



Trends and drivers of change in the knowledge-intensive business services sector: Four scenarios

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Introduction

The knowledge-intensive business services (KIBS) sector is a highly dynamic sector, which is constantly growing and rapidly evolving. Given the significance of this sector, it is important to understand what is likely to impact on its development in the future. In order to develop an understanding of potential factors that could influence the sector, a series of scenarios have been devised. These scenarios do not aim to provide a forecast of the sector, but rather to identify possible future drivers and how they may affect the KIBS sector in the future.

Four scenarios have been developed around the three themes of globalisation, skills development in emerging nations, and technological progress. The reasons for such a focus are as follows.

- Globalisation is having a large impact on KIBS in terms of markets as well production. For some KIBS companies, globalisation has enabled them to offshore production, while for others it represents new markets and opportunities for expansion and acquisition.
- Skills development in emerging nations refers to the fact that not only is the size of the international KIBS market expanding, but also the labour market and productive capability of developing countries is increasing. Increased skills levels and growing export levels mean that developing countries are no longer simply markets and locations for offshoring, but also competitors in their own right.
- Technological progress also impacts enormously on the development of KIBS. Improvements in information and communication technologies (ICT) mean that it is becoming easier to share knowledge and information; such improvements also enable businesses to penetrate international markets. Technological progress can also lead to increased automation in KIBS sectors, which can help to reduce costs; however, it may also result in some lower value-added employment being displaced.

The scenarios in this report are based around these key themes, giving an outline of possible outcomes that are closely connected to such themes. To an extent, the three core themes are interconnected and the scenarios represent a way of understanding the particular drivers of potential change that could impact on any of these factors. The four scenarios outlined are as follows:

Scenario 1 – Increase in European offshoring activities throughout KIBS sector

Offshoring refers to the movement of domestic employment overseas. This can be in the form of outsourcing, or through the development of a new overseas base for a KIBS company. Offshoring has an effect on domestic and foreign labour supply and demand in the KIBS sector, as well as on business competitiveness. Scenario 1 looks at the implications of increased levels of offshoring for the KIBS sector.

Scenario 2 – Retrenchment

Retrenchment is the reversal of offshoring activities. In many circumstances, companies may seek to ‘bring back’ their offshoring operations for a number of reasons, including issues relating to cost-effectiveness, productivity or customer relations. Scenario 2 looks at the implications of retrenchment for the KIBS sector.

Scenario 3 – Technological advances, intellectual assets and network capital

Advances in technology impact on the production and delivery of KIBS. At the same time, increased automation affects employment levels and skills levels demanded by employers, as well as influencing business competitiveness. Technological advances can also have an impact on methods of service delivery within the KIBS sector. Changes in the way in which intellectual assets and network capital are used may also be significant drivers in this sector. Scenario 3 illustrates the changes that would be expected arising from further developments in technology, intellectual assets and network capital.

Scenario 4 – Worldwide narrowing of skills gap

Economic growth in developing countries is accompanied by greater investment in education and a subsequent improvement in workforce skills. This, in turn, will have an impact on the development of KIBS throughout the world, expanding the demand for and supply of KIBS among both developed and developing nations. Scenario 4 explores the possible impact of such changes on the KIBS sector.

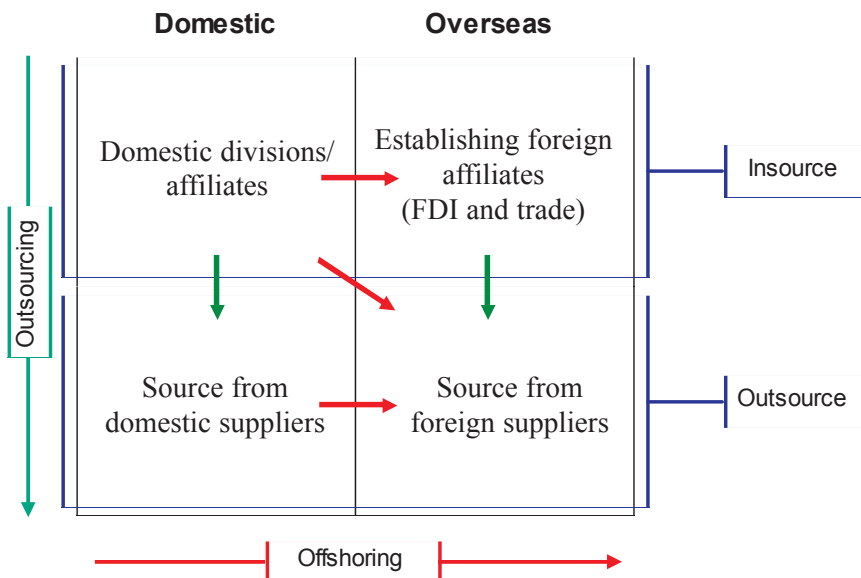
The key rationale for the selection of these scenarios is that each one represents a possible situation that has the potential to impact seriously on the KIBS sector. For instance, the relative ‘weightlessness’ of KIBS in terms of their general lack of requirement for the types of physical capital associated with many other sectors means that the sector may be particularly susceptible to offshoring. Similarly, it may also mean that KIBS investment could be more amenable to retrenchment if necessary. Moreover, the nature of KIBS is such is that they have the potential to be greatly affected by changes in their knowledge capital requirements, particularly in the form of technological advances, intellectual assets and network capital. Finally, alongside knowledge capital, human capital is obviously also a key factor driving the KIBS sector, given its reliance on the skills and expertise of those workers operating in the sector. It is these factors that have broadly determined the scope of the four scenarios presented in this report.

Scenario 1 – Increase in European offshoring activities

Defining offshoring

Offshoring is a sensitive and newsworthy issue throughout Europe. Newspaper and online reports reveal information about a host of job losses that have been experienced by the services sector in Europe as a result of offshoring. Essentially, offshoring occurs when a domestic enterprise decides to move part or all of its production overseas. This can be undertaken in the services sector through a number of different methods, ranging from the opening of a foreign branch, or buying a foreign business, to simply sourcing services from an overseas enterprise. Figure 1 highlights the different methods of offshoring that can occur. It is important to make a distinction at this point between offshoring and outsourcing. Outsourcing merely refers to the use of external suppliers; it can take place domestically (which would not constitute offshoring) or abroad (which would constitute offshoring).

Figure 1: *Locational options for business services*



Source: *Adapted from Abramovsky (et al), 2004, p. 7*

Offshoring is one of the theoretical benefits of international trade. The theory of comparative advantage states that countries will gain from trade as a result of differences in the relative costs of producing different commodities. In many cases, absolute advantage is the main driver: many companies offshore not when it is ‘relatively’ cheaper, but when it is ‘absolutely’ cheaper.

According to a recent *World Investment Report* (2004), offshoring of export-oriented services – such as call centres, business processes, drawing, testing, and even research and development (R&D) – is gathering pace in response to the ‘tradability revolution’ in services. A number of US and European multinational enterprises (MNEs) have started to relocate and offshore not only their manufacturing functions, but also their closely guarded R&D and knowledge creation functions – a subject of political debate, both in Europe and throughout the OECD (Garner, 2004). A comment made by the US Institute of Electrical and Electronics Engineers (March, 2004) highlights the political dimension of offshoring, particularly in high-wage service and R&D jobs:

The offshoring of high-wage jobs from the United States to lower cost overseas locations is currently contributing to unprecedented levels of unemployment among American electrical, electronics and computer engineers. Offshoring also poses a very serious, long-term challenge to the nation's leadership in technology and innovation, its economic prosperity, and its military and homeland security.

The Meta Group predicts that the global offshore outsourcing market, which is currently worth over £5.6 billion (around €8.36 billion¹), will grow by nearly 20% each year until 2008. The offshore sector will increase faster than the general outsourcing market, with initial growth occurring in application development and maintenance (Meta Group, 2004). **IDC**² makes similar forecasts, predicting that the worldwide market for offshore information technology (IT) services will grow to £9.52 billion (around €14.2 billion) by 2008, achieving a five-year compound annual growth rate of nearly 20%.

Offshoring from the perspective of developing countries

Increases in skills levels of the workforce in many developing countries, accompanied by advances in telecommunications technology, have made it far easier for companies in developed countries to access the relatively cheaper labour markets of developing nations, such as India.

Table 1 highlights the changes that are taking place in the Indian economy at present. In recent years, India's gross domestic product (GDP) has begun to increase considerably. The services sector, in particular, is contributing to an ever greater proportion of this increase in production output. At the same time, the volume of exports has roughly doubled in just four years, between 2000 and 2004. As the Indian economy develops, it is likely that it will increasingly serve international markets.

Table 1: *Selected economic indicators for India, USD billion*

	2000	2004
GDP	461.3	694.7
Value added in services sector	230.6	369.5
Export of goods and services	61.0	132.0

Source: *World Bank, April 2006*

Further developments in India that are likely to drive growth in KIBS trade include increased participation in education, greater ICT expenditure, and significant increases in the domestic use of ICT (see World Bank, **ICT at a glance: India**³, 2005). Continued economic growth is associated with greater investment in education and ICT infrastructure. This leads to the increased penetration of international markets, as the Indian labour market becomes more competitive in terms of knowledge. At the same time, the improved telecommunications infrastructure allows for an increasing number of people in India to access the infrastructure that will enable them to penetrate global KIBS markets.

¹ All euro equivalents in this report are calculated at the rate of GBP 1 = € 1.49372, €1 = GBP 0.669849 as of 23 October 2006.

² <http://www.idc.com/>

³ http://devdata.worldbank.org/ict/ind_ict.pdf

Table 2: *Estimated ICT expenditure in India, 2000 and 2004*

	2000	2004
ICT expenditure (% of GDP)	3.6	3.7
ICT expenditure (current USD billion)	16.6	25.7

Source: *World Bank, April 2006 and 2000–2004*

For developing countries such as India, offshoring enables a smooth development path, in turn boosting their domestic economy. Offshoring of KIBS is one of the benefits of globalisation in developing countries, offering employment opportunities in a global marketplace with earnings that are low by developed countries' standards but attractive within the domestic Indian economy. In such instances, offshoring can be seen as one of the ethical benefits of globalisation, in the way that it aids development in the developing nations.

However, there are some drawbacks to offshoring. These include dependency on foreign investors and markets, exposure to fluctuations in the global economy, and a reliance on cost-competitiveness as a means of economic development.

As outlined, India has predictably become a recipient of offshore investment. In the software sector, employment estimates suggest that the number of workers serving foreign clients has increased from around 150,000 employees in 2000 to over 500,000 employees in 2004 (NASSCOM 2005; Abramovsky et al, 2004). India's software sector currently serves many markets throughout the developed world, although US-based companies are predominantly offshoring many of their activities to this country.

Offshoring from perspective of developed nations

Offshoring in the services sector is a relatively new concept. In contrast, the manufacturing sector in developed countries has long been subject to offshoring. The offshoring of services has generally been restrained due to difficulties in communications, including differences in language, legal frameworks and telecommunications. Increased development of technology has meant that communications are becoming less of a problem in these respects.

The United Kingdom (UK) is one country that early on resorted to the offshoring of its services sector. The popularity of the English language as a second language for many people living in developing countries is often cited as one of the reasons why the UK is a major player in offshoring activities.

Forrester Research⁴ has reported that a quarter of European companies have outsourced some of their IT or business services to offshore locations. By 2009, Forrester predicts that the UK will account for more than 75% of the £2.38 billion (about €3.55 billion) western European expenditure on offshore outsourcing. IT services provided to Europe from overseas is predicted to grow from £726 million (over €1 billion) in 2004, increasing by 27% each year. The UK is expected to remain the biggest European market for the offshoring of services, with India being the main destination; however, France and Germany are also increasingly turning to locations like Spain, the Czech Republic, Russia and Tunisia for their offshoring activities (Parker, 2004).

