



# Sector Futures

## The knowledge-intensive business services sector

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# What future?

*Knowledge-intensive business services, or KIBS for short, represent one of the fastest growing areas of the European economy. The first of three articles in the Sector Futures series on this sector sets out by defining KIBS, which involves distinguishing them from other forms of services and knowledge-intensive activities. It then looks at knowledge-intensive business services in the European Union (EU), highlighting key similarities and differences in their development across Member States. The feature also examines the forces driving the sector's growth, including issues of outsourcing, the internationalisation of services, and the growth in demand for certain forms of knowledge.*

Knowledge-intensive business services (KIBS) are often considered to be one of the hallmarks of the knowledge-based economy. The KIBS sector consists of firms that have emerged to help other organisations deal with problems for which external sources of knowledge are required. There are practically as many kinds of knowledge-intensive business services as there are areas of knowledge, so naturally there is considerable diversity in their evolution, structure and use. Nevertheless, KIBS embrace several sectors based on the statistical nomenclature NACE which, in general, have displayed more rapid and sustained growth rates than those of other economic sectors. This has made them quantitatively more prominent in European economies; their role in trade as well as in employment generation is therefore coming under some scrutiny. At the same time, their importance is growing in qualitative terms, as they become increasingly influential sources of, and channels for, new knowledge. The performance of KIBS does affect the performance of those organisations that are their clients, and thus the dynamism of the KIBS sector impacts on the whole economy.

## Defining knowledge-intensive business services

KIBS are a subset of business services, which are themselves a subset of all services. Services are involved in changing the state of manufactured goods, or of information and knowledge, rather than (primarily) producing manufactured articles themselves. Sometimes the service is delivered through an artefact, but generally the value of the information content is many times that of the physical good itself. As business services, KIBS are concerned with providing knowledge-intensive inputs to business processes of organisations. These organisations can, and often do, include public sector clients – KIBS do not only provide services to businesses.

Knowledge intensity, however, is not easy to measure; one convenient indicator is the share of graduates in the workforce. By this measure, KIBS show an unusually high rate of graduates who have been trained in various knowledge areas: some specialise in scientific and technological knowledge, others in administrative, managerial or socio-legal affairs. According to the European Commission's **Employment in Europe 2004**<sup>1</sup> report, there has been rapid growth in high-skill employment in KIBS across the EU (Chapter 3, 2004).

Table 1 outlines the main sectors that encompass KIBS based on the statistical nomenclature NACE revision 1.1, where business services are classified in section K 'Real estate, renting and business activities' division 70–74. Some KIBS firms, however, also cover activities like logistics and are active in other sectors, particularly in the telecoms and financial services sectors. Although this wide set of business services includes operational services, it is exceptionally knowledge-intensive. In the EU15, some 40% of business services personnel are classified as high-skilled compared to 36% in the new Member States (NMS). For financial services, the comparable figures were 34% in the EU15 and 32% in the NMS; while distributive trade classifies only 13% of its workforce across the EU25 as high-skilled. The skill classification is mainly based on educational attainment.

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<sup>1</sup> [http://www.europa.eu.int/comm/employment\\_social/news/2004/sep/eie2004\\_en.html](http://www.europa.eu.int/comm/employment_social/news/2004/sep/eie2004_en.html)

Table 1: Main KIBS sectors based on NACE Rev. 1.1. nomenclature

<b>NACE division 72: Computer and related activities</b>	
72.1:	Hardware consultancy
72.2:	Software consultancy and supply
72.3:	Data processing
72.4:	Database activities
72.5:	Maintenance and repair of office, accounting and computing machinery
72.6:	Other computer related activities
<b>NACE division 73: Research and experimental development</b>	
73.1:	Research and experimental development on natural sciences and engineering
73.2:	Research and experimental development on social sciences and humanities
<b>NACE division 74: Other business activities</b>	
74.11:	Legal activities
74.12:	Accounting, book-keeping and auditing activities; tax consultancy
74.13:	Market research and public opinion polling
74.14:	Business and management consultancy activities
74.15:	Management activities of holding companies
74.20:	Architectural and engineering activities and related technical consultancy
74.3:	Technical testing and analysis
74.4:	Advertising
74.5:	Labour recruitment and provision of personnel
74.8:	Miscellaneous business activities n.e.c.
74.81:	Photographic activities
74.84:	Other business activities n.e.c.
<p>Note: The broad NACE divisions 70 –74 include some sub -sectors that are not strictly KIBS, and thus have been omitted from this list: some parts of 74.6 (Investigation and security activities); 74.7 (Industrial cleaning); 74.82 (Packaging activities); 74.83 (Secretarial and translation activities).</p> <p>NACE 71, excluded from the list above, involves ‘Renting of machinery and equipment without operator and of personal and household goods’ which is often grouped together with these sectors. For purposes of statistical analysis, these sectors are often aggregated with ‘real estate’, and this group then, in turn, with ‘financial intermediation’.</p>	

## KIBS in Europe

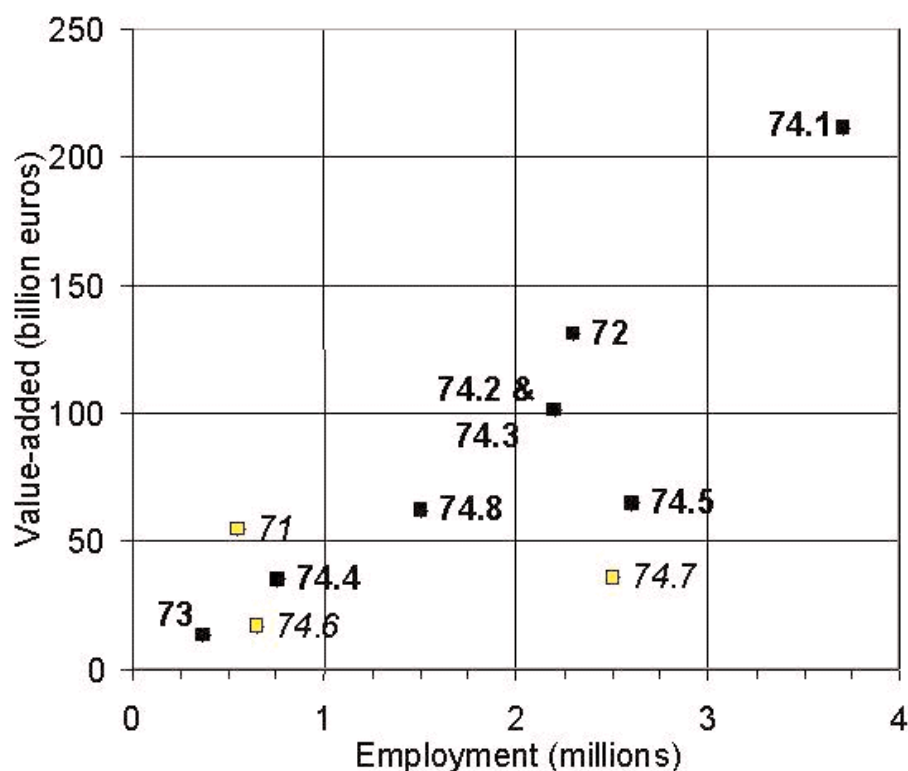
Statistics on KIBS as well as on services and business services have been largely neglected until recently. However, increasing information is coming on stream albeit limited and looking very little at development trends in the sector.

According to Eurostat, the EU25 counted 192 million employees in all economic sectors in 2001, with approximately 85% of these working in the EU15. Some 125 million of the 192 million employees work in the business economy and 113 million in the non-financial business economy. Of these, 57 million are employed in non-financial market services. Approximately 17.5 million employees of these 57 million are employed in turn, in the computer services and business services sectors, representing around a third of all non-financial market services employment. A proportion of these, some 2.5 million employees, are employed in activities such as industrial cleaning which are rarely considered as knowledge-intensive business services. Likewise, almost one million are employed in security services and half a million in renting and leasing, which Eurostat includes in business services in some of these analyses.

In the most recent edition of *European business: Facts and figures – Data 1998–2002*<sup>2</sup>, Eurostat provides an overview of the scale of two of the three main KIBS sectors for 14 EU countries at the beginning of the millennium – research and development (R&D) services are omitted and there was no data available for Greece. Almost 16 million workers were employed in these services, with the United Kingdom (UK) and Germany each boasting three million employees in this domain (Eurostat, 2004b).

Figure 1 displays data to grasp the relative size of different KIBS in the EU25, plotting employment against value-added. ‘Legal, accountancy and management services’ is the single largest category accounting for 3.7 million people employed, followed by ‘personnel services’ with 2.6 million, ‘computer services’ 2.3 million and ‘architecture, engineering and technical services’ at 2.2 million. The remaining sectors, ‘advertising’ and ‘R&D services’ count fewer employees, totalling a little over 1.2 million between them, less than a third of which work in R&D services. In the new Member States, these sectors have smaller shares of employment than in the EU15.

Figure 1: *Employment and value-added in selected business services in the EU25, 2001*



Note: Key to NACE codes: 71, Renting and leasing; 72, Computer services; 73, R&D services; 74.1, Legal accountancy management; 74.2 and 74.3, Architecture engineering and technical services; 74.4, Advertising and market research; 74.5, Personnel services; 74.6, Security services; 74.7, Industrial cleaning; 74.8, Miscellaneous business services. The italicised sectors, with light bullets in the graphic, are mainly business services that are less knowledge-intensive than KIBS.

