stages?

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Abstract: - At the end of the previous century we were introduced to the notion of mass customization - an approach to manufacturing that synchronizes the benefits of mass production to the benefits of tailoring each product to an individual’s requirements. The underlying “technologies” that support mass customization are a combination of modular design approaches and information technology. Modular design allows us to create a very large number of varieties of a particular product with varying characteristics. Tailoring products to individual requirements means having detailed information about individual customer requirements and the knowledge. This allows us to identify how to satisfy them.

Key-Words: - Services; Knowledge Management; Knowledge Intensive Services; Czech Republic; Service Management; Accounting Profession

1 Introduction

We are in the knowledge era and knowledge has emerged and accepted as the key resource. Knowledge is the key resource because it is most costly, provides highest returns and it is the most important source of a firm's sustainable competitive advantage [24].

Services take bigger and bigger space in human activities. In essence they accompany mankind since the year dot. When people started to exchange products among themselves and the middleman - merchant - appeared, we can speak about intermediation service providing. In human communities, there always existed individuals that started to take care of the others in the time of disease, during injuries, but they also paid attention to various ceremonials that developed in the community. In subsequent years people extended their sphere of activity and mainly seaside countries carried on explorations and on the basis of the explorations they conducted transport among countries and continents. They started to say experience and knowledge and progressively it came to intentional, education (monasteries, etc.)

Nowadays a huge area opens to services. Various activities from the earlier times belong there and new occasions for services appear every day. The new occasions are given thanks to new information and knowledge and the possibilities to transform them into services on the one side, and on the other side there are continually developing needs of people that look for satisfaction.

In order to provide more and more value through the provision of services and products we need to have both rich information concerning the consumer and rich information about the product or service domain and rich information about design. Putting these different types of information/knowledge together allows us to provide increasing value to the consumer. Basically the combination of such information/knowledge fundamentally involves the provision of a service. Manufacturing of itself will not be the province of the high-value adding economies. Value will come from service provision where information and knowledge will facilitate the identification of consumer needs and the designing of services and products to satisfy these needs [32].

An important question in connection with the nature of services, already mentioned at the beginning of this chapter, is whether services create wealth. It depends on what is meant by “wealth”. To Adam Smith and Karl Marx, wealth was human labor accumulated in products that can be owned. Today, wealth is understood as a high
degree of satisfaction of human needs. [2] stress that the value of services is in their effects, which are often long term, but which are difficult to measure and even to evaluate, and which in special cases consist of impeding undesirable events (for example, police services) or of reducing some costs. [7] on the other hand maintains that pure public services do not create economic wealth and are always financed by governments or voluntary contributions rather than sold on a market.

The Smith-Marxian opinion corresponds to the deep-rooted popular notion that such people as wholesalers, bureaucrats and speculators are parasites. One often hears even highly educated people say: “We cannot live by taking in each other's laundry” - or as the saying goes in Denmark: “We cannot live by shaving one another” - which is not wrong, but the same is true of all economic activities: we cannot live by making, for instance, chairs for one another, either. The division of labor starts by me shaving you, and you making chairs for me. Today, the Smith-Marxian notion is not very useful: we would not have our contemporary wealthy society if we did not have services. The notion that services are not productive must be abandoned.

On the other hand, the neoclassical point of view that wealth equals the price that can be obtained is not satisfactory either. This may be illustrated by an example from town planning: it is sensibly attempted to plan cities in such a way that - given that people must be able to reach a certain number of places (work, shopping, leisure activities, social contacts and so on) - the volume of traffic is minimized. In other words, we do not accept that even if transport can be sold on a market, and is taken into account as a contribution to GDP, it creates wealth.

There is still a need for theoretically well-based criteria which make it possible to distinguish between economic activities that create wealth and those which do not create wealth. It seems that the question primarily, but not exclusively, concerns services.

This paper has been structured firstly to introduce the knowledge management sector when dividing the tertiary production stage. After that we will focus on the requirements on knowledge (intensive) services and finally we’ll pay a special emphasis to very important sector of accounting services.

2 Literature Review

The sum of the service industries is usually called the “service sector”. It coincides with the so-called tertiary stage in descriptions of the economy focusing on the production and distribution process. The primary stage consists of raw material extraction, agriculture, forestry and fishing, the secondary stage includes the manufacturing and building industries, and the tertiary stage includes trade and all the different proper services industries.