The clear benefit of offshoring for UK-based companies is reduced costs. Table 3 provides an example of the benefits of an offshored outsourcing operation for these companies. While such figures may be variable, there is no doubt that one of the primary benefits of offshoring is cost reduction.

⁴ <http://www.forrester.com>

Table 3: *Comparison of offshoring costs, GBP*

UK company		Typical offshore company	
Average daily cost of employment per person	125	Average daily cost of employment per person	88
Daily cost of desk space	25	Daily cost of desk space	Included
Daily cost of computer/IT communication services	7	Daily cost of computer/IT communication services	Included
Other employee benefits	10	Other employee benefits	Included
Management costs	16	Management costs	Included
Total costs	183	Total costs	88

Source: *Watson, 2006*

Reducing the costs of an operation will clearly have an influence on the UK-based KIBS sector. It will free up extra resources for other purposes, as well as ensuring that KIBS companies in the UK can remain cost-competitive in the international marketplace. The movement towards more high value-added operations – the natural outcome of the offshoring of cheaper activities – may lead to an increase of average earnings within the sector.

Table 4: *Reasons for offshoring*

Reasons	% respondents
Improved processes	33
Access to innovation in processes/technology	7
Reduced costs	98
Increased revenue	11
Increased stock price	7
Improved customer satisfaction	18
Proximity to new customers	22
Focus on core business	18
Joint ventures with overseas businesses	16
Gaining skills applicable elsewhere in the organisation	4
Business process transformation, including cultural change	16
Restrictive regulations/legislation in UK	13

Source: *Confederation of British Industry (CBI), 2004*

Evidence and logic also suggests that offshoring is increasing the productivity of KIBS companies in the UK. In legal, technical, accounting and advertising sectors, the UK has closed its productivity gap with Germany and the US. The same is also true for the computer services sector (Abramovsky et al, 2004).

Table 5: *Advantages and disadvantages of offshoring from companies' viewpoint*

Advantages	Disadvantages
Savings on labour costs	Risk of interruption in supply
Access to large, well-motivated workforce	Managerial control more difficult
Access to new markets abroad	Negative effects on morale of remaining onshore staff
Economies of scale for international companies bringing together activities in one location	Political risks in country of destination

Source: *Confederation of British Industry (CBI), 2004*

Despite the benefits, there are also problems associated with offshoring for domestic companies in developed countries. For instance, it will obviously become more difficult for companies to retain control over staff if they are outsourced to an offshore operation. Even if a new offshore operation is not outsourced, it will still be more difficult to manage such an operation compared with a domestically located operation. There may also be political and regulatory risks involved when dealing with different countries.

The recruitment agency Adecco, which recently opened an office in India, is one example of offshoring operations that have recently taken place in the UK. News agency Reuters has also opened an office in Bangalore, where it aims to employ up to 15,000 people (Abramovsky et al, 2004).

Another KIBS sector in which the UK is increasing its offshoring activities is the software sector. Offshoring activities within this sector are expected to increase from £3 billion (approximately €4.48 billion) in 2000 to over £8.7 billion (around €12.98 billion) in 2008 (RNCOS, 2005). An increase in software development skills in developing countries has accelerated the pace of this offshoring trend. As Julian Griffiths, director of retail information at Polo Ralph Lauren, commented in an article in *Computer Weekly* (2006): ‘Coding will definitely move offshore, as it is cheaper to do and you get a better qualified person doing the job for less money.’

While there are no official figures available for the number of jobs that have been offshored from the UK in recent years, anecdotal evidence and news coverage suggest that the numbers have been increasing and are substantial in size. Estimates of the number of jobs offshored suggest that between 2003 and 2005, over 80,000 jobs were offshored from the UK (Table 6). The majority of the jobs offshored were from the IT and software development sectors and from the business process outsourcing sector, including accounts, human resources (HR), data collection, and contact centres.

Table 6: *Estimated number of KIBS jobs offshored from UK, 2001–2010*

KIBS type	Up to 2002	2003–2005	2006–2010
IT and software development	18,000	24,000	60,000
Financial services	3,300	11,400	25,400
Business process outsourcing, including accounts, HR, data collection, contact centres	8,900	38,200	90,500
Market research, legal research, consulting and professional services	200	1,500	4,100
Architecture, engineering design, research and development	200	1,500	4,100
Life sciences, pharmaceuticals, biotechnology	100	700	1,700
Art, design, web design, etc.	200	900	2,200
Sales-led generation and helpdesks	300	2,300	4,800
Total jobs offshored	31,100	80,100	191,900

Source: *Evaluaserve-NASSCOM, 2003*

Between 2006 and 2010, it is estimated that almost 200,000 jobs will be offshored from the UK; nearly half of these will be from the business services sector.

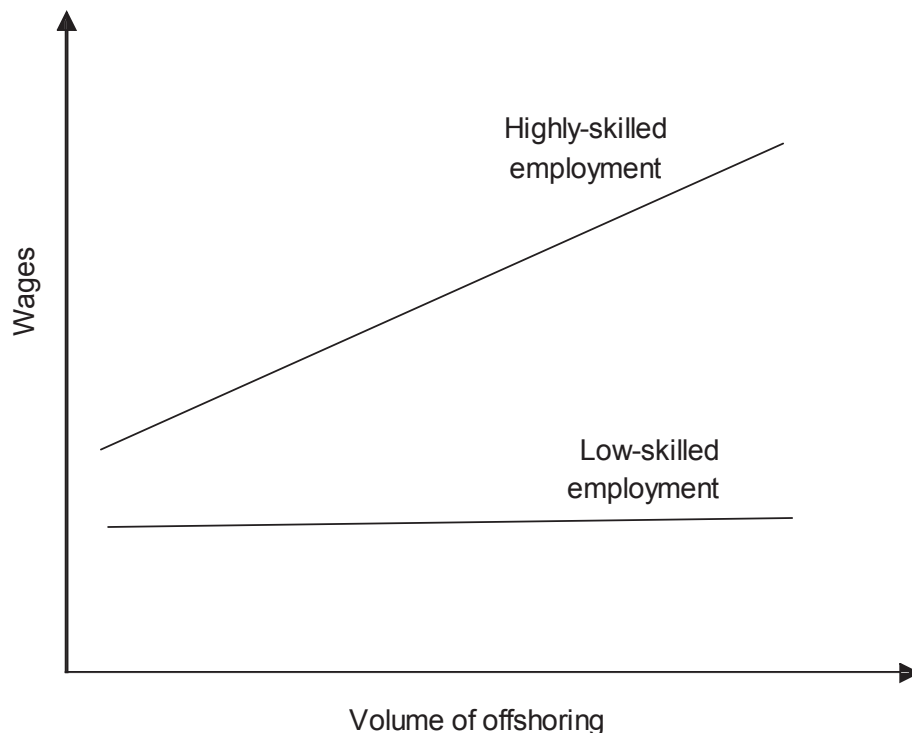
So far, most of the evidence suggests that there will be continued growth in the number of jobs moving from the UK to developing countries such as India. However, this has taken place during a period of employment growth in the KIBS sector throughout the UK. Many studies have outlined that growth in offshoring can actually have a positive effect on domestic levels of employment. In recent years, the UK trade surplus in business services has accelerated, while overall employment in the sector has continued to rise. Although such evidence does not necessarily imply that jobs have not been lost due to offshoring, it does suggest that there has been little impact on the KIBS sector as a whole.

Nevertheless, it should be noted that the impact of job losses is often felt most by more vulnerable workers. In particular, workers in low value-added jobs are most at risk from offshoring. These workers may also experience the greatest difficulties in securing new employment.

Offshoring and income inequality

One particular effect of offshoring that may be a cause for concern is increased income inequality in developed countries. The most common model for offshoring in developed nations is to offshore the lower value-added jobs, making the cost of low-skilled labour less price competitive and increasing the demand for high-skilled labour (Heckley, 2005). As a result, there has been an upward pressure on wages for high-skilled labour to accommodate demand, along with a downward pressure on wages for low-skilled labour to compete with their cheaper counterparts abroad.

Figure 2: *Effects of offshoring in developed nations*



Source: *Robert Huggins Associates, 2006*

In extreme cases, such income inequalities could cause significant problems for the economies of developed countries. One problem could be the social effects of increased income disparities. Crime, for example, may be expected to increase. Fiscal policy may also need to be amended to reflect pay disparities. For instance, workers in low-skilled employment may be close to the tax threshold, thus a greater demand for tax revenue may be placed on the higher-income earners in the economy. Large disparities in earnings may also have an impact on domestic demand for goods and services, which would in turn affect the economy as a whole.

Increased income inequalities could also lead to greater intraregional disparities within countries: areas that have a greater concentration of lower value-added employment may find that they are falling even further behind richer regions in terms of output and quality of life.

Unionisation and worker representation

Continued offshoring could result in significant job losses within the KIBS sector. This could affect a host of activities, from basic ICT services functions to legal activities and accounting. Many of these sectors have very low, if any, levels of unionisation or collective representation. Moreover, many people employed in small enterprises may see their market develop an offshoring orientation, which may in turn deprive them of business and ultimately of employment.

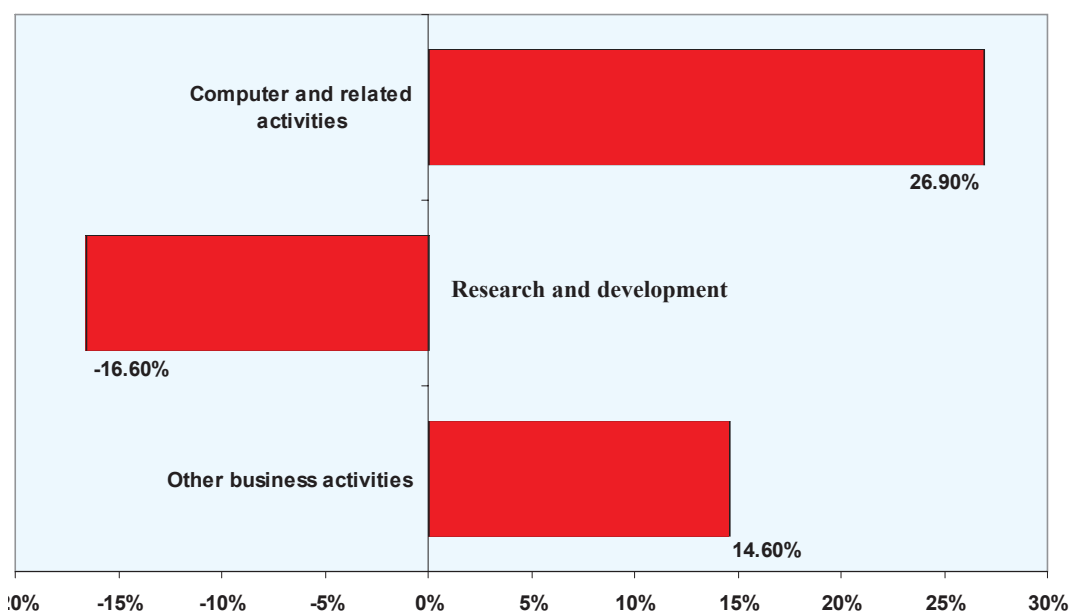
In the event of job losses, those sectors lacking worker representation may be rendered relatively powerless. The reluctance of governments in some developed countries to use protectionist measures has resulted in little protection for those workers whose jobs come under threat.⁵ As a result, in addition to increased income inequalities, offshoring is also likely to lead to reduced job security in many KIBS occupations.