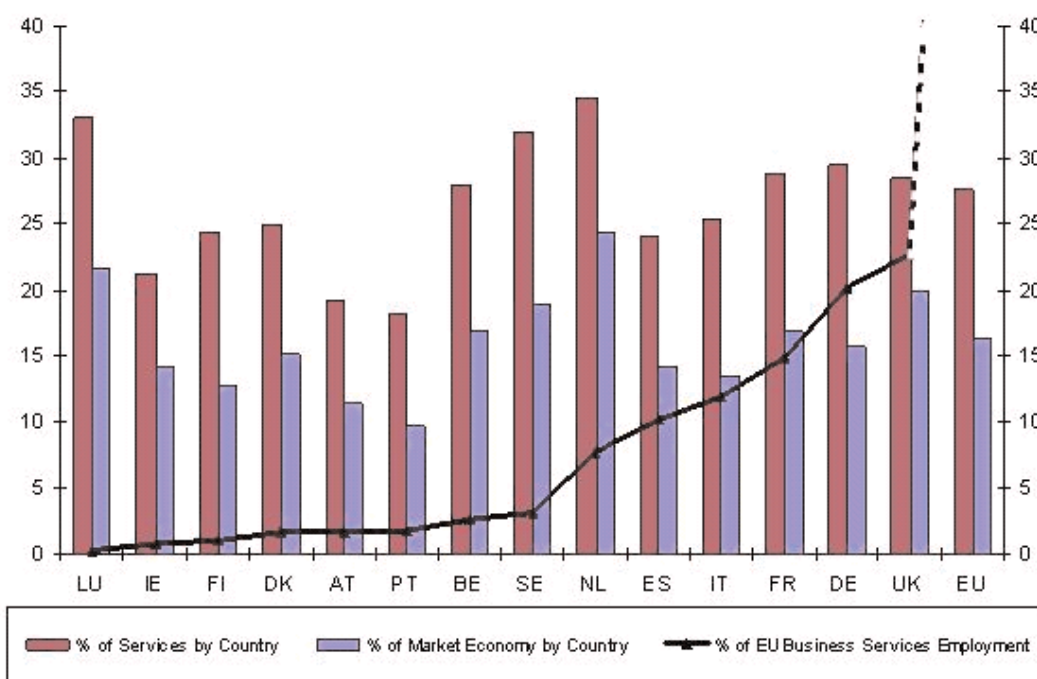
Source: Based on data from Eurostat (2004b), Chapters 22 and 23.

<sup>2</sup>

[http://epp.eurostat.cec.eu.int/portal/page?\\_pageid=1073,46587259&\\_dad=portal&\\_schema=PORTAL&p\\_product\\_code=KS-BW-04-001](http://epp.eurostat.cec.eu.int/portal/page?_pageid=1073,46587259&_dad=portal&_schema=PORTAL&p_product_code=KS-BW-04-001)

Figure 2 displays data for most of the EU15 in 2001, which shows major differences in countries' contributions to computer and business services (NACE 72 and 74). Certain countries contribute very substantially to EU employment in knowledge-intensive business services. The UK emerges as the largest employer in absolute terms in almost all classes of business and computer service, followed by Germany and France. When it comes to the share of service activity in the domestic economy, the picture is rather different, with Luxembourg and the Netherlands scoring well above the EU average of 16.4% of the business economy and 27% of market services employment – and Portugal and Austria demonstrating much less prominence for these activities.

Figure 2: *Employment in computer and business services (NACE 72 and 74) as a proportion of total market sector employment and service employment, and contribution to overall EU business service employment, 14 of the EU15 countries, 2001*



Note: 'Market economy' and 'services' excludes financial intermediation; data for EU15 less Greece  
 Source: Based on Table 1.2 from Eurostat (2004a), p. 10.

Over the last decade, the computer and businesses services sectors (NACE 72 and 74) have almost all shown growth rates that are higher than those of the economy as a whole, and of those of other market services. Mainly small firms are active in these sectors compared to most other sectors of the economy; though R&D services are more oriented to large firms. Often there are a few large transnational companies cooperating with a large number of small firms dealing with specific localities (knowledge is not as mobile as is often thought) or specific niches (specialist classes of knowledge). Many of the sectors have a higher share of women in the workforce than the economy as a whole, although important differences remain in the gender composition of specific KIBS from country to country.

### Drivers of development in KIBS

The knowledge-intensive business services sector's growth rate is so much faster than that of other sectors that it cannot solely be attributed to the growth of those sectors which are users of KIBS. According to statistical analyses, KIBS' growth is largely due to changes in the extent to which all sectors are demanding inputs from KIBS. As a result, some researchers argue that a major driver for KIBS growth is 'outsourcing'.

## Outsourcing

At the beginning of 2005, EMCC has published a report dealing in much more detail with the topic of outsourcing – and, in particular, focusing on offshoring and how this impacts on computer and business services (Huws *et al*, 2004). Firms have increasingly contracted out services which were originally internal operations. This reflects various types of motivation, one of the most prominent being the philosophy of focusing on core competences. Indeed, specialised business services could be expected to gain the following: economies of scale; the efficiency and effectiveness that come from experience and learning from different clients; the impetus that comes from having to compete with other suppliers; and other ways of improving service performance. The client benefits from being able to be more flexible – terminating contracts and shifting between suppliers may be easier than dealing with an in-house workforce.

However, things do not all work one way. The sorts of specialised labour force that are involved in KIBS may sometimes adhere to cultures and work practices which do not fit easily within client firms. Thus, several factors work towards a ‘buy’ solution to the ‘make or buy’ question in respect of KIBS. Furthermore, there are transaction costs involved in locating and using external suppliers of services. It is necessary to establish a sufficient ‘absorption capacity’ in the client organisation, otherwise the benefits of the service may be lost. Smaller firms may be unable to afford KIBS – or specialised service workers of their own – and have to rely on internal managerial, technical or administrative resources to perform these functions. Highly strategic functions are often hard to relinquish on the part of potential clients, though it is notable that even activities like R&D have been increasingly outsourced in recent years. In any case, the outsourcing tendency still has a long way to go in most KIBS areas, for example, the vast majority of business R&D is not yet outsourced.

Outsourcing may increase the number of KIBS firms offering their services. However, offshoring may lead to service activities being relocated to cheaper sites – not necessarily in the EU. It is suggested that new information technology (IT) may make offshoring, in particular, more attractive, by enabling the relocation of information work to low-wage economies where the appropriate skill set is available. Relatively unskilled office and call centre work has attracted a great deal of attention in this respect. At the same time, there is a visible tendency for elements of more knowledge-intensive work – software development, some forms of professional advice, etc. – also to be offshored. This is related to decreasing communication costs over long distances and the expanding capacity of new IT to allow detailed interaction and coordination. Therefore, offshoring – and outsourcing in general – becomes relatively less expensive options in many cases, despite the problems of arm’s length relationships with the KIBS sector in the EU.

Although outsourcing is changing the shape of the European KIBS sector, it is not a sufficient explanation for the sector’s growth. Large numbers of KIBS-type employees are still present in most sectors of the European economy – indeed, the share of the workforce accounted for by white-collar and knowledge-intensive employees is growing across all EU economic sectors.

There are also other forces driving the development of KIBS industries. In particular, Kox (2002) and Toivonen (2004) have sought to examine growth drivers active in the KIBS sector, looking at those drivers that may operate in the future, as well as those that have been important in the past.

## Technologies

When considering the growth of KIBS, the increasing demand for certain forms of knowledge has to be taken into account. A major driver of KIBS growth is revealed by the rapid increase in technology-related business services, of which the most prominent examples are computer and information technology services (see Table 1, NACE division 72). The rapid advance of technological performance and the proliferation of applications create a major problem for organisations wanting to make effective use of these technologies. In order to keep up with these developments, it is necessary to acquire substantial (new) knowledge. Of course, many organisations have built up internal IT capabilities; Nevertheless, IT services provide an alternative source of knowledge.



IT services are multifaceted, including sourcing and configuring complex technology set-ups required for clients' specific IT applications (systems integrators); writing software or designing web pages; giving advice on IT strategy; or implementing and running facilities for clients (facilities management).

More services have emerged to help clients deal with different technologies and technological problems. Some of these are active around specific bodies of technological knowledge – mechanical engineering, biotechnology, nanotechnology, etc – while others are more focused on specific problems – most notably environmental problems and technologies that can be brought to bear on these. KIBS offer services as diverse as waste disposal, emissions and discharge monitoring, remediation and clean-up, environmental auditing, environmental impact assessment and eco-design.

This technology-related driver of KIBS constitutes a major element of the knowledge-driven economy. To the extent that European economies are increasingly dependent on a widening range of technological knowledge, these services are therefore playing an important role. In many ways, these services are locating, developing, combining and applying various types of generic knowledge about technologies and applications to local and very specific problems, issues and contexts of their clients. As with many other KIBS, they are involved in a process of fusing generic and local knowledge together. Sometimes this means that substantial negotiation with the client is required to reach a shared understanding of the problem. However, such negotiation is not always successful as many IT projects are failures or only partially successful. One way of dealing with this problem is to create services which are more like engineering (concepts like 'service engineering' and 'software engineering') so that problems are spelled out explicitly and formally, and solutions are broken down into well-documented component elements.

### **Regulations and social change**

Many KIBS help clients thrive in their social environments, such as specialised services to support legal and accountancy frameworks which have existed for a long time. KIBS that provide intelligence and advice on dealing with regulatory structures are also significant. For instance, compliance with environmental regulations, health and safety standards, and a range of similar issues represents a major challenge for firms. These challenges are greater for companies working across countries with different traditions. KIBS provide basic information, advice and intermediation services, and help in training client staff (which is also a function of some of the more technology-oriented KIBS).