The division of the economy into three stages is illustrated in Figure 1, where the rectangle areas are proportional to the employment of today. The tertiary stage is dominating. It corresponds to the “service sector” as conventionally defined, that is, including wholesaling and retailing of goods, and measured by the value-added of all constituent service industries including goods distribution.

**Fig. 1.** The service sector as the tertiary stage

Defined in this way it is shown in Figure 2 that in a cross-section of 15 European countries the service sector as a share of gross national product (GNP) ranges from 60 per cent (Ireland) to 80 per cent (Luxembourg), where Sweden is close to the European Union (EU) average. According to OECD and national statistics quoted by Economist (2005), manufacturing jobs have fallen by more than half from 1970 to 2005 in European countries as well as the USA. With reference to Figure 1.3 it means that in the five first years of this century the share of the service sector in GNP has gone up by as many percentage points to 75 per cent, on average, and in the USA the service sector share in total employment seems to be as large as 88 per cent.

**Fig. 2.** The share of the service sector in GDP in 2000 in a cross section of EU member states

source: [15]
The fluctuations in international supply and demand are periodical and selective in character, and the occupations in demand require either highly qualified individuals, or unskilled labor, a middle level of qualification being rarely needed, a fact that can only lead to an unprecedented growth in the already precarious equilibrium in this domain. Under the influence of a major economic breakdown, when the volume of occupational activity is drastically reduced, the easiest way to attain rapid cost reduction for an employer is letting go of a percentage of the employees [36].

2.1 Basic Classification of Services

The basic classification of the services carried out by the economists Foot and Hatt divides services as the following:

**Tertiary:** The typical representatives of this kind of services are restaurants and hotels, barber's and hairdresser's, cosmetic services, laundries and cleaners, repairs and maintenance of appliances and households, handmade and artisanal works previously executed at home and other home-made services.

**Quaternary:** We can classify here the following services: transport, trade, communication, finance, and administration. Characteristic features of these services are facilitating, distribution of the activities and making work more effective.

**Quinternary:** As the example we can mention health and social services, education and recreation. The main feature of this sector is that the provided services change their receivers and somehow improve them.

Turning to occupational classifications, it should be recalled that the possible “quaternary” and “information” categories are primarily based on occupations. The VN has produced an International Standard Classification of Occupations (ISCO), but only a few countries publish data according to it.

The main service classes are:

0/1 Professional, technical and related workers;
2 Administrative and managerial workers;
3 Clerical and related workers;
4 Sales workers; and
5 Service workers.

Hill’s definition [12] distinguished between things and persons as the object of the services, while [25] separated out information services. This line of thought has been followed by several authors [1, 9, 14], who more or less independently of one another classified services on the basis of their object.

More often than not, the object-based classes have been cross-classified with a distinction between individualized and standardized activities. In this way, one arrives at the following classes, which have been used to study skill and productivity as well as geographical issues.

**A Object: Goods**

- A1- Individual: cleaning, hotels, restaurants, repair, renting;
- A2- Standardized: Goods transport, retailing, wholesale;

**B Object: Information**

- B1- Individual: Management, consulting, research, culture;
- B2- Standardized: Back offices, routine administration, and telecomm;

**C Object: Persons**

- C1- Individual: Education, health, care, sports, body care;
- C2- Standardized: Transport of persons;

**D Pure public services:**

- general government, police, defense, justice.

Education - especially of children and adolescents - is here viewed as a person-related activity, in which social and psychological aspects are important, not as a sheer transfer of information.

Generally, goods- and person-related services as well as individual information services require proximity between the service producer and the service user or serviced thing. Hence, there is little internationalization in these activities. However, standardized information services are increasingly liable to be transmitted via telecommunications and are exposed to international competition; as an example, one may mention the adult learning programmes now being developed by universities. However, technological progress allows more and more individualized and complicated electronic information transmission. Many activities have changed over time, for instance retailing from a rather individualized to a more standardized activity.