Threat of job loss arising from offshoring

Some reports suggest that the threats to employment posed by offshoring are exaggerated. Certainly, the rising levels of employment in the KIBS sector would suggest that the threat to employment may not be a huge concern for many developed countries. Recent analysis shows that employment in two of the three KIBS subsectors – other business activities, and computer and related activities – increased considerably throughout Europe between 1999 and 2003, with only the R&D subsector experiencing a decline in employment. Overall, KIBS employment in all three subsectors stood at just over 15% between 1999 and 2003. Indeed, within the computer and related activities sector – where much of the offshoring jobs were expected to be lost – there was a sizeable increase in employment of 26.9% throughout Europe between 1999 and 2003.

As mentioned, the UK is the major instigator of offshoring in Europe. However, statistics regarding employment in the KIBS sector in the UK suggest that each of the three subsectors all grew by more than 10% in terms of job numbers between 1999 and 2003.

Figure 3: *Employment growth in KIBS sectors in Europe, 1999–2003*



Source: EMCC, 2006⁶

⁵ For example, the former UK Secretary of State for Trade and Industry, Patricia Hewitt, stated that the UK would not pass protectionist legislation (see *Financial Times*, 5 March 2004; quoted in Abramvosky et al, 2004).

⁶ <http://www.eurofound.eu.int/publications/htmlfiles/ef0640.htm>

The growth in UK exports of KIBS – and the ever increasing trade surplus within the sector – suggests that offshoring is having a positive impact on the sector as a whole (Abramovsky et al, 2004). Indeed, it may be surmised that offshoring is a ‘prerequisite’ to retaining employment in the KIBS sector, since, without offshoring, the sector may become less competitive while still being open to global competitive forces.

What seems certain is that offshoring is not, at least currently, resulting in fewer jobs within the KIBS sector. Nonetheless, this is not a great source of comfort to those who have already lost their jobs in the KIBS sector. Some job losses are inevitable as a result of offshoring. Offshoring by its very definition requires a displacement of employment from one area to another. Furthermore, it should be noted that the loss of some lower value-added employment and the increase in higher value-added employment in developed countries may positively impact on statistics, such as in relation to earnings and economic output. However, there will also inevitably be knock-on effects for those lacking the skills required for such higher value-added activities.

Effects of offshoring in the EU

In recent years, there has been significant evidence of offshoring within the European Union. Many of the new Member States have experienced a significant increase in employment within the KIBS sector, while employment growth has been relatively slow in the more affluent older Member States (EU15). Although not all of the employment growth can be attributed to offshoring, since much of the KIBS growth will also be driven by domestic demand, lower costs are likely to attract companies to offshore destinations like Estonia, where wage costs for businesses such as software development are lower than in the richer western European countries.

However, one factor that limits the growth of offshoring within the EU is the relatively free movement of labour. Relative labour mobility means that workers can move to where the wages are highest, which can often be in the opposite direction to where companies are seeking to locate – that is, where costs are lowest. Such labour flows within a particular sector could help to reduce wage costs in high-wage regions by increasing the labour supply, while increasing wage costs in areas where there is an outflow of labour.

Impact of EU enlargement

The enlargement of the EU is likely to have an impact on many KIBS providers, especially in terms of offshoring. Many of the new Member States have relatively low-cost economies in comparison with the older Member States. The homogenisation of legislation and labour markets may also have an impact on the ability of companies in countries such as the UK to offshore to new Member States. In comparison with countries such as India, the closer proximity and greater similarity in time zones may mean that some of the traditional barriers to offshoring will become less of an obstacle.

Evidence suggests that eastern Europe may become more popular as a destination for offshoring in the KIBS sector. Significant employment growth, for example, was experienced in Hungary, Latvia and Slovakia between 1999 and 2003. A considerable proportion of this growth could possibly be attributed to offshoring activities.

Table 7: *Summary – positive and negative impacts of offshoring on domestic and foreign companies*

Domestic benefits	Domestic negatives
<ul style="list-style-type: none"> • Increased levels of offshoring can enhance the competitiveness of domestic enterprises • Increase in domestic productivity levels • Reduction in the domestic cost of services 	<ul style="list-style-type: none"> • Large number of small enterprises may find it difficult to compete and to engage in offshoring • Increased levels of offshoring will result in employment becoming more dispersed • Lack of unionisation in many KIBS sectors may have significant implications for workers, particularly for those with lower skills levels
Foreign benefits	Foreign negatives
<ul style="list-style-type: none"> • Increased employment • Penetration of global markets • Knowledge gained through new business practices • Increased earnings 	<ul style="list-style-type: none"> • Reliance on foreign investors and markets • Labour market bottlenecks • Reliance on cost rather than knowledge competitiveness

Scenario 2 – Retrenchment

The previous scenario outlined the increasing levels of offshoring that are occurring in many developed countries and their likely effects on both domestic employment and employment in offshore locations. The key driver of offshoring is a desire to reduce costs. In order to achieve lower costs, the offshoring destination must possess a number of characteristics, including lower wage costs for the offshored activity than those found domestically, along with a good supply of labour.

Despite the considerable growth in offshoring, some evidence suggests that this trend will not continue in the long term. On the contrary, in some cases, outsourcing is moving back to domestic markets and many companies are now looking at ‘insourcing’ their operations by internalising operations that were previously contracted out.

This movement towards domestic outsourcing, or insourcing, can be termed ‘retrenchment’. The term also refers to the repatriation of offshored production.

There are numerous risks and challenges associated with offshoring, which when given sufficient weight, may prompt a move towards retrenchment and insourcing. Possible concerns arising among companies undertaking offshoring, or potential offshoring, in the IT sector may relate to the following issues (Satyaprasad et al, 2006):

- internet protocol (IP) protection;
- security;
- increasing salary levels at offshore locations;
- specialised labour pool;
- regulatory issues;
- transition issues;
- change management.

More specifically, labour costs and available labour will remain the biggest incentive or disincentive for offshoring or the retrenchment of offshoring operations. Evidence shows that KIBS employment has been increasing in many European countries in recent years. Although this does not necessarily suggest a reversal of offshoring trends, neither does it support the hypothesis of a mass displacement of KIBS labour to overseas countries.

As retrenchment is a relatively new concept, there is little direct evidence to suggest that employment is increasingly being retained in sectors that have traditionally experienced job losses as a result of offshoring. However, there is evidence that many of the concerns related to offshoring are becoming real barriers to offshoring activities within the KIBS sector.

For example, Michael D. Fleisher, former Chairman and Chief Executive Officer (CEO) of Gartner Inc., a leading provider of business and technology intelligence in the US, has indicated that he expects companies that are currently offshoring to change their policy and begin a retrenchment of labour.

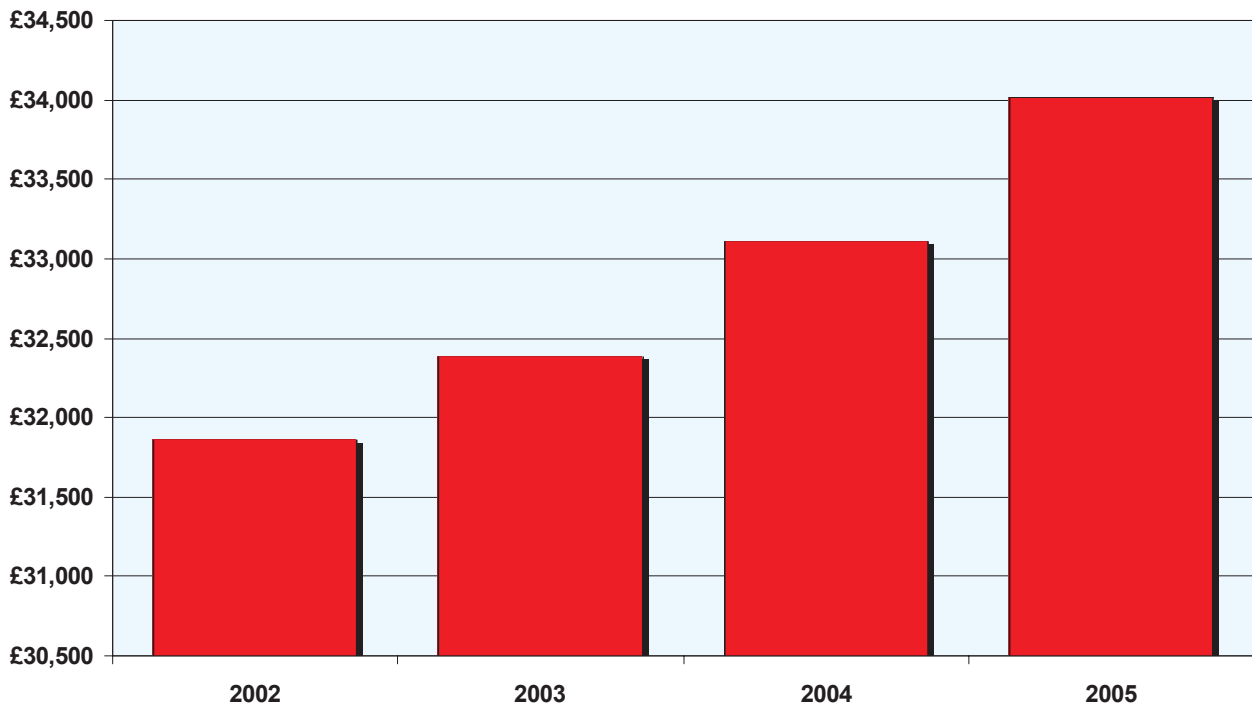
Converging wages

One of the greatest barriers to offshoring is rising wage costs in offshore destinations. Reducing costs is the most commonly cited reason for companies’ offshoring their operations. However, if wages in offshoring destinations begin to rise in proportion with domestic wages, then levels of offshoring could be expected to fall; in more extreme cases, the

demand for labour may increase domestically, as producers and businesses may be put off the idea of overseas production simply because of costs.

In the UK, for example, earnings growth in the software sector has been relatively slow. In 2002, the average gross annual pay for a software professional stood at just under £32,000 (approximately €47,780). By 2005, the figure had risen to around £34,000 (about €50,750). The £2,000 (around €2,985) rise in three years denotes an equivalent annual rise in earnings of 2.2%. In comparison, the figure for full-time workers in all industries in the UK over the same period stood at 3%.

Figure 4: Average gross annual pay among professionals in software industry, GBP

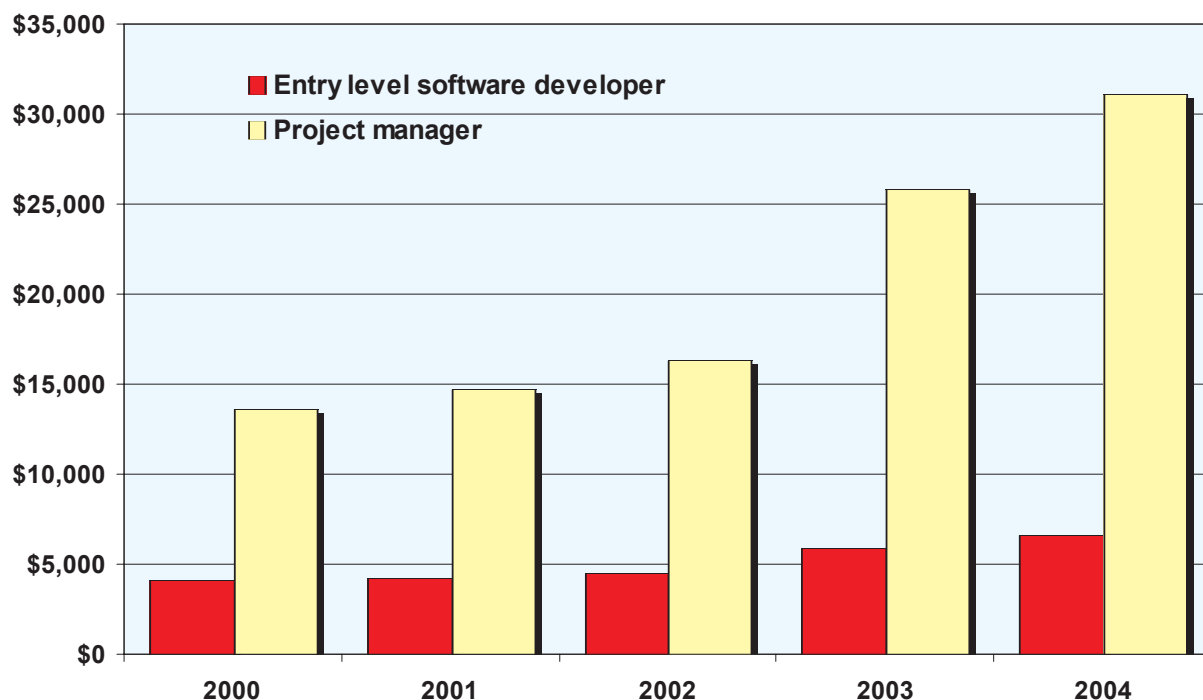


Note: Calculated from weekly earnings data of the annual survey of hours and earnings between 2002 and 2005.