Other KIBS are more in the business of helping clients understand, and relate to, the markets and cultures, the consumers and stakeholders, with whom they deal. Market research, marketing, and public relations are examples of such services. The proliferation of products and the diversification of consumer demand have prompted a major growth in demand for such services. Again, firms operating in international environments are faced with greater requirement for knowledge about their environments, and how to operate in them.

Environmental regulations and social concerns about environmental issues are important factors promoting the growth of environmental services, such as waste disposal as well as KIBS dealing with 'clean' technologies and environmental law. Environmental issues may also impact on how KIBS do their business ensuring that KIBS are less energy-intensive than many other services. For example, this is relevant for services in transport and services that require large office infrastructures. However, this does not mean that KIBS are inherently environmentally friendly. In 2001, Zaring (*et al*) included several KIBS in their study of 'eco-efficient producer services' and suggested that several factors are liable to push these firms to being more eco-efficient – with explicitly environmental motives often playing a minor role.

### **Other drivers**

In the discussions above, internationalisation and globalisation have often been mentioned as a closely related pair of factors driving clients to seek inputs from KIBS in order to successfully operate in more diverse environments. They

may also be thought of as a driver affecting KIBS directly (Miozzo and Miles, 2002) while also being a stimulus for KIBS firms themselves to internationalise which, in turn, creates new pressures for these firms:

- they may need to internationalise in order to follow their clients into new operating environments;
- they may internationalise to find new markets;
- they are liable to face competitive challenges from overseas KIBS firms which enter the markets of more and more countries. Trade liberalisation agreements may facilitate such competitive pressures;
- the internationalisation of KIBS also allows for direct comparison with KIBS from other countries and their practices, and to learn and improve as a result;
- some informational elements of KIBS – design and delivery of services, remote management and coordination of service processes – may be facilitated through the application of new information technologies.

However, many KIBS are believed to be relatively sheltered from international competition. The diversity of rules and regulations across countries, the national character of many professional qualifications, and differences in language and culture have all made these sectors ones where there are more than usual difficulties confronted by those wishing to trade across borders. Correspondingly, the EU is putting considerable efforts into reducing such barriers. Some KIBS, such as computer services, already display relatively large degrees of foreign presence and ownership.

The rise of the knowledge-based economy might also be seen as a driver of KIBS growth. One element of this which is important is the overall increase in ‘service’ as an operating principle in economic life and is sometimes referred to as the ‘servicisation’ or ‘servation’ of the economy. Firms in all sectors recognise that their competitive advantage lies in the actual services which their customers gain from the transaction, not the particular goods being sold. This means more attention to service components of the customer relationship – ranging from involvement of customers in product selection and design, to after-sales and product disposal. While many of these ‘product services’ are carried out in-house by suppliers, there is also a growth of specialised services that offer support in this way.

Some trends in the labour market also need to be taken into account. On the one hand, there are skill scarcities which render work in some KIBS sectors lucrative as KIBS clients often find it difficult to offer the same wage levels. On the other hand, there may be changes in the workforce as more people look for diversified careers, rather than stable ‘jobs for life’. Both of these factors should encourage work in KIBS. Furthermore, evidence suggests that KIBS work may be stressful in some cases, but it offers relatively high levels of learning on the job and diversity of work experience.



# Trends and scenarios

*This article builds on the first article's discussion on the rise of the knowledge-intensive business services (KIBS) sector, the reasons for its growth and the nature of the contemporary landscape of KIBS. It reviews a limited number of earlier studies that have attempted to identify drivers of quantitative and qualitative change in KIBS, and explores three alternative scenarios for the future development of the sector in coming years.*

Knowledge-intensive business services (KIBS) are companies that provide inputs – based heavily on advanced technological or professional knowledge – to the business processes of other organisations. Although the KIBS sector is continuing to grow at a rapid rate, it is also experiencing qualitative changes. Many KIBS branches are becoming more concentrated, although the KIBS sector features more small firms than the economy as a whole does. Increasingly, KIBS are supplying a wider range of services, which has resulted in some overlap and convergence between different KIBS branches. Some KIBS are becoming more involved with the strategies of their major clients, leading to the possibility that certain services will become specialised and others will integrate their inputs for clients.

## Drivers of KIBS growth

The KIBS sector encompasses a range of activities such as computer services, research and development (R&D) services, legal, accountancy and management services, architecture, engineering and technical services, advertising and market research, among others. The first article in this series noted that the majority of these sectors have grown rapidly in most of the EU25 countries, and that they typically employ high-skilled workers to a greater extent than other sectors of the economy. It also outlined a number of factors driving growth of the KIBS sectors, namely:

- outsourcing of services from client firms, although the related trend of offshoring services could reduce the number of KIBS located within the EU;
- growing demand for different types of technological knowledge, especially related to new technologies such as information technology (IT);
- growing demand for specialised knowledge of social, administrative, and regulatory issues – ranging from requirements to understand consumer and industrial markets, to being able to comply with and anticipate regulatory and similar pressures;
- factors associated with internationalisation and globalisation of business;
- an increasing emphasis on service and on intangible elements of production and products in the knowledge-based economy;
- issues regarding labour markets for knowledge workers.

Such drivers will be experienced to different extents across the range of activities performed by KIBS. Also, there will be variations, from country to country, in the relative scale of KIBS in the national economy, in the relative size and growth rates of specific KIBS, even in the product types that are produced by different KIBS branches. There is some evidence that relations between KIBS establishments and their clients vary from country to country, as well as across sectors. For example, in some cases, the client clearly defines the mission of the KIBS establishment, while in other cases, the KIBS company and the client tend to define the problem jointly. Despite these differences, it is possible to identify some widely-shared features of KIBS development that are liable to persist into the future. Kox (2002) and **Toivonen**<sup>3</sup> (2004) provide discussions on such development trends, which are drawn on below.

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<sup>3</sup> <http://lib.tkk.fi/Diss/2004/isbn9512273152>

## Development trends in KIBS

### Expansion

Continuing operation of the drivers listed above is generally seen as being conducive to ongoing growth in the demand for, and supply of, KIBS. Offshoring might mean that parts of this supply would be sourced from outside the EU, or that it might shift to lower-wage but highly-skilled regions of the EU, particularly to some of the new Member States. However, most commentators believe that many KIBS require in-depth knowledge of, often localised, cultural, regulatory and organisational issues, and that face-to-face interaction between supplier and client that makes offshoring difficult. It remains to be seen whether ongoing advances in IT can offset some of these issues.

There may be other threats to the expansion of KIBS. Rapid growth is not always without its costs, and it is likely that high demand for KIBS, coupled with clients' difficulties in assessing the likely quality of services to be delivered, means that some KIBS firms are producing inferior services. There have been reports, for example, of 'cowboy consultants', poor service in IT systems design, accountants and auditors who have failed to identify serious failings in business practice. There are also concerns that client firms have become too 'hollow', losing a great deal of organisational memory and strategic capability in the pursuit of flexibility, as well as losing their focus on core competencies. Problems of this nature may reduce demand for KIBS, or lead potential clients to seek in-house solutions.

Another possible threat to KIBS comes from the public sector. As research and technology organisations, such as government laboratories and universities, are pushed to find more sources of external funding, they may undercut KIBS firms by offering competing services. There have been sporadic complaints about this happening, for example, in areas such as web design services. On the other hand, KIBS firms sometimes benefit from such public sector bodies. Furthermore, national and regional governments can help to facilitate, subsidise or promote KIBS services to disadvantaged regions and firms, e.g. smaller firms and peripheral regions that may lack easy access to types of support that larger and metropolitan firms can acquire readily.

KIBS employment in the EU25 has grown considerably over recent decades, to the point that it now accounts for some 9% of all employment. Whether this high growth rate can be maintained is unclear, although it is evident that some countries (and not just the new Member States) have much scope for development, if their KIBS are to occupy a similar role in their economies as they do in much of the EU.