In genuinely individualized service production, it is only to a limited degree possible to increase productivity, and employment tends to increase, while the opposite is the case in standardized service activities [4]. Classification according to object may of course be cross-classified with the producer/household dimension, as has been done by [20].

3 Knowledge Services

Knowledge is the most important assets of today’s companies. It can take a number of different forms that can be classified in a number of ways. All of these classifications acknowledge that the knowledge is subjective. Knowledge is dependable on individual’s cognition and interpretation (subjective constituent) of the relations of the real world (objective constituent). If we consider the degree of subjectivity and objectiveness
in knowledge we can distinguish between three types of knowledge. These are facts (with emphasis on objectiveness), skills (with even emphasis on subjective and objective constituent) and intuition (with prevailing subjectivity constituent) [31].

In the knowledge economy, a key source of sustainable competitive advantage and consequent profitability is the way that a company creates and shares its knowledge. Because knowledge is taking on such an important strategic role, larger and larger numbers of companies, demand effective performance in the knowledge management domain and they aim to leverage and transform that knowledge into competitive advantages. Knowledge management is a systematic management technique employed in the organizationally specified process of acquiring, organizing and communicating knowledge. There have been a number of frameworks developed to promote knowledge management activities [33].

Regarding the ontological dimension of knowledge (the subject who knows) it repeatedly appears in literature at two levels: the individual one and the collective one, despite the terms used to refer to them. Ontologically we can consider the organization to be a cognitive entity [5]. When addressing knowledge management, several authors distinguish these two forms of knowledge [6, 8, 11, 13, 19, 22], so we have to assume that knowledge is really able to present itself in two different forms: an individual one and a collective one. As a result, we recognize knowledge management models should identify the phases each knowledge form is most accounted for.

Following [6] we could accept small young and simple firms to focus individual knowledge and intuitively explore to the most out of it. On the other hand, huge established corporation tend to explicit or implicitly exploit and benefit from collective knowledge. Either option is acceptable and has proved to work. Each one of them traduces a strategic choice that top management exercises on a daily basis through routines and decision making processes.

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The notion professional services is understood as a type of service better then classification of providing services according to [18]. She characterizes the professional services as following:

- They are highly knowledge services provided by people with university education and usually closely focused on the scientific knowledge development in the relevant field of expert opinion.
- They include high level of customization.
- They contain high level of individual work and personal judgment of experts providing services.
- Usually they require close interaction with the company client.
- They are provided with restrictions given by professional norms of behavior that place position of client needs higher than their profits and respect limits of professional examination.

The list of professional business services covers firms as e.g.: law firms - lawyers, audit firms – auditors, consultancy firms in the field of management, technology, investment banking, marketing firms, advertising firms, personal agencies.

What is unique on professional firms?

- high quality of individuals
- service strongly concentrated on client
- subjective quality evaluation

Just like globalization represents an integration process at a world level, the increase in number of EU member states is an undertaking akin to it, at a continental level, which affects the life of the citizens and the economic policies conceived, applied both by the public organs and the economic agents in an absolute manner [36]. The European Union makes great effort to support creative activities so that it reduces slightly the lead of USA in the field of science and technology and if possible keep up with “Asian tigers” mainly with China and India. That’s why it is interested in monitoring of activity development in the field of knowledge-intensive services. Under the patronage of OECD the project that had as task to survey the innovations in progress in 11 countries and the share of services on these innovations was realized.

Knowledge-intensive business services (KIBS) in particular have emerged as a dynamic industry supplying for instance, management consulting, accounting, legal, marketing and personnel services. KIBS organisations are private service businesses that sell their services on markets to other businesses and organizations [21]. As such, KIBS represent a subset of knowledge-intensive services that has an important role in the innovation system. They have been studied as an industry in their own right. For example, accounting and legal solution
are sold, even exported, and the growth rate of these kinds of businesses is significant [21, 30].

Knowledge-intensive services is a wider concept including activities carried out by private and the public sector service suppliers as well as services produced within the organisations. For instance government-funded research and technology organisations are very well established suppliers of knowledge-intensive services and they have been excessively studied as important actors in innovation systems. A range of other types of organisations - for instance, industry associations - supply types of knowledge-intensive services at varying levels of complexity [23].