Source: Office for National Statistics, 2005

Earnings' growth in the software sector in India, on the other hand, has been much higher than in the UK. Figure 5 highlights the significant increase in earnings in the software sector experienced in recent years. It shows how the earnings of both entry-level software developers and project managers in the software sector have risen considerably: between 2000 and 2004, earnings increased by 62.5% for entry-level software developers and by a substantial 129.2% for project managers in the software development sector.

Figure 5: Annual wages in India's software sector, USD



Source: NASSCOM, 2005

A comparison of earnings' growth in the software sector between the UK and India reveals considerable differences. A review of compound annual growth rates indicates that, between 2002 and 2004, the average annual rate of earnings' growth for software development project managers in India was 91%. Even for entry-level software developers, the average annual earnings' growth was almost 50% a year, between 2002 and 2004.

The growth in earnings in India, accompanied by stagnant earnings' growth in the UK, suggests that India's cost competitiveness as an offshoring destination is falling rapidly. Continued growth in the Indian economy, following recent trends, could also mean that earnings in India will continue to rise.

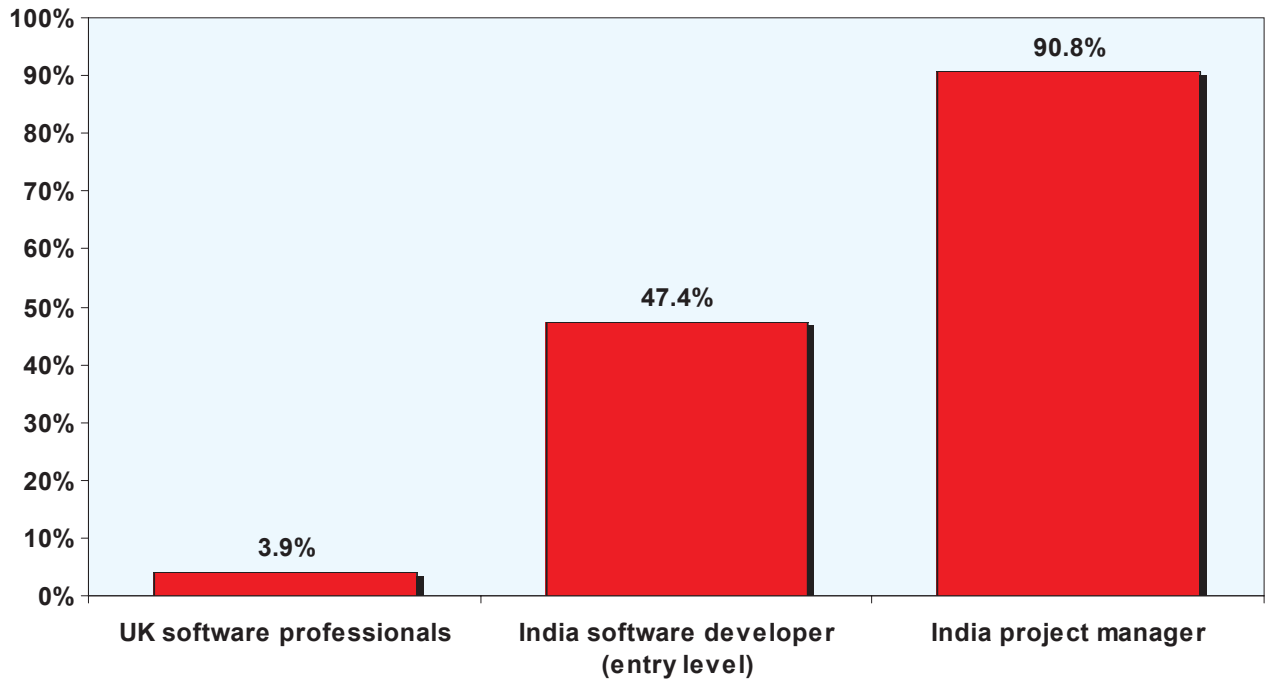
Table 8: Annual GDP growth in India, %

Year	Growth
2003	6.9
2004	8.5

Source: World Bank, April 2006

Assuming that the main incentive for offshoring is reducing costs, such continued growth in earnings in India could mean that levels of offshoring will fall, and possibly even be reversed in the long term.

Figure 6: Earnings' growth in UK and India's software development sector, 2002–2004



Source: NASSCOM, 2005; Annual survey of hours and earnings

Some data also suggest that competition between employers in popular offshoring destinations is having an effect on earnings. Poaching of skilled staff in the ICT services sector means that workers are able to demand increasingly higher wages and implies that the supply of skilled workers is indeed limited. As a recent article on the InfoWorld.com technology portal (Fox, 2006) outlined:

An unnamed CTO recently told a group of InfoWorld editors that in Bangalore, developer poaching has become rampant. Companies fighting over programming talent keep leapfrogging one another's salary offers, all to induce employees to jump ship. That practice is inflating Indian salaries and creating an increasingly transient workforce.

Hidden costs

In addition to the explicit labour costs involved in offshoring, companies must also consider a series of hidden costs (Watson, 2006). Perhaps the most prominent of these costs is the managerial relationship. Offshoring, in comparison with internal operations, will by its very definition result in an extra layer of communications between the domestic company and the offshore location. This communications layer may be particularly challenging due to cultural and linguistic differences. Relationships may be further complicated by time zones and working practices.

A detailed project methodology and testing phase is therefore essential for an offshoring project to run smoothly (*ibid*). Sufficient planning and development of the project methodology is imperative at the early stage of the project. Failure to undertake this planning stage to ensure a sufficiently high standard will result in further cost increases, as roles, processes and responsibilities may become increasingly unclear.

Travel costs may also need to be factored into budgeting plans, even if few visits to the offshoring destination are expected. Ensuring that an offshoring operation runs according to plan may need some face-to-face contact. In many

cases, the need to travel may be unexpected and not envisaged in the original budget. Change-request management is also likely to be a significant issue. Changes to specifications may be considerably more difficult to deal with in an offshore operation than if undertaken domestically.

Other, perhaps basic and obvious, costs will also need to be taken into account. Time zone differences, for example, will be an issue in some sectors, especially if day-to-day contact is required. Telecommunications costs may also be higher as a result of offshoring. Additional risks such as currency fluctuations will obviously have an impact on the price of foreign labour and services, thus creating a risk for companies wishing to offshore. Political stability may also be a concern for some companies.

Indeed, there is evidence to suggest that many companies are overestimating the savings that offshoring can bring to their business. The 2005 *Offshore Outsourcing Research Report* (Ventoro, 2005) indicated that while many companies expected savings of up to 80% in the ICT services sector through offshoring, the reality was somewhat different: the Ventoro survey found that the average cost savings of offshoring actually amounted to less than 10%. This suggests that substantial hidden costs are being incurred. As these costs become better researched and acknowledged, a decline in offshoring may be expected since the assumption of cost advantages becomes eroded. While a number of the hidden costs may, in themselves, be small, an accumulation of such costs can result in a sizeable difference between the anticipated budget and the actual budget.

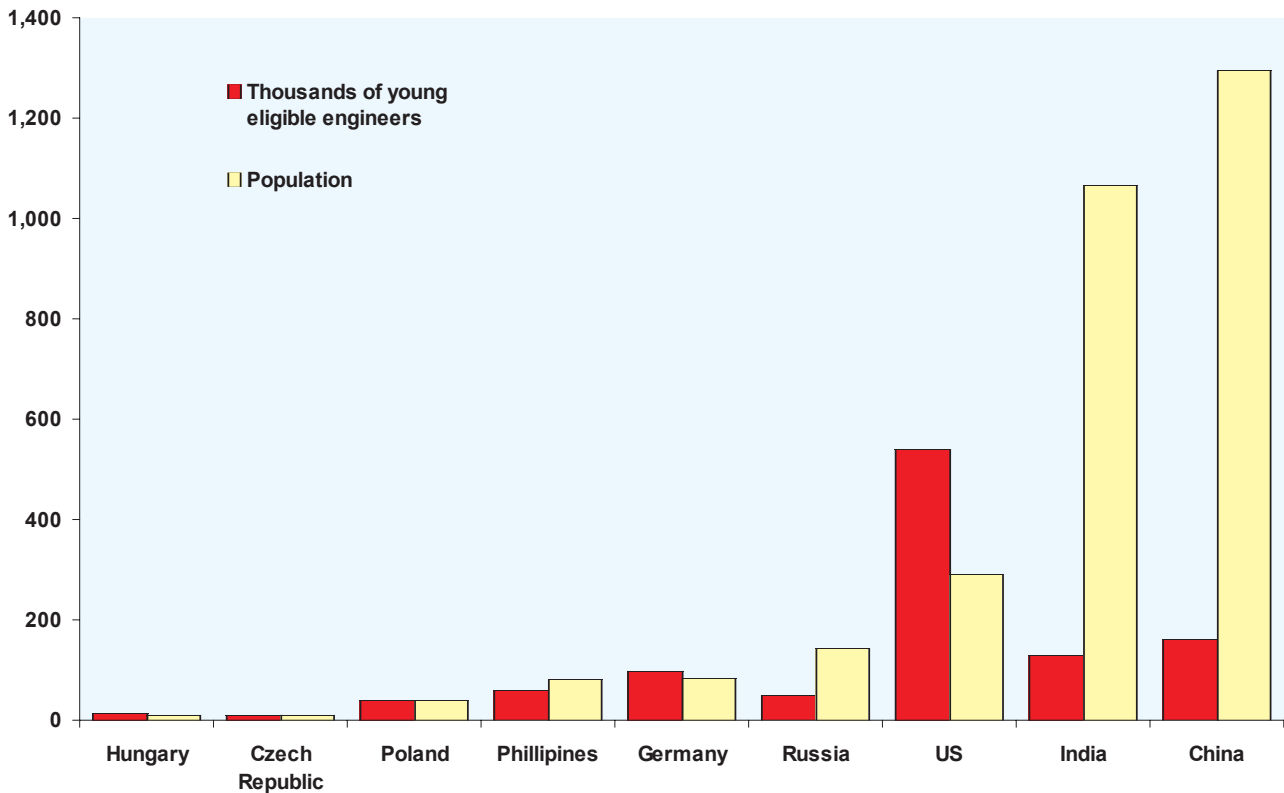
Labour market bottlenecks

In order for a company to offshore successfully, it will need to ensure that there is an adequate supply of labour. Labour supplies are always finite, and even a flexible labour market can produce labour market bottlenecks. This is especially true for KIBS companies. Due to the high levels of tacit and complex information and skills intrinsic to KIBS, extensive training is often required before offshoring can be carried out; this may, once again, lead to additional costs and delays. In many cases, especially in the IT services sector, graduates are the main source of labour for offshoring operations. The same is true for business services, particularly in the case of R&D. Knowledge of the client operator's language is also required in many circumstances.