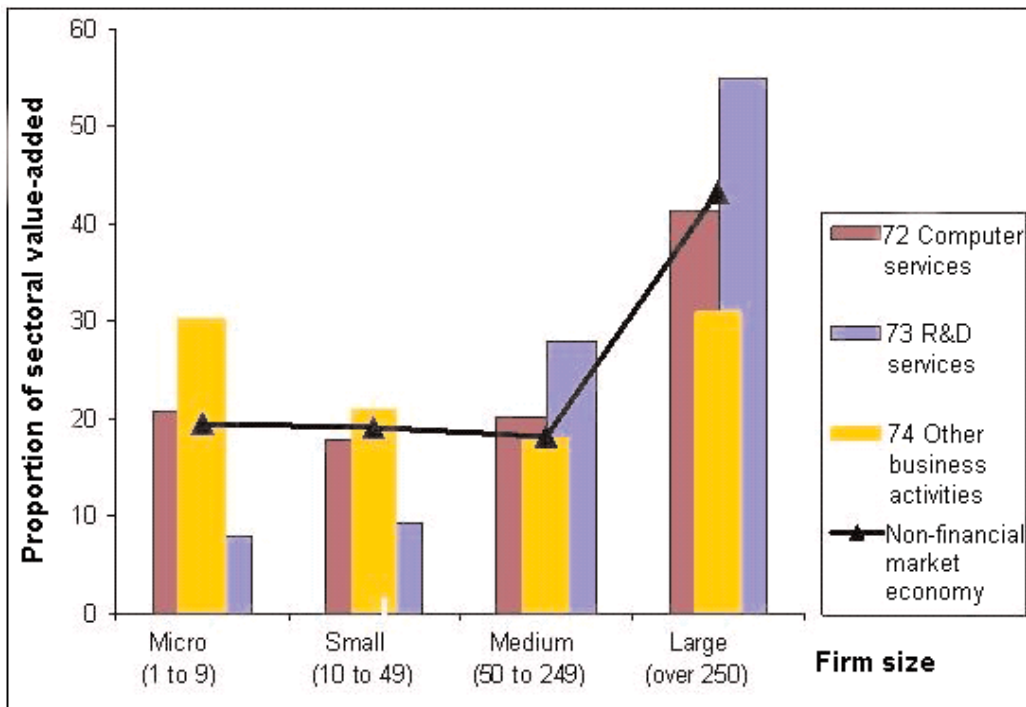
### Growing concentration

In many sectors, there is a long-term tendency for larger firms to emerge and become dominant – a process of concentration that is often seen as synonymous with industrial maturity. Most KIBS sectors are less concentrated than the manufacturing industry; they feature many small firms operating in regional or specialised niches, together with a small number of very large firms operating transnationally. Figure 1 displays some basic data on this: it shows that computer services are very close to the entire economy in terms of size distribution; R&D services are actually more concentrated; but 'other business activities', a category under which a significant number of KIBS fall, displays considerably more activity in the micro business sector, and less among large firms, than is typical for the economy as a whole.

In many, but not all, KIBS sectors, a trend towards concentration is nevertheless apparent. Larger KIBS firms grow, often by acquisition, and expand regionally, nationally and internationally. This is not altogether a new phenomenon. The five major auditing firms were already dominant actors some decades ago, and rapid consolidation has been underway in KIBS sectors such as advertising. Large global firms are also active in engineering services, but the high specialisation and often the extensive local knowledge required for such services mean that they are not as concentrated as auditing services. In other sectors – for instance, legal services – country-specific factors are very important. This suggests that

while concentration trends may be visible within countries, they are less prominent on a global scale. The most common picture seems to be one of increasing orientation around head offices in a few metropolitan centres.

Figure 1: Value added by firms in different KIBS sectors, compared to that for the EU25 market economy, 2001



Note: The non-financial market economy is here defined as NACE sections S to I and K (i.e. omits agriculture and fishery, financial intermediation, and public services).

Source: Eurostat, 2004

### Growing internationalisation

Although growing concentration of certain KIBS sectors is taking place on an international scale due to the dominance of large firms, internationalisation does not only concern large firms. As well as the emergence of large multinational KIBS, some small- and medium-sized companies are also active on an international scale. In fact, some small KIBS have been described as being ‘born global’. An example is a two-person company that is selling its computer security solutions to dozens of countries around the world.

Toivonen (2004) identifies three main models for KIBS internationalisation:

- The ‘evolutionary model’ is often portrayed as the main model. In this model, KIBS companies first increase their local market share, then extend their activities to wider national markets. They subsequently go international, mainly through following their clients overseas; and finally they set up their own overseas operations, servicing clients or other international companies from the host country (Roberts, 1998).
- The ‘born global’ model refers to new KIBS companies that are oriented towards international markets from the outset. Typically, these are companies that make use of computer networks to market themselves, interact with clients, and deliver their solutions – so they are often involved in information or computer services, though a range of design and similar activities can also be undertaken in this way.

- The third model is characteristic of many firms operating mainly in domestic markets. Often, because they may be servicing a foreign client, or a local client who operates in overseas markets, the KIBS firm needs to be aware of the wider global business environment (or at least, those portions of it that clients operate in). The international linkages in their own area of expertise may also become important, with professional and other networks that extend outside the KIBS own country sometimes being relevant. In some more professional KIBS activities, for instance, there are many partnerships between similar firms in different countries.

### Changing client relations

There is considerable diversity in relationships between KIBS companies and their clients – from very remote relationships, where the KIBS company is largely a contractor performing a predefined task, to more intimate, interactive ones, where the KIBS company may be in a long-term partnership with clients and negotiate the service tasks with them. Such diversity is likely to continue, but there are apparent trends.

For example, Toivonen (2004) argues that many clients expect KIBS companies to examine how their services support the client's entire business and business strategy. This means that KIBS have to be more proactive in finding solutions to potential problems the client may face. They need to understand the client's business as well as their own professions and specialised knowledge base; they are required to provide integrated solutions to their clients' problems.

Such a trend is associated with a shift to longer-term partnership relationships and more managed supply and value chains – a more general development in the business world, but one whose permanence remains to be seen. The working relationships within KIBS companies and between their clients may therefore feature what Toivonen describes as a growth in consultative working practices. This reflects, in part, the demands of professional knowledge workers, as well as the need for shared problem solving with the client. Toivonen also suggests that because of these trends, KIBS need to broaden the range of services they provide, even while they become more specialised in relation to a particular sector or type of client.

On the other hand, there are also pressures that may cause some KIBS to maintain a certain distance in client relationships. In particular, concerns about the high cost and uncertain quality of some services have led to efforts to provide more standardised and modularised service solutions to common problems. Service costs may be reduced by passing some of the work of client interaction and production or delivery of services over to para-professionals, leaving the most experienced staff to focus on the most challenging problems.

Different patterns of development in client relationships are quite possible in relation to various KIBS sectors and firms. It may be that the more strategic and intimate relationships tend to be reserved for larger clients, while more standardised solutions are introduced for others.

### Convergence among KIBS

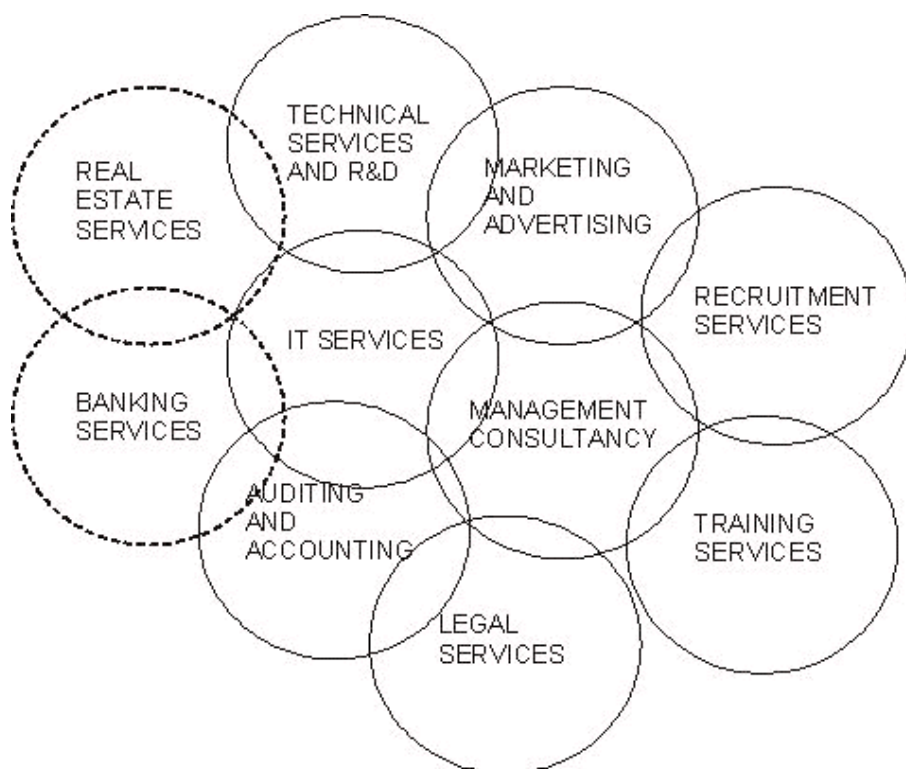
If, as suggested above, KIBS broaden the range of services they provide, there is liable to be some convergence among KIBS, as their services overlap. Toivonen argues that such convergence is a trend across many KIBS sectors, as traditionally distinct KIBS sectors increasingly offer services that were previously only provided by each other. Figure 2 illustrates the most common forms of convergence among KIBS.

There has also been an increase in companies from other sectors moving in to offer more KIBS-type services. Even former manufacturing companies may redefine themselves as service industries – IBM being a prominent example, among other computer manufacturers. There is a plausible argument that companies in all sectors are being forced to pay more attention to the services they deliver, as distinct from the particular material products or processes they provide. If this is the case, many other companies could follow this trend of producing KIBS for external markets. Figure 2 suggests

how this may happen in the case of banking and real estate services, and underscores the likelihood that such new entrants will offer relatively restricted sets of KIBS, at least initially.

However, the trend of convergence may face limits, for example, if KIBS determine that specialisation in core competencies is necessary in order to be most competitive or to meet regulatory or professional standards.

Figure 2: *Convergence among KIBS branches: An example of overlap with neighbouring sectors (the banking sector example)*



Source: *Toivonen, 2004*

### Existing scenario studies

KIBS are a relatively new area of study: the first reports on this topic are less than a decade old. Not surprisingly, few analysts have so far outlined scenarios for the development of this sector. This article, however, refers to three available studies, which each has its own particular focus.

The first study relates to Toivonen (2004), who analysed KIBS from the perspective of a foresight study, conducted to provide policy advice within Finland, particularly within the main urban region of that country. She considered three possible, and not necessarily mutually exclusive, scenarios for the future role of KIBS:

1. The prospect of a two-layered structure in the KIBS sector. The core idea here is that a differentiation emerges between KIBS that specialise in highly specific types of problems, technology, etc, and others that increasingly play the role of coordinating and integrating these inputs.