Central to discussion of knowledge-intensive service activities is what causes a firm to develop knowledge internally versus getting it from outside. According to the transaction costs theory, company will purchase services in the market if they are cheaper, but intangible factors such as issues of trust may also impose costs [34]. In the case of knowledge-intensive services, almost by definition the seller of the service will have information that buyers will not have, so it will be difficult for the buyers to know if they are getting good value. There are also questions of the fit between the skills the company has and the ones it wants to acquire. If the skills the company requires are similar to the ones it has, it is likely to develop them in-house; if they are complementary but different, and it is likely to acquire them externally [26].

In general, the studies showed that many companies provide knowledge-intensive services internally most of the time. The decision whether to develop a service internally or buy it in depends on a number of variables, including the size of the company, various life cycle factors, and the nature of the service. In addition, the use of external services depends on the supply of specialized services.

Some of the studies were on companies or systems big enough to provide most services in-house, should they choose to do so. E.g. a number of the Irish software companies were subsidiaries of multinational corporations and were able to use services provided within the company, sometimes in other countries. Some of the health care service organisations were also part of large systems. In many of the studies, however, small firms provided their own services because they could not afford to purchase them on the market. They recognised the need for, say, business planning or accounting, or personnel management services, and so they developed sufficient expertise to perform the needed services themselves. Sometimes they begrudged the time and effort away from what they saw as their core business, and hoped that in the future they would be able to buy the service in the market place. The very small Norwegian aquaculture firms were family-managed without knowledge-intensive services. This situation prevailed until the firm grew large enough to employ middle management that acquired the skills to provide such services.

Clear differences can be seen in the case studies regarding three classes of knowledge-intensive services:

- **Knowledge-intensive services strategy.** The control services that are strategic to the firm are typically kept inside the organisation; although some highly specialized complementary knowledge-intensive services could be acquired from external experts. Examples of strategic knowledge-intensive services include core business competences (e.g. techno-economic management of a paper mill); key technologies and their development (e.g. fibre-related research and development and process technologies; and integrated business level information systems (e.g. systems that enable process control in paper manufacturing, related logistics and marketing systems, systems that simulate and assist in the management of the economics of the paper mill).

- **Knowledge-intensive services supporting and/or improving existing processes** can be outsourced to an external provider. The key problem with such services is to determine whether they are strategic or supportive in nature. One example of a supportive knowledge-intensive services is service and maintenance of a paper mill. Some businesses have outsourced the entire service and maintenance function whereas others maintain that this is part of their core business.

- **Knowledge-intensive services delivering solutions or improvements** to specific, well-defined tasks. The use of external knowledge-intensive services is common and increasing in types of services such as: marketing and advertising; accounting services; and legal services.

It follows that only the third class fits in the conception of intellectualised services. In the figure, the proportional values of economically active people working in knowledgeized services within EU can be seen. Furthermore, it is possible to compare these values to production sector i.e. secondary sector. If the item of other services and knowledge-intensive services are counted up we get the value of working people in tertiary sphere in general.

**Tab. 1.** Position of Knowledge-Intensive Services within E.U. Labor Market
Outside, impartial perspective for the strategic overview, Finnish health care study it was important to have an part of the routine management of the company. In the creative consultants would lose their edge if they became senior management, and ideas were sought for its noticeable when the innovation came from an idea of insiders' perspective. This was especially sometimes companies consciously seek outside views to complement insiders' perspective. That is, when the innovation came from an idea of senior management, and ideas were sought for its implementation. There was a perception that some creative consultants would lose their edge if they became part of the routine management of the company. In the Finnish health care study it was important to have an outside, impartial perspective for the strategic overview, and neutral honest brokers between levels of government. Finally, there were cases where companies used external consultants to complement existing but limited internal expertise. E.g., Spanish travel agencies often employed environmental consultants who would drive innovations that would then be administered by regular staff.

Companies also outsource work because they lack necessary skills in-house. Sometimes they aspired to develop them. If the company was simply too small to justify employing a specialist with the skills, however, it sometimes employed an external provider in order to learn the skills so it could be done in-house next time. In other cases, they were not regarded as core business. In the latter case, they were unlikely to engage much with the service or learn much from it. In some cases, appropriate services were not available externally. E.g., some Australian mining technology services companies operated in remote locations where services were unavailable; some industries, like the Finnish leisure industries, were part of a new wave of development where the required services, in this case knowledge of life style issues, were only just emerging [23].