Not only is the supply of key workers likely to diminish as more people are employed within a sector, but the quality is also likely to decrease. The best, most appropriate workers are likely to be those who are already working in the sector. Marginal employment will therefore, theoretically, be of a lower standard compared with the standard among those currently employed. The laws of marginal returns also imply that the more workers who are employed in an offshoring operation, the lower the average productivity rate.

Changing the provision of education in offshoring destinations may take some time, and when labour market bottlenecks occur, it is almost inevitable that there will be a time lag between the demand for skilled labour and its availability.

Figure 7: Software sector labour market (software engineers, '000) and national population levels (millions)



Source: Farrell, Kaka and Stürze, 2005

Data show that there are relatively small numbers of workers in the ICT services sector in India and China, compared with developed nations such as the US. The small proportions of skilled workers are likely to act as a significant barrier to the expansion of offshoring projects. At the same time, increased demand accompanied by the relatively static supply of skilled workers will result in ever increasing wages, thus reducing the cost-competitive advantages of offshoring domestic KIBS operations.

Cultural restraints

Another key driver for retrenchment relates to the cultural and linguistic differences that exist between countries. In some business services industries, cultural differences can act as a huge barrier to offshoring, simply because the ways of undertaking business are often fundamentally different in individual countries. For example, the methods by which clients are won and managed may differ significantly, as can working time and training practices.

An interview with a Finnish KIBS enterprise revealed that cultural differences acted as a significant deterrent to increased cooperation between countries, even between countries that are geographically close, such as Finland and the Baltic countries.⁷ Local knowledge can be very important for KIBS providers, and there is often a need to adapt when working in foreign markets. Moreover, an understanding of foreign labour markets is required to ensure that offshoring projects are run efficiently.

⁷ Consultation with Mr Kari Rinne of Karinne OY

Cultural differences are most explicitly seen in relation to the offshoring of call centres. For example, many UK customers prefer to converse with local customer service representatives who have an appreciation of the local language, geography and customers. This has encouraged some prominent banks to retrench their call centres back to the UK. Indeed, some banks use this retrenchment position as a marketing technique, signifying its importance in relation to customer perceptions.

Quality of work

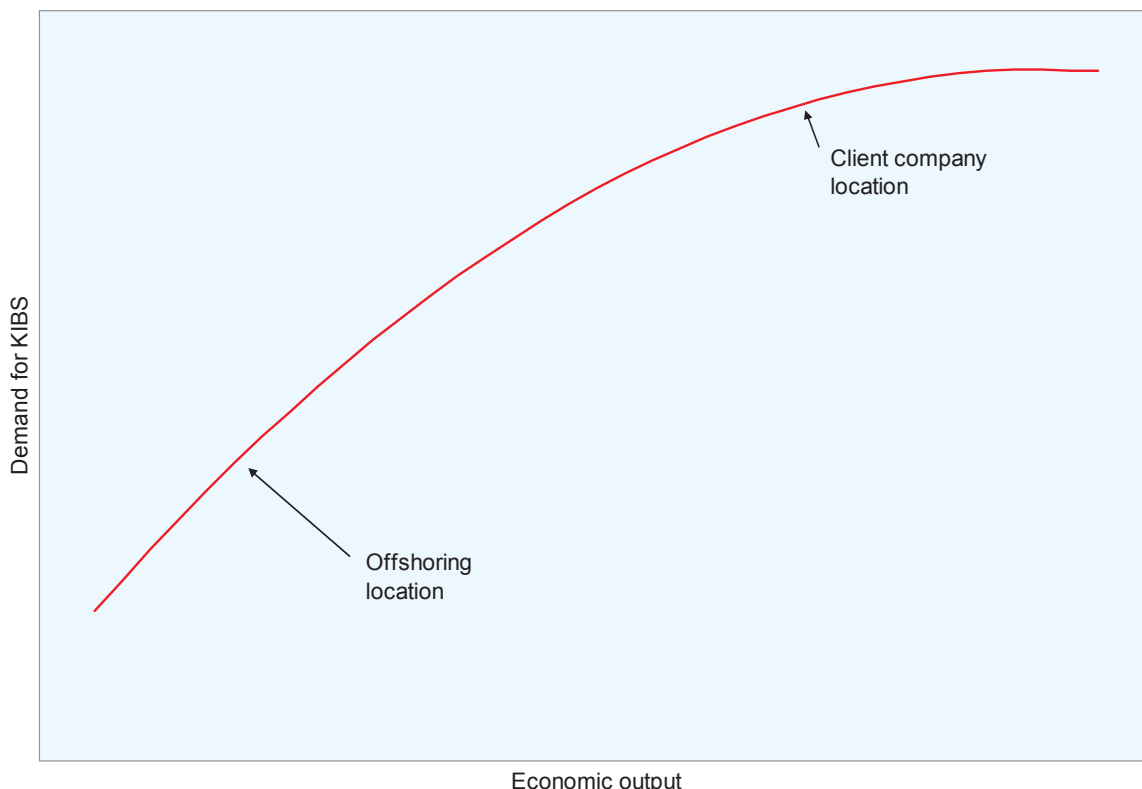
In some circumstances, the quality of work undertaken in offshore operations has been criticised. One such example concerns the US business services company Conesco, which relocated 800 jobs from India back to the US following concerns regarding declining quality of output (Grant, 2005).

Increasing demand in global markets

The expansion of developing nations will also result in a growth of KIBS markets in these countries. This will impact on the demand for labour in the KIBS sector in such countries, as a greater labour supply will be required to serve these domestic markets. As a result, there may be further pressures on the labour market, with even greater pressures on wages and competition for skilled workers.

It is likely, therefore, that the demand for KIBS in developing countries – specifically those in which offshoring operations are based – will increase at a greater rate than the demand in developed countries. In line with this hypothesis, continued pressure in developing nations for labour could be expected to shift the emphasis from serving foreign to serving domestic markets.

Figure 8: Relationship between demand for KIBS and economic output



Source: Robert Huggins Associates, 2006

Migration

Within Europe, increased labour mobility can be expected following the enlargement of the EU. This may have two effects: either increased movement in the base of business operations will occur, or conversely there will be an increase in labour migration. An interview with an Estonian company revealed that many workers in the ICT services sector in Tallinn are finding work in Helsinki in Finland, rather than in companies developing operations in Estonia.⁸ In Helsinki, earnings in the software sector are considerably higher than those in Estonia, providing a considerable incentive for labour mobility.

Implications of retrenchment

Reduced competitiveness of domestic businesses

One of the implications of the retrenchment of offshoring operations is its impact on competitiveness. If it is assumed that offshoring increases business competitiveness, then the reversal of this process could be expected to have the opposite effect. However, in reality, the increased costs of labour market bottlenecks associated with offshoring can be expected to reduce its attractiveness to companies as a means of gaining competitive advantage; hence, over time, the overall impact of retrenchment on competitiveness may not be hugely significant.

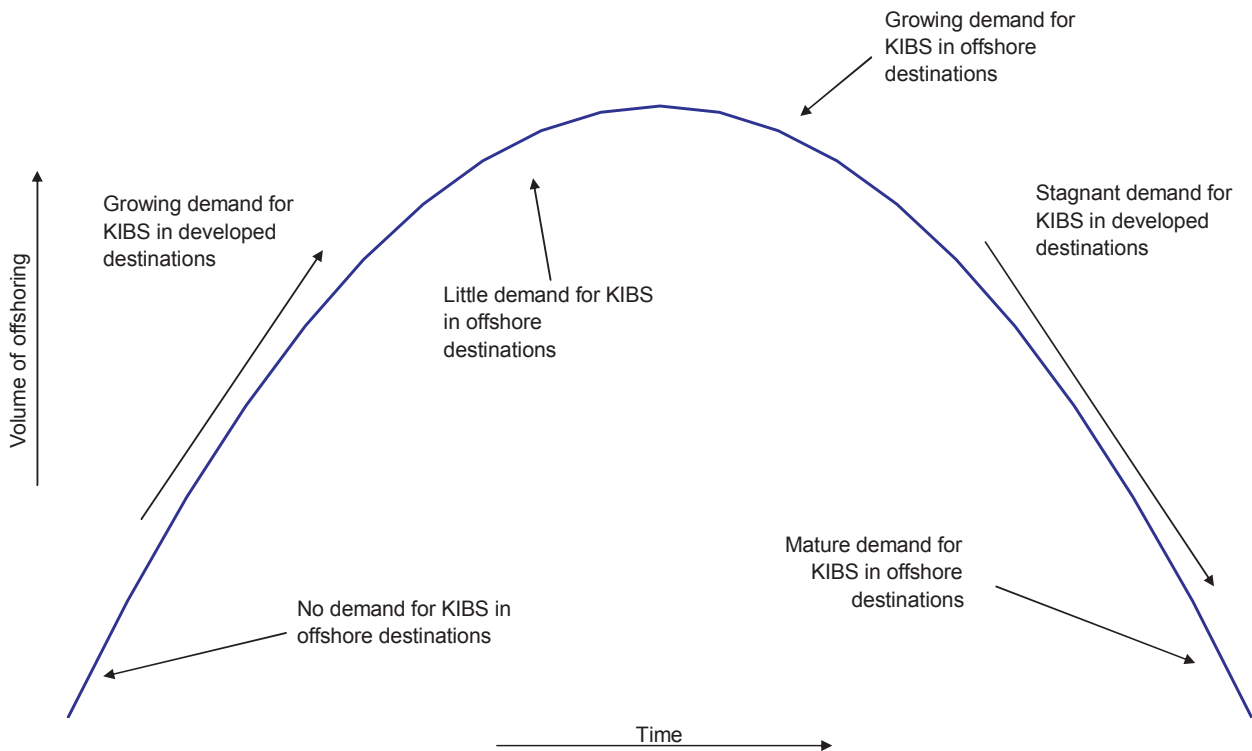
Increased market size

An increasing demand for KIBS in emerging markets will have an impact on the ability of companies to use offshoring as a method of reducing costs and increasing competitiveness in developed countries. This challenge however may also provide new opportunities. As developing markets become more sophisticated purchasers of KIBS services, new markets will emerge for developed nations to explore. The following offshoring 'life cycle' illustrates the scenario of retrenchment:

1. initially no demand for KIBS in developing countries;
2. increasing demand for KIBS in developed nations;
3. increased pressure on KIBS labour market in developed countries and decreasing competitiveness of companies;
4. KIBS enterprises in developed countries offshore employment to help maintain and/or increase their cost competitiveness;
5. increased pressure on KIBS labour market in offshore destinations, leading to rising employment costs;
6. growing demand for KIBS in offshore destinations puts further pressure on KIBS labour market;
7. stagnant demand for KIBS in developed nations;
8. decreased incentive for offshoring, retrenchment of employment and halting of offshoring operations.

⁸ Consultation with Dr. Ants Sild

Figure 9: Hypothesis of increased market size for KIBS



Source: Robert Huggins Associates, 2006

Impact on domestic labour demands

A key aspect of retrenchment is that it ultimately involves a return of labour from an offshore destination. This can have a number of effects:

- wages may rise, as there may be greater pressure on the pool of labour in the KIBS sector;
- problems may be faced in rehiring workers who have re-skilled for other occupations;
- many KIBS workers may need to be ‘poached’ from other sectors, with obvious implications for wages and therefore overall costs.

Overall employment effects

Retrenchment will result in an increase in the number of jobs. If global demand continues to grow, there may be increased employment in KIBS over and above the demands required to serve local markets. This scenario would benefit all countries, as output and employment would increase in all KIBS sectors. Based on the assumption that KIBS help to increase productivity across all sectors, an increase in output in the developing countries may also be expected.