2. KIBS as shapers of their clients' business: this sees the trend towards KIBS deepening their client relationships, and becoming more important in terms of their strategies, as well as providing inputs to isolated problems and business decisions.
3. In contrast, the third scenario portrays in-house services as becoming more serious competitors to KIBS: not so much in the sense of firms adopting in-house solutions rather than using KIBS solutions, but rather where many large firms from various sectors offer KIBS-type services to external markets, and make it harder for 'pure' KIBS to compete.

While Kox (2002) is more concerned with the performance of the Dutch business services sector, there is some overlap between his two scenarios and the last two presented by Toivonen. – It should be noted that 'business services' implies a wider scope than KIBS, though these are prominent contributors here. – He essentially focuses on the growth prospects for business services, and contrasts a 'powerhouse' scenario – in which Dutch services perform well domestically and internationally – with one of 'mediocrity'. In the latter, the Dutch business services' growth rate is close to the average of other market sectors; in the former, it is greater than the average. While this may be a rather crude contrast, Kox fills in the scenarios with a number of helpful details which are outlined below.

The third scenario study is less useful for present purposes, though it is extremely relevant for anyone considering the environmental impact of services and the supply chains they are located within. This study is concerned with eco-efficiency and the contributions that services, particularly business services, can make here. Zaring (2001) uses these scenarios to examine the economic contexts within which more eco-efficient producer services might develop, or be thwarted. These are scenarios of general economic developments within which prospects for KIBS are located, rather than being specifically KIBS-based scenarios. The scenarios are:

1. Europe in the fast lane – European companies predominantly produce for liberalised global markets; the firms are generally quite large and produce products and services that are appropriate and/or adaptable for large parts of the world;
2. the sky is the limit – again businesses are operating on a global scale, with large firms and standardised products dominating; but in this scenario, resources and transport costs are very low, production is located as much as possible where production costs are lowest, and there is little environmental awareness and high confidence in technological solutions;
3. small is beautiful – in this scenario, the orientation is towards regional markets, with demanding customers valuing an individual approach: medium-sized companies are more important and every company needs a 'license to operate' based on internalisation of environmental costs, extended producer responsibility, and sustainability orientation.

### Three new KIBS scenarios

Although the scenarios described above are of interest, they are limited in terms of defining a set of scenarios dedicated solely to the future development of KIBS in the EU. For this reason, this article develops three new scenarios that better capture the specifics of KIBS in a wider European context:

- Scenario A: **KIBS leadership**;
- Scenario B: **KIBS plateau**;
- Scenario C: **Two-tier KIBS**.



These scenarios represent aspects of both the Toivonen and Kox scenarios, with additional considerations drawn from discussions on drivers in the first article on the KIBS sector. Current ‘business as usual’ trends would seem to suggest that a scenario somewhere between *KIBS leadership* and *Two-tier KIBS* below is more likely. However, some commentators would predict a situation more along the lines of scenario B, *KIBS plateau*. Each scenario is described in more detail below.

### **Scenario A: KIBS leadership**

This scenario envisages continuing growth of and reliance on the KIBS sector. It partly draws on aspects of Toivonen’s second scenario and Kox’s ‘powerhouse’ scenario. Its main features are described here.

#### *Rapid growth of KIBS*

The sector and most, if not all, of its subsectors continues to outpace the rest of the economy, in terms of increasing shares of value added and job creation, and growth of international trade. There is a rapid rate of formation of new firms, but in the context of a growth in larger and transnational firms. High demand growth might make it less likely that labour productivity growth in KIBS would be high compared to other sectors. However, application of new technology and a move to more commoditised services among some KIBS might enhance productivity, thus increasing demand.

#### *Increased demand*

Quantitative growth in demand is fuelled by developments in technology and other factors that increase the need for service inputs from businesses. Examples might include new generations of equipment and technology-based services, e.g. those supplied via the Internet such as e-commerce, groupworking systems, and videoconferencing. The proliferation of advanced broadband and mobile connectivity could stimulate demand for business of all types, to offer new services and/or work in new ways. Also, new technology may have pitfalls (e.g. viruses, hacking, other security issues, problems along the lines of Y2K) that require expert inputs.

Increased demand may also result from trends in user industries, such as those associated with growth in company size or efforts at ‘downsizing’, management philosophy, e.g. focusing on core competencies, and the ability to recruit and retain particular classes of skilled employees. Kox suggests that a tendency for firms to decrease in size across the economy could be related to increased demand for several types of business services. He also speculates that there could be employee or even consumer-driven demand for KIBS-type services such as e-learning. Other trends may be motivated by broader developments in operating environments, for example, transport gridlock, high energy price.

Demand may also be driven by new social challenges, such as anti-terrorist measures in the wake of 9/11, or the introduction of the euro and the advent of the single European market. Other regulatory and policy changes – e.g. environmental and standards-oriented rules, a shift from proprietary to open systems – could impact on KIBS. The impact of government policies is potentially mixed: while more regulation would create demand for some types of KIBS, deregulation might generate demand for legal KIBS, for instance, if problems are increasingly solved through the courts. Harmonisation of regulations across the EU would make it easier for KIBS to operate across borders, but might decrease demand for some types of KIBS and would presumably remove the sheltered contexts in which many local KIBS operate.

Qualitative shifts in demand may also result, whereby more KIBS are expected or enabled to take a strategic role in client decisions, are increasingly entrusted to gain an overview that is difficult for clients to achieve, and even become the leaders in orchestrating action in clusters of firms. Such leadership will require high skills. In general, in this scenario, employees of KIBS will feel valued and will be able to negotiate good working conditions.

*Supply of KIBS*

There is a possibility, in the developments outlined above, that KIBS may act out of their own self-interest, pushing their clients' strategies to maintain their reliance on particular KIBS inputs. However, clients should have a wider choice of KIBS suppliers to choose from, to make informed choices between suppliers, and to evaluate the service they receive.

Toivonen sees a possibility of KIBS – IT services in particular – seeking to develop commoditised, standardised services that they can supply repeatedly to many clients. The liberalisation of services trade would be expected to result in increased efforts by transnationals to export such services globally, although they could face obstacles due to the lack of cohesion with local cultures and contexts. One result might be the growth of services specialising in 'localisation', or the adaptation of commoditised services. Many standardised services might be provided by 'offshore' offices located in low-wage economies.

*Increased KIBS trade*

In this scenario, KIBS trade – including overseas trade, such as franchising and partnerships, as well as classical investment and 'bodyshopping', and delivery of services through electronic networks – continues to flourish. While this means that many previously sheltered KIBS are exposed to international competition, there are also many opportunities for 'export' of EU KIBS to other world regions, as well as increased trade among EU countries. Small as well as large firms gain an international presence. This is facilitated by continuing articulation and implementation of liberalisation principles regarding services trade and investment, not least within the European single market. Though there is some offshoring of more routine elements of the KIBS services to low-wage areas of the world, a large share of functions are conducted in core areas of the EU and other industrial regions.

*Knowledge infrastructure*

Some commentators have seen KIBS as forging a second 'knowledge infrastructure', alongside the public knowledge infrastructure of universities and government laboratories (e.g. Beije, 2000, den Hertog, 2000). The issue arises of how far the knowledge produced in this infrastructure remains private, and how far it becomes publicly available; or who performs functions aimed at the public good, such as setting standards, conducting fundamental research and submitting knowledge regarding refereeing and similar quality control procedures? With a major expansion of KIBS, this is likely to be a more pertinent question, and one that may have to be resolved, for example, through contracting of public good functions, better relations between KIBS and universities, etc.

**Scenario B: KIBS plateau**

In this scenario, the growth of KIBS is impeded, and in some cases even reversed, mainly by a shift to in-house provision of services by users, supported by technological and managerial changes. As such, it draws on a synthesis of Toivonen's third scenario and Kox's second scenario, although it goes beyond these scenarios in some respects. Its main features are described here.

*Slow growth of KIBS*

Growth is slow and is more similar to that of the economy as a whole, a process that might be interpreted as the 'maturation' of the KIBS sector. This is largely due to changes in demand, which require less external provision of services. Other factors could include slow progress in services trade liberalisation and in harmonisation of standards. Larger KIBS firms might shed staff who would in turn attempt to set up as small KIBS businesses themselves. Three types of factors may be relevant in this scenario:

1. Competition among KIBS as a result of greater provision of services by companies and other agents outside of the KIBS sector. Instead of new KIBS being set up as independent entities, more companies may decide to retain their KIBS activities in-house, as well as offering some of these services to other parties, thus competing with specialised

KIBS companies. Toivonen describes this scenario as ‘clients becoming competitors’. Companies from other service sectors could also attempt to move up the value chain by offering more KIBS-type services. Greater competition may also come from the public sector, where universities and government research laboratories are encouraged to provide KIBS-type services to business clients. This also has the potential to undercut the commercial KIBS sector.