Companies acquire knowledge-intensive services from a variety of sources. One of the most obvious sources that were examined in all the studies is companies in the knowledge intensive business services sector. In general, companies had little difficulty in finding the regular business services they needed, such as accounting, legal advice and management consultancy. Some large companies outsourced large parts of their business, so that presumably the only activity on the part of the company was settling the contract and supervising it. Industry associations, in contrast, were not seen as important service providers. However, the differences in the scope of associations in the different industries and countries are significant.

Government-funded research organizations were used in some industries, particularly the resource-based sectors. They were relied on more for long-term research rather than for development. In software business, however, many firms reported that government research organisations were irrelevant, and several Australian tourism companies observed that the company was the site rather than the beneficiary of research. On the other hand, they benefited from the market research of government funded local tourism organisations. Only for the science-based entrepreneurs in the Norwegian aquaculture industry did publicly funded research and technology organisations represent a source of specific innovation.

Perhaps the most striking finding from the research is the importance of the company’s networks as a source of knowledge-intensive services, especially industry and market intelligence. The most important single driver of

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Source: [10, 23]
innovation for existing companies was customers, both immediate and end users, who provided not only the demand and the impulse for innovation but also much of the technical specifications and know-how. Suppliers, too, were the source of much knowledge. Peers and even competitors were also important in the innovation system. This was equally true in the high and low technology sectors. The network was especially important when a company was contemplating a new activity, e.g. commencing exporting.

The Norwegian health care study pointed to an interesting specific example of external provision of knowledge-intensive services. When a public sector function is split into a separate purchaser and provider roles, in effect an external service provider is created. This new organisation can then offer services to number of other buyers as well.

In the Czech Republic the knowledge services are almost unknown notion although the developed countries are changing radically the structure of economic sectors. They transfer many of the processing activities heavy on capital and labor to other countries and they create thus area for “nobler” activities such as services. Strictly speaking - they try to decrease the share of nonqualified or not enough qualified labor and increase the share of the highly qualified labor.

Therefore they develop sectors of services that intensively take advantage of knowledge and offer original solution in various areas. The development of these services is very heavy on “intellectual capital” otherwise they are not so capital-intensive and they create high added value and also bring high profit.

The Europe, the Central Europe and mainly Czech Republic are relatively poor in natural resources. Czech Republic has to import raw materials for industry development so it should weigh the development that is not so capital demanding but it benefits from “intellectual capital” and natural creativity of people. Otherwise there is a danger of just “slavery” toward the future and it will be, as can be seen in the world, less and less paid.

On the whole in the Czech Republic 60% of economically active population work in services in general, from the OECD report follows that in knowledge services it is 24%.

4 Services of Professional Accountants

Knowledge-intensive business services (KIBS) in particular have emerged as a dynamic industry supplying for instance, management consulting, accounting, legal, marketing and personnel services. KIBS organizations are private service businesses that sell their services on markets to other businesses and organizations [21]. As such, KIBS represent a subset of knowledge-intensive services that has an important role in the innovation system. They have been studied as an industry in their own right. E.g., accounting and legal solution are sold, even exported, and the growth rate of these kinds of businesses is significant [21, 30]. In the Czech Republic more than 250,000 people (2.5 % of whole Czech population) state that they are professional accountants.

Numerous researches deal with information potential of measurement and accounting. Information systems are to assure enough information and transfer it according to a company’s need, in relation to a company organization structure. Knowledge is a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition [17]. One portion supports day-to-day decision making; another part is used for tactical and strategically decision making [35]. Accounting part of the information system helps to make accounting records be in compliance with valid legislation [28].

In the year 2002, the European Parliament and the Council of the European Union issued Regulation 1606/2002 whereby it stipulated certain duties on the part of companies listed on European stock exchanges to compile their consolidated accounting statements in accordance with IFRS. Therefore, beginning from 2005, a large number of listed enterprises, exhibiting significant heterogeneity in size, capital structure, ownership structure and accounting sophistication, started to apply international standards for the first time. The demand for detailed application guidance will increase substantially, as will the demand for uniform financial reporting enforcement throughout the European Union.