Scenario 3 – Technological advances, intellectual assets and network capital

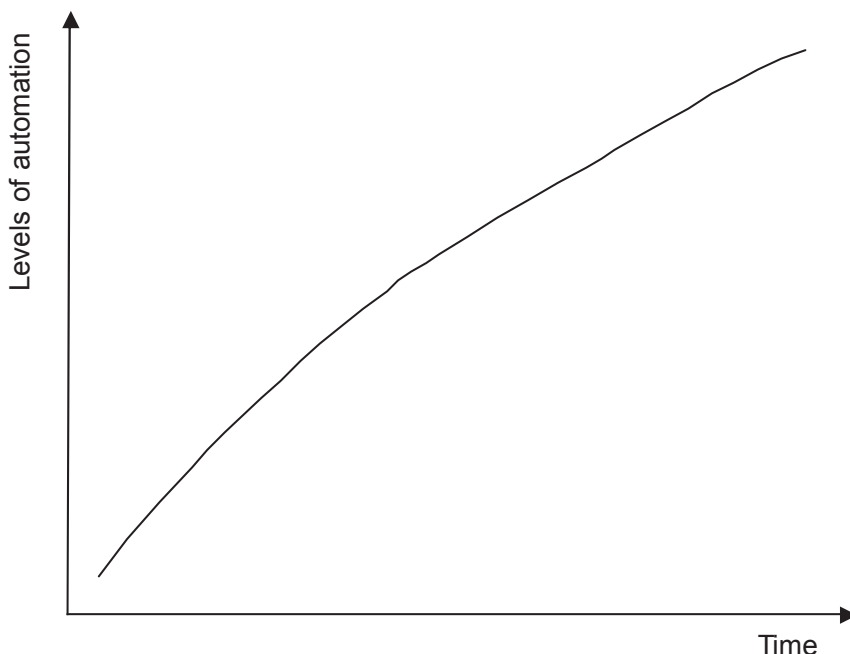
In the knowledge economy, competitive advantage relating to intangible rather than physical assets lies at the heart of sustaining high performance levels. This is particularly the case with regard to KIBS, which by their very nature are highly reliant on intangible assets. This third scenario focuses on the three key forms of intangible assets that will be crucial to the future competitiveness of KIBS.

The first of these assets concerns technological advances in information and communication systems, particularly systems used to communicate and interact with customers. The second encompasses so-called ‘intellectual assets’ in the form of branding, company name, reputation and goodwill. The third asset relates to network capital and the means by which KIBS companies, especially small and medium-sized enterprises (SMEs), are able to access, acquire, exchange and transfer forms of knowledge – such as ‘know-how’ and ‘show-how’ – via external sources. Overall, technological advances are the key mode of change for enhancing network capital – the means by which KIBS providers can network and interact. Technological advances also affect many aspects of intellectual assets, such as how KIBS are able to build their reputations and brands. Therefore, technological advances form the main focus of the analysis in this scenario.

Technological advances

KIBS are, by their very nature, a dynamic and evolving sector. In services such as accounting and computing, technological changes are having a profound effect. In the case of accounting, changes in technology over the past 20 years have increased the level of automation in the sector, with accounting systems such as SAGE reducing the labour intensity required in many companies.

Figure 10: *Change in automation levels in industry over time*



Source: *Robert Huggins Associates, 2006*

The computing and related KIBS subsector has technological change at its heart, and impacts and effects are considerable, shifting rapidly and encouraging the growth of new business models and services. However, changes in technology can also be expected to have an effect on businesses in all KIBS sub-sectors, namely in the relation of the following aspects:

- reduced production costs;
- increased market size;
- larger markets geographically;
- increased communication.

Changes in technology can be expected to support offshoring and outsourcing within companies in the KIBS sector, as communication costs decrease and the ability to share information electronically becomes easier and more rapid.

Table 9 presents a summary of typical KIBS activities. In all sectors, changes in technology are likely to have an effect, but not always in the same way. For example, a more automated provision of services can be expected in the accounting sector, while increased communication technologies may mean that research and development activities can be undertaken overseas. Even activities such as market research can be automated, using the internet and other digital media to capture information.

Table 9: *Typical KIBS activities*

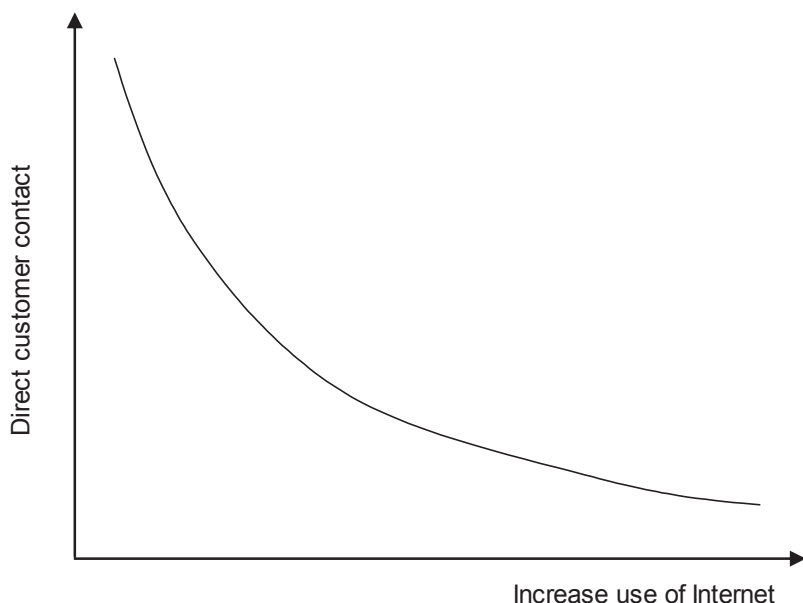
Computing and related activities	Research and development (R&D)	Other business activities
<ul style="list-style-type: none"> • Hardware consultancy • Software consultancy and supply • Data processing • Database activities • Maintenance and repair of office, accounting and computing machinery • Other computer-related activities 	<ul style="list-style-type: none"> • Research and experimental development in natural sciences and engineering • Research and experimental development in social sciences and humanities 	<ul style="list-style-type: none"> • Legal activities • Accounting • Market research • Business and management consultancy • Architectural and engineering activities • Technical testing and analysis • Advertising • Labour recruitment

Customer service relationships

The use of internet technologies to deliver KIBS will have implications for customer service relationships. As the use of internet technologies increases, a continued decline in the need for direct client-customer relationships will be experienced. This will have a number of effects for companies in the KIBS sector, namely:

- declining labour requirements;
- increased outsourcing and purchasing of ICT services;
- decreasing importance of location – time zones and language become less important in terms of both sales and delivery.

Figure 11: Correlation between internet usage and direct customer contact



Source: Robert Huggins Associates, 2006

Electronic delivery of services may lead to effects not unlike those associated with offshoring. The lower value-added jobs within the sector of more developed countries will diminish – either because they can be performed elsewhere at a lower cost, or because they can be automated. This, in turn, could result in a greater level of wage disparity in the KIBS sector.

However, electronic delivery may also lead to an overall decline in jobs in the KIBS sector. As technologies develop, some jobs will be transferred, not to developing countries, but to automated functions. This will have considerable effects in some sectors. An extreme example of this could involve a service such as accounting, which could be undertaken by the client through simply uploading their accounts onto a server, with no interaction whatsoever required.

Digitisation of service provision

The digitisation of service delivery in the KIBS sector will affect more than just customer relationships. One of the key aspects of digital production and delivery is its potential effect on labour and the required labour needed to undertake production.

Automated processes will ultimately become more popular among businesses for a number of reasons. The biggest incentive will be cost reduction. As with many digital automated processes, the marginal cost of production is virtually zero, and average costs can be assumed to be lower than those involved when using human labour for many processes. Automated processes can also be undertaken 24 hours a day, seven days a week.

Table 10: *Characteristics of traditional and digital KIBS delivery methods*

Traditional delivery	Digital delivery
<ul style="list-style-type: none"> • Face-to-face interaction • Local delivery • Human interface • Skilled labour process 	<ul style="list-style-type: none"> • Electronic interaction • Location irrelevant • Self-service • Automated process

Digitisation of KIBS will lead to a large number of managerial, operational and strategic changes. Clearly, employment levels could be expected to fall for a particular task. Employment increases would only occur as a direct result of product innovation rather than increased demand.

The diminishing importance of location will also have an impact, in terms of both the locational decisions of KIBS companies and of those that require their services. Ultimately, the digitisation of delivery means that the service can be provided from almost anywhere in the world.

The reduction in costs will also have an impact on the development of business. Based on the assumption that KIBS providers help to increase client companies’ productivity, the lower costs of KIBS can be expected to increase overall economic output for all organisations, not just KIBS companies. As a large proportion of companies tend to require services such as accounting, it may also be found that companies will become more cost competitive in many areas, due to the reduced administrative costs of their organisation.

It is worth noting that some KIBS will be more amenable to digitisation than others. For example, some KIBS, such as management consultancies, are likely to be more difficult to ‘digitise’ as a result of the high levels of interaction and tacit knowledge required in such companies.

Homogenisation of legislation

The increased use of technology, in particular internet technology, will enable greater interaction in international markets. The rapid rise of Skype⁹ shows how services such as telecommunications can become a worldwide phenomenon in a relatively short space of time. However, in many circumstances, national legislation, and even cultural differences, can have an impact on the ability to access international markets. Some examples of international barriers in the different KIBS subsectors are given in Table 11.

Table 11: Barriers to international development of KIBS

KIBS subsector	Barriers to internationalisation
ICT services	<ul style="list-style-type: none"> • Data protection • Censorship • National regulatory frameworks
Accounting	<ul style="list-style-type: none"> • National accounting procedures • Qualification requirements
Legal	<ul style="list-style-type: none"> • Legal framework • Qualification requirements • Language

⁹ Skype is a small piece of software that enables people to make calls from their computer, as well as providing other capabilities such as video conferencing.

In many cases, differences in legislation and the commercial environment may have little impact on the ability of KIBS companies to deliver services. For instance, the barriers may be small and minor alterations in the delivery or business model may only need to be undertaken to help KIBS companies penetrate international markets. However, in other circumstances, legal and regulatory frameworks will inhibit the internationalisation of KIBS enterprises considerably. Significant issues could include:

- knowledge of markets;
- knowledge of legislation;
- ability to access required education and training (for example, UK-based legal training for someone seeking to sell legal services in the UK);
- track record and experience in the sector.

Such barriers can therefore act as a deterrent to international trade. Regulatory barriers could in turn:

- act as a form of protectionism for domestic labour, restricting the ability of foreign markets and labour to penetrate international markets;
- increase job security;
- increase labour costs and wages;
- reduce competition;
- lower productivity.

Efforts to homogenise legal and accounting frameworks will therefore have an opposite effect. For example, job security within the sectors could decrease, while there may be a downward pressure on wages. KIBS companies may become more competitive, and prices of the services they provide could fall. Overall effects could include:

- more favourable prices for other KIBS companies seeking to purchase services;
- greater wage differentials, as businesses increase profits by undertaking low-value added activities in lower-cost countries;
- increased competitiveness of KIBS enterprises.