2. More internal provision of KIBS-type services by clients, or at least, less outsourcing of such services. For strategic reasons, many users, or potential KIBS users, decide to provide services themselves, rather than acquiring services from external sources. A possible reason for this could include growing concern that the ‘hollowing’ of firms has gone too far, and that there are high costs in terms of organisational memory and flexibility associated with replacing too many internal functions with external KIBS. This could result in a change in management philosophy with greater emphasis on the importance of retaining relevant strategic functions or in facilitating this. There could be increased availability and use of relatively easy-to-use technological solutions that allow for ‘self-servicing’ of these functions (e.g. more automatic interoperability of IT systems; self-repairing systems). Increased availability of skilled labour could also play a role, particularly if labour markets and regulations permit more rapid hiring and firing of expert staff. Finally, KIBS themselves might contribute to their own erosion of services, should the perception grow that they often provide inadequate and overpriced services.
3. Absolute reduction in requirements, or reduction in the growth rate of requirements, for KIBS-type services. This might be associated with a substantial decrease in the ‘regulatory burden’ on businesses, or a slowing of the rate of technological change confronting them. For example, it may be related to problems in the global economy and to greater isolation of national or regional economies. Alternatively, governments might be able to agree on simplified and streamlined common sets of rules.

### *Offshoring*

Another element that could impact negatively on the growth of the KIBS sector in the EU is offshoring of many KIBS functions to low-wage parts of the world, where high skills and effective telecommunications are available. This could involve some movement of more sophisticated KIBS functions overseas – or if as suggested above more client firms seek to retain these elements of KIBS in-house – of the more routine, standardised and commoditised elements of KIBS.

### *Reduced demand*

In addition to a decline in quantitative demand for KIBS, under most of these conditions, a reduced qualitative role for KIBS may also be expected, in terms of intimate engagement with client strategies. Relatively powerful in-house departments would be able to employ KIBS on a ‘jobbing’ basis to provide highly defined service inputs.

- In his first scenario, Kox suggests that KIBS would be more concerned with technology diffusion than with promoting highly innovative applications. KIBS companies themselves would tend not to pursue radical technological innovation, and may instead pursue strategies of product differentiation.
- With the worsening market situation for many KIBS, there may be a general shift towards larger and better-established firms, though some low value-added firms of a smaller scale might be expected to survive in regional and sectoral markets. The KIBS workforce may be under pressure to work more intensively and possibly under less secure contractual relations. This sector is relatively low in terms of trade union membership – professional associations are more important – and a tradition of defending working conditions may be poorly established.
- Several factors suggest that transnational KIBS may experience many difficulties in this scenario. However, in practice, such organisations are likely to remain prominent – even if their capabilities are more limited than in scenario A. Companies of all sizes are likely to come and go, with individual firms searching to find the right niche.

*Knowledge infrastructure*

With more business service functions produced by firms who are not KIBS – whether internally or for other organisations to use – it is possible that less of the knowledge produced would enter the public domain. As always, however, there may be countervailing forces. If more service functions are ‘self-serviced’ using new technology, then relatively generic knowledge about the services might be widely accessible, even if more local knowledge about how the services are realised in specific contexts is less widely accessible.

Some of the developments in this scenario may result from policies and strategies developed with little specific thought for KIBS. For instance, a major increase in output of a wide range of technical skills could reduce of the need for KIBS.

**Scenario C: Two-tier KIBS**

This scenario represents a further extension of a theme touched on, to a lesser degree, in the previous two scenarios: the development of KIBS that effectively intermediate between other KIBS firms and their clients. These KIBS could be referred to as ‘service integrators’ or, as Toivonen describes, ‘coordinators’. This trajectory reflects a combination of trends towards specialisation and towards the provision of a wider set of service inputs. Already, some KIBS operate as lead suppliers, subcontracting other suppliers to provide specific inputs. Such a scenario sees considerable expansion of this practice, and is loosely aligned with Toivonen’s first scenario and with elements of Kox’s second scenario. It also resembles the scenario outlined by den Hertog (2000). Its main features are as follows:

*Specialisation*

In this scenario, many KIBS firms are highly specialised, achieving high productivity and innovation by specialising in services tailored to particular branches of industry and/or organisational functions. These firms might display high internal division of labour, with the most experienced and qualified professionals supported by larger numbers of more junior staff. Some of the specialised companies would grow to a large size, making use of extensive knowledge management techniques to achieve reproducibility of the solutions they develop for individual clients.

Others specialise in orchestrating the inputs from these specialised KIBS, acting in some cases as brokers, but often more proactively as integrators of service provision. In the latter case, they play a substantial role in defining the service outputs and inputs that are to be provided. Toivonen suggests that some of this integration expertise may be supplied by client firms selling their in-house KIBS to other organisations. The integrators would be responsible for quality control of the specialised service providers.

Such integrators could act on a regional or sectoral basis, perhaps even with some form of public assistance, providing support for the development and modernisation of clusters and SMEs that would otherwise find acquisition of KIBS inputs relatively costly. Such support might be particularly appropriate in more peripheral regions.

*Strong competition*

This pattern of development is likely to see large multi-sectoral KIBS acting as integrators in many cases. Such a scenario could well involve increased international competition in the supply of such coordinating and integrating services. EU firms may face extreme competition from other regions, and one strategic response might involve mergers and other partnerships. Acquisitions are also likely.

There are also likely to be some occasions where smaller firms can effectively coordinate and integrate service packages, with larger firms providing some of the elements of these service packages. Since the integrators will be in a good position to determine prices and contractual conditions, however, one can foresee large firms striving to gain and retain control here. Many different kinds of contractual relations and coordination mechanisms will be instituted, but complex IT-based project management and network systems are likely to be prominent, while the specific managerial skills

associated with management of large and complex product systems will be in high demand. Such managers need to understand the complexity of client requirements. They need to be able to build shared visions and to organise networks of partners and multiple supply chains, as well as working with inter-organisational and cross-professional teams. Such skills will be in high demand.

### *Standardisation*

Given these challenges, there will also be efforts to standardise and systematise such processes. While very large and complex projects will require tailored solutions, there are also likely to be more commoditised solutions for recurrent problems. Decision support and project management systems are liable to be introduced both for specialised services and integrative functions. Different working conditions and pay levels may be seen in the two tiers of KIBS.

### *Knowledge infrastructure*

The knowledge involved in standardised services is liable to be readily available, and ‘service engineering’ courses and research programmes are a likely consequence. Knowledge and skills in integrating service components and in managing multiple service operators are another matter, however. Training in ‘hybrid’ skills for service managers is one thing, but a great deal of knowledge about integrating services is likely to remain tacit, since these are complicated and often project-specific and fast-changing issues.

## **Conclusion**

This article reviewed major trends in the KIBS sector and considered some alternative scenarios for the future development of KIBS. While the continuing importance of KIBS seems definite, the scenarios are an example of the different prospects that the sector could face in the years ahead. The last article in this series will consider the policy implications of the changing role of KIBS.

The three different scenarios regarding the future development of KIBS, outlined above, are of course hypothetical. However, they may prove useful by exploring some significant features that could potentially emerge and by explaining the dynamics underlying these features. The eventual future of KIBS is likely to be a mixture of different elements; precisely how they are integrated will be a major issue in the years ahead. It is likely that the outcomes will vary across countries and regions, and across KIBS branches. For example, it is quite possible for scenario A, KIBS leadership, to apply to some KIBS branches and for scenario B, KIBS plateau, to apply to others. Consider, for instance, a KIBS plateau scenario where the government withdraws to a considerable extent from regulatory action, reducing the demand for services that assist firms in gaining access to these regulations. One outcome of this could be an increasing reliance on private litigation to settle industrial and other disputes, leading to increased demand for other types of KIBS, such as legal services.

# Policies, issues and the future

*Knowledge-intensive business services (KIBS) are among the most rapidly growing sectors of the EU economy, and play an increasingly important role in the performance of client sectors. This third article reviews a range of policy issues that are raised by the three scenarios – outlined in greater detail in the previous article – in relation to the future development of KIBS. As well as outlining major policy responses to these issues, it examines their rationale and the challenges these responses are liable to confront. In particular, the article calls for more explicit consideration of KIBS in innovation policy and in other policy areas.*

Services that provide knowledge-intensive inputs to the business processes of other organisations form a prominent part of today's knowledge-based economy. Knowledge-intensive business services (KIBS) encompass a wide range of sectors, such as computer services, research and development (R&D) services, legal, accountancy and management services, architectural, engineering and technical services, advertising and market research. The growth of KIBS reflects the increasing demand for knowledge inputs, to help organisations deal with changing technologies and social conditions. This growth also reflects organisational strategies and management thinking, such as 'outsourcing' and the focus on core competencies, as well as the increasing emphasis on service and intangible elements of production and products.

The first in this series of three articles on KIBS considered the drivers of growth in this sector, highlighting how KIBS have been growing, and are expected to continue growing, at a rapid rate. The second article in this series went on to consider some of the qualitative changes that may affect KIBS. While most KIBS branches feature a greater share of small firms than the economy as a whole does, many of these branches are becoming more concentrated. KIBS often supply a wide range of services, which sometimes means that there is some overlap and convergence between different KIBS branches. Some KIBS are becoming more involved with the strategies of major clients, leading to the possibility that some services will become specialised and others more integrated in relation to their clients' requirements.

## Policies for KIBS

### Current situation

Few attempts have been made to develop policies specifically aimed at the KIBS sector, despite the significance of this sector as a dynamic area of economic growth, and as a vital input to the performance of other sectors of the economy. In fact, limited attention has been given to the performance of the services sector as a whole, although many countries do have programmes in place to enhance the efficiency and effectiveness of public services. For example, several countries, including Germany and Norway, have research and development (R&D) programmes aimed at benefiting the services sector. Finland is particularly unique as it has put KIBS in a prominent position through its innovation policies.

KIBS have also featured indirectly or partially in a number of public policies. For example, technology awareness and diffusion programmes have sometimes encouraged companies to use various types of consultancy services. Policies relating to public sector modernisation have sometimes helped to encourage public services to make greater use of KIBS inputs, rather than cater for all services in-house. Regulatory policies in many areas – corporate law, environmental issues, information security – have often prompted a growth in KIBS, helping firms comply with regulations. Nevertheless, these activities do not amount to an articulated strategy for KIBS.