In addition to the use of IFRS by listed companies, many countries adopt international standards for unlisted companies or model their domestic standards on the basis of international standards. The requirements for group listed enterprises to prepare IFRS reports from 2005 were established in most transitional economies,
but it is still unclear to what extent other enterprises will prepare IFRS financial statements. Concerns about the lack of suitably trained accountants and auditors and the lack of efficient markets to ensure reliable fair values for the IFRS financial statements, have already been expressed [29]. This may cast doubt on whether the financial statements issued under IFRS will be reliable.

Companies with international stock exchange listings face additional capital market pressures and stock exchange requirements that may lead them to increase their level of disclosure. Investors demand information about the domestic operating environment and domestic accounting regulations of foreign listed firms. Many stock exchanges around the world allow foreign registrants to prepare their financial statements according to IFRS or US GAAP. There may be more disclosure by UK and US companies that have a culture of disclosure of information than by companies that have not traditionally aimed to produce especially transparent financial statements (e.g. companies from transitional economies such as the Czech Republic).

Therefore the accounting profession desires a wider range of capabilities (over and above technical ability) that accounting graduates should possess, e.g. the ability to manage stress, an awareness of personal values, a basic knowledge of psychology, communication skills, motivation, persistence, empathy and a sensitivity to social responsibility [27]. The profession has a responsibility towards members to encourage the cultivation of some of these skills and not focus so severely on only technical ability. The current accounting education is often focused on the acquisition of knowledge and an over-emphasis on technical knowledge in order to pass the professional examinations, rather than focusing more on the utilization of knowledge and more holistic attributes [3, 16].

Czech accounting profession is organized in three bodies: (i) Chamber of Auditors CR (given by law), (ii) Chamber of Certified Accountants CR (for all certified professional accountants), and (iii) Chamber of Certified Accountants by Union of Accountants (for accountants certified by the Union of Accountants CR).

The primary goals of all Chambers are to contribute to the development and improvement of the accounting profession in the Czech Republic by implementing an accounting professional certification system, providing the continued professional development of accountants, issuing a Code of Ethics and other standards regulating the activities of professional accountants, supervising professional accountants’ adherence to standards, collaborating in the development of accounting professions and in the field of accounting methodology and the assertion of legislative regulations of the accounting profession with other professional organizations and schools both bilaterally and within the scope of the National Accounting Board.

The CPD is obligatory for all certified accountants; newly certified accountants are obliged to join the education system from the year following the year of their certification. The main goal of the CPD system definitely lies in the improvement and refinement of the professional knowledge and skills of certified accountants, as well as the development of their professional and ethical values.

All professional accountants who are part of one of mentioned Chambers are obliged to complete 40 hours of the CPD per year. It is deemed that the CPD may be terminated only in the event of the given member’s terminating the discharge of his/her profession. Only accountants maintaining their knowledge are able to provide relevant services to their customers.

5 Limitations and Future Research

The general description of solution of the topic implies a basic objective of the resource resolved, which is definition of types of services within which the project will be elaborated and the second one characteristics of corporations operating in the selected areas of the service sector.

The first partial objective defined within execution of the resource is to define individual types of services that will be the subject of research of the respective project. It is generally known that services exist in many types, forms and variants and therefore it appears to be absolutely unavoidable to narrow the defined object of solution. Too broad spectrum of the services examined could have an adverse impact on results of the solution and lead to an excessive generalization of the results achieved. The emphasis will be placed on the services of quarter sector, i.e. “Knowledge intensive services” and services with a long-term relationship between provider and customer.

Partial objective of the second aim is to generally characterize corporations operating in the service sector, in particular from the perspective of executed activities, provided outputs, customers structure, costs structure, personnel structure, assets and capital structure as well as other characteristics that are relevant to the main objective of the project resolved and may affect the project results.

Within the future research we expect to provide a definition of the fundamental rules for definition the knowledge in the service sector and creation of a complex methodology. Thus created theoretical apparatus will also include solution of certain problems with which the persons involved may be confronted at application of the knowledge intensive services. Practical use of the results will be mainly a practical
applicability of the elaborated methodology in real environments of corporations operating in the selected service sectors.

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