Table 12: *Stages of technology development in accounting*

	Stage 1	Stage 2	Stage 3	Stage 4
Business model	No technology used in production or delivery of services	Computing used to help compute basic data; majority of production and delivery of services still labour focused	Automated production of accounts; human producer–client relationship maintained	Automated production and delivery
Labour requirements	Labour intensive	Relatively labour intensive, lower requirement for administrative support	Low labour requirements	Virtually no labour requirement
Effects on labour market	Low wages, but relatively high number of workers needed for production	Greater proportion of managerial and professional occupations; higher wages	High proportion of managerial and professional occupations; high wages	Mostly managerial and professional occupations; automated production is outsourced
Effects on markets	Demand affected by relatively high prices	Fall in prices makes services more accessible	Lower prices makes services more accessible	Low prices create relatively high levels of demand
Summary	High cost of production Low wages Labour intensive High prices	High (but falling) cost of production Low (but rising) wages Relatively labour intensive Relatively high prices	Cheaper costs of production Rising wages Less labour intensive Low prices	Low costs of production High wages Few jobs Cheaper prices

Source: *Robert Huggins Associates, 2006*

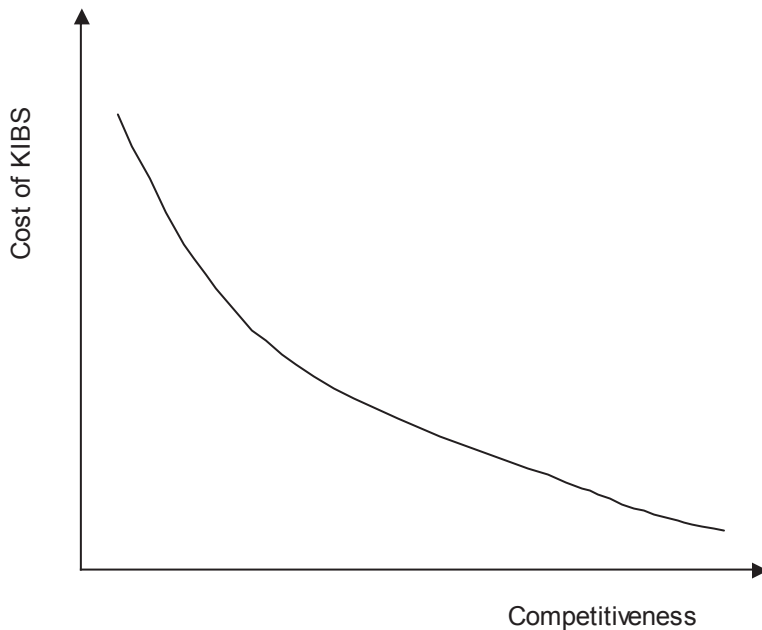
Effects of decreased costs

One of the key impacts of technological advancement will be a reduction in costs for many companies. More automated services and reduced marginal costs will, in turn, increase the rate at which production costs fall. As a result, an increasing number of companies will be able to afford KIBS services. Indeed, in many circumstances, KIBS could be purchased by businesses that may otherwise have been unable to afford such services. More companies in developing countries could also be able to access KIBS. Overall, this could result in two key effects:

- increased demand for KIBS;
- increase in overall economic performance.

Lower prices could mean that small enterprises in all sectors would find KIBS more accessible, which may in turn increase overall economic competitiveness throughout an economy. At the same time, this could boost the demand for KIBS even further, as the expanding economy develops and requires an increasing number of KIBS.

Figure 12: Relationship between cost of KIBS and economic competitiveness



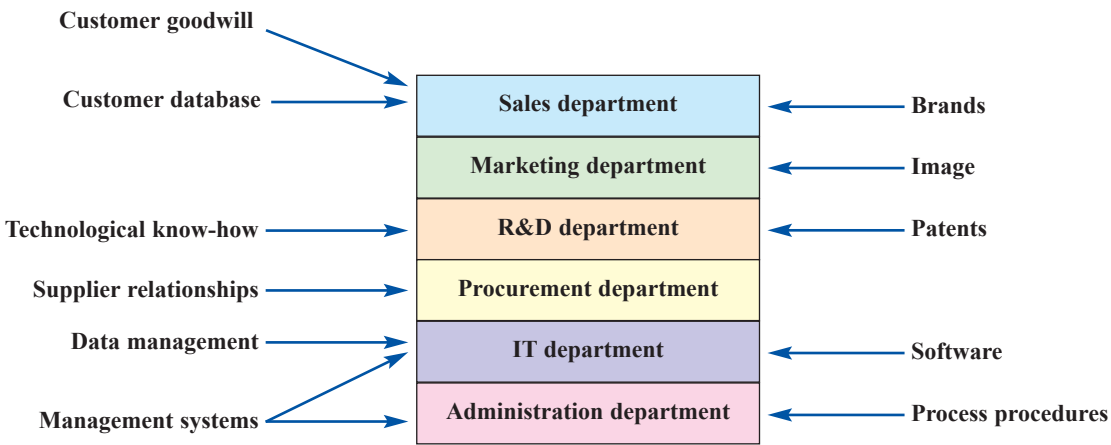
Source: Robert Huggins Associates, 2006

Intellectual assets

Intellectual assets (IA) encompass recordable intangible corporate assets, such as the company name, reputation and goodwill of the company, as well as company brands, trade secrets, business processes and know-how. Intellectual assets are more than just 'information', since information only becomes a valuable asset if it can be applied and used within a particular organisational context. It is, therefore, 'actionable information' (Bradley, 1997). There are clearly vast amounts of information, knowledge, tools, packages and services available – more than any one individual can process in a reasonable amount of time. Therefore, it will be KIBS companies that can effectively package desirable bundles of knowledge, services and products that will succeed in the knowledge driven economy.

In many KIBS companies, stores of knowledge exist which could be effectively linked with the support of a knowledge management system, to help improve IA exchange, learning and performance. However, KIBS enterprises can only succeed in such an endeavour if they have a clear idea of their own information, knowledge and capabilities. IA management will clearly support these companies in achieving this understanding (Gurteen, 1999). The key to management success is the clear allocation and transparency of responsibility in relation to certain resources and assets. With regard to IA in a large KIBS enterprise, this responsibility is often explicitly distinguished on a departmental basis, following the traditional vertical task specialisation and organisational hierarchy of such large enterprises (Figure 13). This structure does give transparency to what will necessarily be in practice a complex operational and management structure. However, in an SME environment, it is less likely that such transparency will exist.

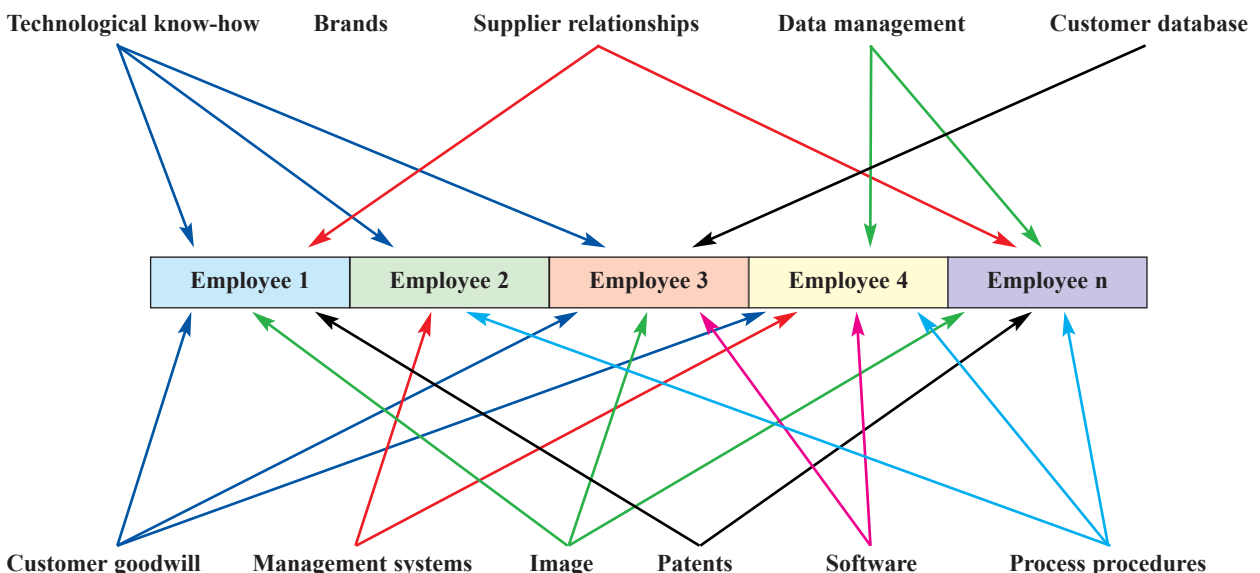
Figure 13: Example – distribution of responsibility in IA management of a large KIBS enterprise



Source: Robert Huggins Associates, 2005

As shown in Figure 14, the organisational structure of a KIBS SME is far more likely to consist of a horizontal system of cross-specialisation, where responsibility for asset management is more implicitly embedded among a range of employees, whose role involves management of a number of different resources and assets. This adds a layer of complexity that is not as evident in a large company environment. Managing such a complexity is itself a key feature of IA management in a KIBS SME environment, in terms of making explicit the organisational and network capital that is ‘contained’ within particular individual employees but that is not highly visible. Therefore, the challenge is to shift SME KIBS from an internally complex and human capital dependent structure to one that is able to create, recognise and mobilise assets that are embedded in the company rather than in individuals.

Figure 14: Example – distribution of responsibility in IA management of a KIBS SME



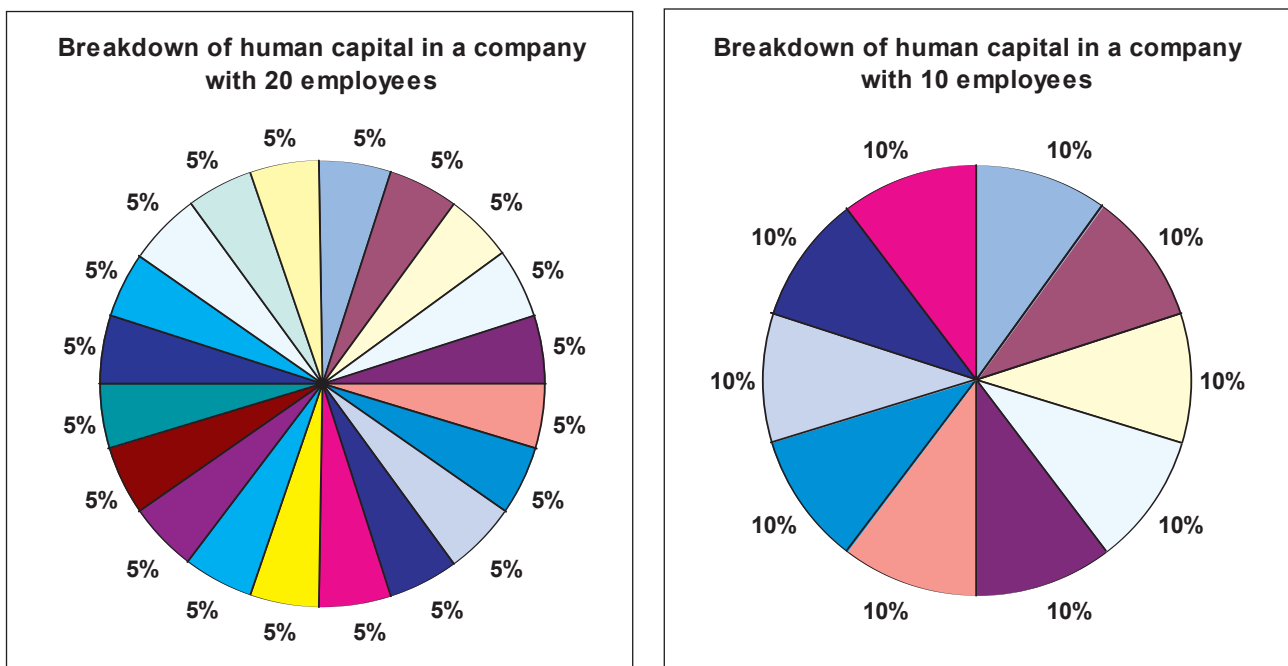
Source: Robert Huggins Associates, 2005

Although it is clear that KIBS enterprises will differ in their organisational structure and management processes depending on their size, a less discussed aspect is the obvious difference on the dependency of human capital embedded within each employee. For instance, as shown by Figure 15, assuming that each employee within a KIBS enterprise

possesses an equal amount of human capital, an employee within a KIBS with only 10 employees can be said to account for double the amount of total human capital than in a company with 20 employees.