At European level, there has been a great deal of attention given to removing barriers to services trade, and elements of this are particularly relevant to KIBS. In particular, certain analyses of trade barriers in professional services (for example, the Commission's [Report on competition in professional services](#)<sup>4</sup>) have identified substantial scope for

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<sup>4</sup> <http://europa.eu.int/scadplus/leg/en/lvb/l23015.htm>



further trade liberalisation. Greater recognition of professional qualifications, harmonisation of regulations affecting KIBS, and similar measures, are suggested as ways of dealing with barriers confronted by KIBS. Increased trade in KIBS is, in turn, expected to fuel greater competition, prompting many KIBS companies to pursue more innovative strategies, to improve practices in line with those of more efficient competitors, and to search for new markets. Although there may be limits to the extent to which competition will rapidly enter local and even regional KIBS markets, in the longer term, more competition is anticipated. While access to cheaper and more dynamic KIBS should benefit user industries, some problems may be encountered in relation to KIBS employment in some EU regions, although there are also opportunities for 'export' of KIBS from the EU. One unresolved question relates to whether or not a 'one size fits all' KIBS approach should be taken, or if instead models developed in a particular national or regional context should be applied, to cater for organisations and cultures that demand quite different solutions.

Another policy area of particular relevance to KIBS – given that their employment structure is heavily weighted towards graduate and professional staff – relates to education and training policies, especially those conducive to the development of high-level skills (see for example, the [Commission's action plan for skills and mobility](#)<sup>5</sup>). 'High tech skills' have received particular attention, as has the geographical mobility of professionals. Clearly, greater skill availability and mobility will make it easier for KIBS companies to recruit staff, although if supply is abundant, they may also be recruited directly by clients of KIBS, in order to provide services on an in-house basis. One interesting point has been raised by Tomlinson (1999), who argues that the use of KIBS provides an alternative to companies sourcing knowledge through recruiting labour. The focus of much policy relating to labour mobility is on enhancing the movement of knowledgeable workers between firms and regions that are users of KIBS. However, enhancing the mobility of KIBS themselves, the accessibility of KIBS to users in different regions, and the mobility of labour into the KIBS sector, may be a particularly appropriate focus for policy in the knowledge-based economy.

Finally, there has been growing interest in the role of services in innovation processes. In particular, there has been interest in the significance of KIBS as being among the most active innovators in the services sector, as well as an important influence on the innovation activities of client sectors (see Miles, 2005). General discussions on policies for services innovation (e.g. van Ark et al, 2002) are especially relevant here. The general conclusion of these discussions is that innovation policies have typically been designed with manufacturing industries in mind, and have thus neglected to take into account the characteristic features of many services and KIBS. Such oversights include, for instance: less emphasis on R&D as a source of innovative knowledge, and less organisation of innovation through R&D departments and managers, more through project development teams; greater emphasis on organisational innovation; less propensity to use patents as a mode of intellectual property rights (IPR) protection; poor linkage into many technological innovation systems. With the general shift away from enhancing support to particular firms and industries, governments have tended to argue that their innovation and other policies are intended to be sector-neutral. The conclusion of the much of the literature on services innovation is that there are various aspects of policies – and the policy networks used by those charged with designing and implementing them – that are implicitly weighted against services and services innovation.

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<sup>5</sup> <http://europa.eu.int/cgi-bin/eur-lex/udl.pl?REQUEST=Service-Search&LANGUAGE=en&GUILANGUAGE=en&SERVICE=all&COLLECTION=com&DOCID=502PC0072>

### Policy concerns raised by different scenarios

In the previous article, three scenarios were outlined in relation to the development of KIBS:

- Scenario A: *KIBS leadership* – continuing rapid growth in KIBS and the assumption of leadership positions in relation to many of their clients’ strategies.
- Scenario B: *KIBS plateau* – relative decline in KIBS (or at least in their rate of growth) due to a variety of factors, ranging from offshoring to competition from services provided by non-KIBS companies. There are also possibilities of a decline in demand related to competition from in-house services, or from use of new technologies that ‘automate’ some KIBS functions.
- Scenario C: *Two-tier KIBS* – the structure of the various KIBS branches becomes even more differentiated between many highly specialised KIBS companies and others that orchestrate the specialised KIBS inputs, often playing a substantial role in defining what these inputs are and how they are to be provided and used.

These three scenarios envisage quite different paths of development in relation to the KIBS sector, although the previous article suggested that: (a) different KIBS branches might be more oriented to one or other scenario and; (b) in any case, the eventual future is liable to feature elements of all three scenarios – the big question is exactly how these elements will be combined. Nevertheless, contrasting the three scenarios does highlight a series of significant issues that are liable to be raised in one form or another, regarding the evolution of KIBS in the coming decade. Table 1 below examines some of these issues.

Table 1: *KIBS policy issues in relation to the three scenarios*

Issue	Scenario A KIBS leadership	Scenario B KIBS plateau	Scenario C Two-tier KIBS
Skills and labour	Requirement for many high-level skills, coordination skills. International mobility of skilled workers, as KIBS deploy their workforce across regions.	Mobility of skilled workers between companies (relying more on in-house provision of services than on KIBS). Problems of declining wages and working conditions for (widely non-unionised) KIBS workers.	Availability of high-level skills is liable to be an issue, with requirement for both specialists (and associated support workers), and coordination skills from KIBS integrators.
Access to KIBS services	High levels of demand for services are liable to keep prices high, and reduce the ability of smaller companies and more peripheral ones to access KIBS. However, the expansion of transnational and other larger KIBS into more regional and local markets would put pressure on locally -based firms to make more effort to service a wider range of local clients.	Low demand for KIBS may reduce prices, making it easier for smaller firms to access KIBS. Likewise, KIBS experiencing reduced demand might make more effort to service smaller organisations and those in more peripheral regions.	Smaller firms may have difficulties accessing higher-level, coordinating services and in performing this role in-house. However, basic standardised services may be cheaper and more accessible. Thus, the onus would be on those users that cannot afford integrative KIBS either to undertake integration in-house, or to rely on support from, for example, trade associations and public initiatives.
KIBS trade and internationalisation	Opportunities for export of dynamic services from EU to other world regions (raising questions of whether export support mechanisms are geared to such services). Foreign transnationals will simultaneously be seeking a larger presence in the EU, and mergers and acquisitions are likely to be commonplace. A possible challenge is that, associated with the attempt to transfer inappropriate business models to an EU context, efforts would be needed to help KIBS and their clients address this issue.	Restrictions on services trade might be encountered in this scenario, limiting the export roles of KIBS and limiting clients’ access to overseas KIBS. Some scope for non-KIBS companies to sell KIBS-types solutions globally. Intense international competition in software and other technological tools for self-servicing of KIBS-type solutions.	International competition for both integrative and specialised KIBS services, but competition is likely to form quite different patterns in various specialisms (especially where local knowledge is important). Growth of partnership arrangements is likely; Were overseas firms to take a major role in highest-level services, the possibility that inappropriate business models would be imposed may need to be confronted.

Table 1: *KIBS policy issues in relation to the three scenarios (con'd)*

Issue	Scenario A KIBS leadership	Scenario B KIBS plateau	Scenario C Two-tier KIBS
Offshoring	Offshoring of basic standardised services is liable to grow, while more professional activities are retained in EU and/or close to clients	This is one of the challenges confronting EU KIBS: technological and organisational innovations could facilitate the movement of many KIBS functions overseas (or to lower wage regions of the EU). Might be slowed, however, by increased conflict over international trade and investment rules.	Specialised services, pursuing high divisions of labour, would be liable to use offshored services for large parts of their production process. This is unlikely to be the case for integrators.
Quality of KIBS	High levels of demand for KIBS may result in entry of lower-quality suppliers.	Lower demand for KIBS might be partly prompted by perceptions of poor quality of external services, thus resulting in a return to in-house solutions. KIBS suppliers would need to strengthen quality control, accreditation, and other procedures that serve to reassure clients of the appropriateness of the service.	Quality control becomes the responsibility of KIBS 'integrators'. However, self-regulation may not be enough to control the quality of the integrators themselves, and further solutions may need to be sought.
Innovation in KIBS	High levels of product and process innovation are likely, using advanced technology. KIBS are liable to become increasingly important sources of innovation for clients.	The focus on innovation here would be on service production and delivery processes, with an emphasis on improved efficiency.	High levels of specialisation and division of labour will be associated with process innovation among specialised services. However, integrators will face different innovation challenges. While they may put pressure on more specialised companies to create innovative service products, they may also sometimes inhibit innovation in order to make their own task of integration more easy and routine.
Technology	Considerable use of new technology to produce services and coordinate operations that are being conducted over wide geographical spaces. Knowledge management systems to improve internal operations and flexibility, and to interface with clients	Opportunities and challenges in supply of software and other technologies that help firms assess their need for KIBS.	Coordination of KIBS inputs requires advanced communications' infrastructure. While much of the integrative function relies on tacit knowledge, decision aids and project management tools of various kinds are likely to support these functions.
Public knowledge	Much knowledge produced by private KIBS firms: some of this would be in partnership with public institutions, and there could be scope for ensuring that more of this knowledge should be publicly available.	Much knowledge produced within companies and liable to remain proprietary or otherwise fail to be available in the public domain.	Knowledge from standardised KIBS is likely to become publicly available. Integrative functions might remain a 'black art' founded on tacit knowledge.

## Emerging policy context for KIBS

This section explores some of the policy issues raised above, in particular, the types of responses that may be forthcoming, and the challenges that are associated with these responses.

### Measures to increase high-skilled labour and to enhance mobility

Considerable attention is already being given to the development of high-level skills (especially high-tech skills), in particular, through innovation in curricula and in the delivery of training (e.g. e-learning). In at least two of the scenarios, however, there needs to be a greater focus on developing combinations of managerial, interpersonal and technological

skills, where personnel can interface with clients from user (or service supplier) organisations and can oversee complex multi-service projects. Such skills are required by KIBS and by their users, to allow for the most effective selection and use of KIBS inputs.

It has been argued by some that KIBS are used partly as an alternative to labour mobility across companies, and as a means of transferring knowledge across firms and industries. However, expansion of KIBS, and increasing trade and internationalisation, are likely to create demands for geographically mobile employees (or partners). Mobility between firms is already a characteristic of many KIBS sectors, and factors that make it difficult for such mobility in other KIBS sectors need to be addressed.

There are hopes that teleworking will be able to ease the problem of the geographical mismatch between the location of workers and of clients that require these services. Although many KIBS seem to require better grounding in local knowledge, the use of communication networks may allow for more temporary relocation of workers during periods of project work where intensive face-to-face contact or onsite support is required. While the potential of teleworking should certainly continue to be explored, the issue of offshoring will also arise (see below), to the extent that large portions of KIBS work will be able to be conducted remotely.

### **Measures to increase access to KIBS by less advantaged organisations and regions**

Many small and medium-sized enterprises (SMEs) are unable to invest the time or effort into exploring the prospects for employing KIBS, and are often discouraged by the fear of high-pressure marketing from expensive consultancies. SMEs are also liable to feel that the costs of using KIBS are prohibitive, given the scale of inputs they require. This problem could be offset by greater scope for economies of scale, whereby several organisations in a particular sector or location pool their requirements for KIBS support. An example of this might be a cluster of e-commerce websites and services set up for small firms in a particular industrial district. Intermediary bodies – trade associations, science parks, chambers of commerce, local governments – may need to take the initiative here. Such intermediaries could also provide awareness and accreditation services, acting as a broker and buffer between KIBS and their more neglected potential clients.

KIBS almost invariably tend to cluster around national and regional capitals; as a result, many peripheral regions are poorly serviced. Again, intermediaries in public policy positions, or otherwise, could play a role: this role could involve encouraging ‘KIBS trade missions’ to visit their regions, supporting awareness and other programmes that could work in both directions. Such activities spill over into more established regional development policies, of which ‘cluster policies’ have become a familiar element in recent years. These type of policies need to take into account the actual and potential roles of KIBS in their clusters. The same applies to policies aimed at improving the quality of the local business environment, its telecommunications and transport linkages, as well as its scientific and technological infrastructures. For instance, local universities could be encouraged to undertake research and training relevant to selected KIBS.

### **Measures to liberalise services trade and to encourage conformity in qualifications and standards**

Increasing attention has been given to the trade barriers that continue to persist among the services and professional services sectors. In this instance, the argument in favour of reducing such obstacles is that internationalisation should provide a double boost for KIBS. Firstly, the opening of markets should allow for more export opportunities for KIBS, particularly as several KIBS sectors are seen as having a competitive advantage in parts of Europe. Secondly, growing trade should increase competition in previously sheltered KIBS sectors. This should, in turn, provide a stimulus for innovation of new techniques and methods, and service products, and for efforts towards quality improvement, while leading to decreased costs for clients.

Of course, some less welcome developments are possible, and strategies to prevent these developments need to be integrated into efforts to liberalise markets. For example, overseas entry into EU markets by large transnational service

companies might lead to the marginalisation or acquisition of European KIBS, which would be unfortunate particularly if these were more innovative and dynamic KIBS, and if there was a transfer of innovation capability to, for example, the US. This has already happened in several IT-related KIBS branches, for instance, where acquisition is followed by a scaling down of European research centres. Another concern is that overseas KIBS could offer services that are not tailored to business models appropriate within an EU context. For example, there are instances of project failures stemming from consultants' inability to recognise that US organisational structures are not necessarily universal and are unsuitable for their client sectors.

Lastly, some measures that might be pursued in order to ease services trade could have unwelcome consequences for other dimensions. For instance, efforts to harmonise regulations that govern KIBS and efforts to introduce common standards, e.g. for professional qualifications and services quality, might be problematic. If such systems are too rigid, and are not designed with considerable understanding of the specificities of various KIBS and of the rapid evolution of the sector, they could have detrimental effects. They might, for instance, reduce opportunities for the emergence of new professions, new types of KIBS, and new solutions to business problems.

### **Offshoring of business services**

With KIBS being one of the most dynamic areas of employment growth – particularly high-skilled employment – and strategically important to client organisations, there is naturally a concern that offshoring might shift jobs, and even control of processes, overseas. There is no doubt that several developing companies are hoping to move up the value chain in the services they offer, and it is likely that this would be a valuable boost to the development prospects of these companies. Some alarmist accounts of the loss of jobs through offshoring, however, may tempt companies to engage in knee-jerk responses, aimed at limiting the offshoring of professional work. Strategies to ensure the quality of the services provided, and to maintain high standards and working conditions for professional workers, regardless of where they are based, are liable to be less contentious and less damaging to broader international relations. Furthermore, the patchiness of knowledge makes it likely that many higher-level KIBS functions will need to remain in proximity to their client organisations. It seems likely, therefore, that the fate of KIBS in terms of offshoring, as well as in many other respects, will be influenced by and will influence the performance of other sectors in the economy.

### **Support to KIBS and to clients**

Like many other services, KIBS are not very transparent: such services are produced and consumed together and it is hard to demonstrate them in advance, although it is possible to deploy the testimony of other satisfied clients. Generally, it is difficult for prospective users to assess the quality of individual KIBS providers; since the service often has to be negotiated, it can be hard to judge the exact quality, benefits, and cost-effectiveness of the services, as well as the input in time and other resources required from the client. Policymakers and other intermediaries, such as trade associations and university researchers, can play a significant role here, by making case studies and accounts of good practice available, for example, in awareness programmes; by promoting quality control systems and quality management training; by accrediting and promoting standards, for example, in the course of public procurement.

A related point concerns environmental quality. As Zaring *et al* (2001) point out, there is considerable scope for KIBS to become more eco-efficient, and to enhance eco-efficiency among their clients. Government policies on sustainability should also encompass these roles.

### **Better use of technology and support to clients**

Services need to be considered more explicitly in innovation programmes; while generally more innovative than other services KIBS are no exception. For example, greater account may need to be taken of organisational innovation. Attention may need to be paid to the role of vectors of innovation such as professional associations. Also, the question of why many KIBS are poorly linked into innovation systems (with less support from universities and government

laboratories) may need to be addressed, as should the question over why they do not use conventional R&D management structures as a model for their innovation management.

TASC (1998) argues that there is a significant requirement for support in developing common standards and technological infrastructures for high-technology based services, and it is likely that these conclusions will apply to Europe as to the US. Issues of reliability, security, and availability of technical skills may also be problematic for KIBS seeking to use more advanced technologies. Intellectual property issues are contentious in many services. Whereas the US has moved rapidly in terms of software and business patenting, there is much greater controversy over such approaches in Europe. For example, there are vociferous arguments in relation to the over-emphasis on property rights of innovators, as fears exist that it may act as a serious deterrent to innovation: this is a matter that requires detailed, empirically-based impact analysis, and should not simply be resolved on the basis of abstract economic argument. More generally, patenting is not an appropriate means of protection for many service innovations, and the emphasis on this mechanism in innovation policy needs to be reviewed, as should the problematic use of copyright as a means of protecting innovations.

### **Policies relating to knowledge infrastructure**

Dangers posed by a rise of a KIBS-based private knowledge infrastructure should be examined. In particular, it should be assessed whether such an infrastructure would threaten or actually benefit the role of the public knowledge infrastructure, for example, by establishing standards, accrediting activities, validating research results, and putting knowledge into the public domain. If problems are emerging, then ways of solving these problems need to be examined, e.g. by identifying ways to assess KIBS contribution to public knowledge; developing contractual arrangements to supply public functions; developing closer relationships between public and private infrastructures (e.g. shared teaching and research between KIBS and universities).

More generally, relations between the public and social science base and KIBS sectors warrant further examination, since studies suggest that many services are themselves poorly served by universities and government laboratories. There may be scope, for example, for service innovation centres and laboratories in the public sector (most service management training at present has little orientation towards innovation or KIBS), and for closer networking between universities and KIBS sectors. The public sector could sponsor foresight studies or other strategic prospective-oriented initiatives that focus on service industries (e.g. similar to KIBS foresight studies in Finland).

### **Conclusions**

Although policies specifically aimed at KIBS are still rare, the rapid rise of sectors in this area is likely to place KIBS on policy agendas to a much greater extent in the future. Perhaps the major constraining factor, however, is the huge diversity among the different KIBS sectors. While it is unlikely that policies will need to be as varied as the KIBS sectors themselves, there are likely to be many generic issues that need to be confronted. The discussion in this article has used scenarios partly to identify, and partly to illustrate, such issues. In addition to the relative lack of attention that the KIBS policy agenda has been given to date, there are a wide range of policy issues where the role of KIBS needs to be addressed more explicitly. It is hoped that this series of articles will contribute to this debate and process.



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