Therefore, the smaller the KIBS company, the more vulnerable it is to losing a larger proportion of its total human capital through the departure of one of its employees. Thus, the importance of transferring embedded human capital into more explicit and recordable asset forms increases among smaller KIBS enterprises. Without such a transfer, KIBS companies will be unable to effectively protect and consistently utilise their total stock of knowledge.

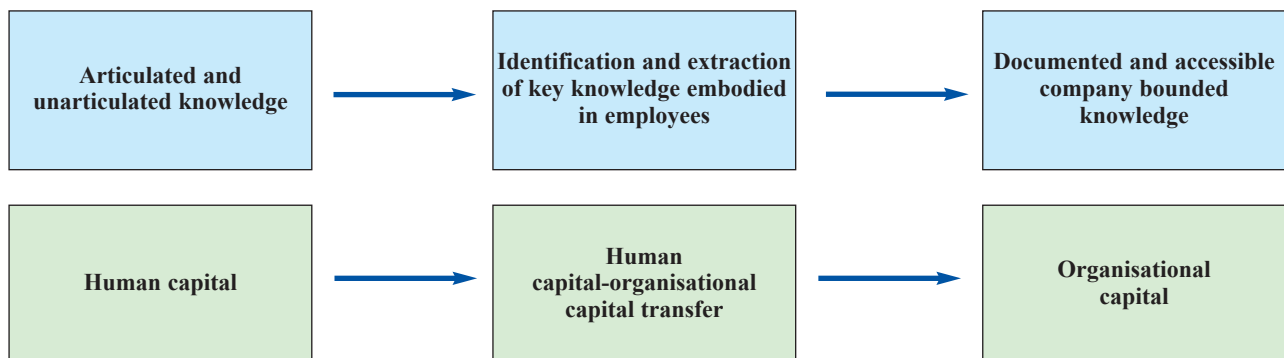
Figure 15: Breakdown of human capital per employee in KIBS of differing sizes



Source: Robert Huggins Associates, 2005

To a large extent, this system of transfer is at the heart of the IA management process. As highlighted in Figure 16, it primarily consists of the transfer of human capital, in the form of articulated and unarticulated knowledge, into organisational capital that is represented by a documented and accessible company bounded knowledge process. The management process necessarily involves the identification and extraction of key knowledge embodied in employees, and it is in this respect that systems measuring the quality, nature and effectiveness of this knowledge use can play a valuable role in determining such identification.

Figure 16: *Human-to-organisational capital transfer process*



Source: *Robert Huggins Associates, 2005*

Network capital

Network capital concerns the range of networked relationships and interactions by which companies, in particular in small companies, are able to access, acquire, exchange and transfer forms of knowledge such as know-how and show-how. The majority of knowledge management literature is predominately concerned with the transfer and mobilisation of knowledge within organisations. From a business perspective, the focus is usually on large companies, as opposed to knowledge access and exchange within and across small companies or SMEs. This is of particular relevance to KIBS, many of which are usually small in size.

In recent years, most research exploring knowledge transfer from a SME point of view has pointed to social capital as the fundamental asset required by SMEs to facilitate such a transfer. Such social capital is largely seen to consist of the personal relationships that SME proprietors and key employees have with other individuals outside of the company. Relationships that are viewed as having high levels of social capital are those embedded with high levels of trust and reciprocity, which emerge from interactions that have a social, cultural, as well as an economic value for those involved.

Social capital is an important means of understanding how SMEs – especially KIBS – access, exchange and acquire knowledge; however, it is limited to only one type of interaction by which SMEs are able to engage in knowledge transfer processes, namely those interactions based on a form of openness and social or cultural glue that binds individuals together. Nevertheless, such interactions would seem to represent only one end of the spectrum. For instance, knowledge can be accessed and exchanged purely through: search techniques, such as internet and patent searches; business-to-business exchanges which do not have any significant trust or expected reciprocity attached to them; specific markets for knowledge acquisition; or as a by-product of other market-based buyer-supplier relationships.

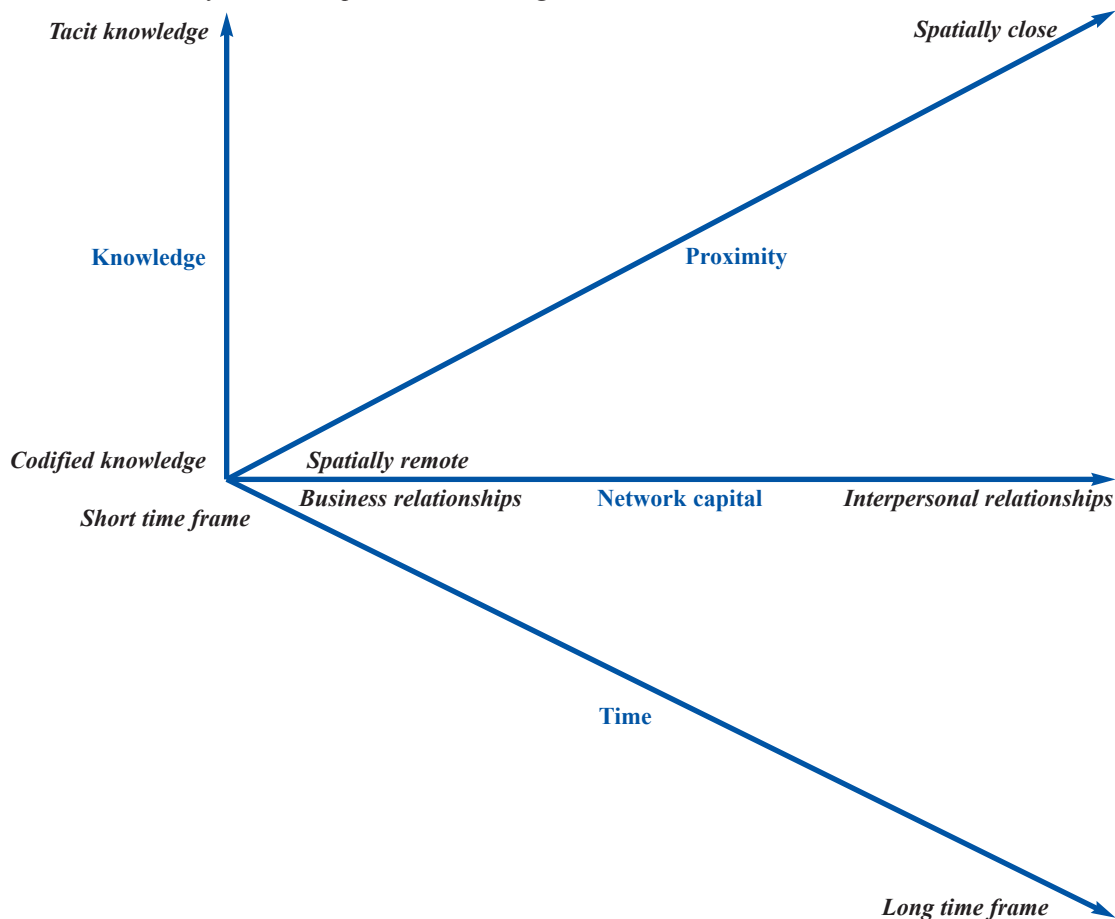
Although social capital can be considered a form of intellectual capital, it does not fulfil the criteria of an intellectual asset, since it is entirely embedded in individuals in the form of social obligations and mutual trust. Indeed, a key weakness of the social capital approach to networked relationships is that social capital building is largely a non-strategic activity, which occurs as a result of the relationships that individuals have and develop through all aspects of their lives. Nevertheless, it does help to explain how highly tacit knowledge embodied in individuals is accessed and transferred. On the other hand, it fails to explain the plethora of networked interactions used to access and transfer less tacit and more codified forms of knowledge.

The network capital concept provides a means of understanding the entire range of networked relationships and assets available to KIBS, and how these relate to accessing particular types of knowledge. In order to identify network capital

that can be considered a form of IA, it is important to understand and measure a range of dimensions of how network capital evolves in relation to the acquisition of different forms of knowledge.

As shown in Figure 17, network capital involving the acquisition of codified knowledge is most likely to be embedded in business-to-business relationships that are not reliant on social obligations or high levels of trust. Furthermore, such interactions do not necessarily need to take place between actors that are in spatial proximity or that involve highly time-consuming periods of interactive exposure in the form of relationship building. It is these types of interactions that constitute network capital, which can be considered a form of IA, in that they are embedded in companies and organisations rather than individuals. At the other end of the scale, those interpersonal relationships that are often conducted in spatial proximity – which have high levels of interactive exposure and involve the transfer of more tacit knowledge, based on long-term and repeated interactions – consist of network capital in the form of social capital. Consequently, they do not, therefore, constitute a form of IA. These modes of interaction will clearly be crucial to the future functioning and operations of KIBS providers, regardless of whether the company is large or small in size.

Figure 17: Dimensions of network capital and knowledge



Source: Robert Huggins Associates, 2005

Scenario 4 – Worldwide narrowing of skills gap

This scenario underlines the increasing focus on, and importance of, education and training in the knowledge economy. It presents a picture where KIBS development and expansion leads to a narrowing skills gap. The scenario commences with an overview of the existing skills and training situation, followed by a rationale for the narrowing of the skills gap. It then discusses the implications of a narrowing skills gap for the future of KIBS, in both developed and developing economies.

Skills and the knowledge economy

The emergence of the knowledge economy has meant that education and training have become of paramount importance throughout the world. Success in the knowledge economy depends on an organisation's ability to gather, assimilate and build knowledge – skills and abilities developed through investment in education, training and the research base. An under-investment in skills will result in a lack of economic growth in the long term. A key challenge of the European competitiveness agenda, which is of particular relevance to KIBS, is to develop and maintain a skilled workforce capable of adding value to an ever-changing portfolio of business, work and occupational requirements. In fact, this challenge has become heightened by patterns of globalisation and mobile capital location. Whereas workers traditionally migrated to find enhanced and sustained work, the work itself is increasingly migrating to find a workforce capable of adding value. In general, such processes will serve to raise the stock and effectiveness of these workforces.

Alongside the economic systems and forces that influence the location and development of workforces, societal and cultural factors also play a role in determining the shape, performance and outlook of workforces across differing landscapes, be they regions or countries. New theories concerning economic growth highlight the importance of human capital and the need for a skilled workforce that is able to adapt and meet new business goals in an evolving economy. The potential skills base of an economy consists of the future human and knowledge capital embodied in individuals in the education and training system. Resources dedicated to education and training represent an investment in knowledge, and sustained economic growth will depend on the quality of school and university graduates and their ability to produce, adapt, commercialise and use knowledge. Much of the investment in education is set by national budgets, particularly in relation to compulsory primary and secondary education, while higher education investment reflects the number and type of institutions within a region.

In recent years, the ongoing development of the skills base has become linked with the concept of lifelong learning opportunities. Lifelong learning efforts have been taken up by policymakers across the globe in an attempt to build a culture of education, extending beyond the traditional bounds of schooling. However, in most instances, this culture is still far from being fixed in place, and an understanding of how to create and participate in an integrated skills economy remains elusive.

Skills investment

The failure to integrate lifelong learning into the corporate strategy of KIBS enterprises is linked to an ongoing inability among managers and employers to see direct and transparent results from investment in skills development within their companies. However, the benefits of skills development training to KIBS employers cannot be ignored, particularly if it is undertaken in tandem with other business competitiveness strategies. Within current KIBS workforces, it is often those employed in SMEs who are the least likely to be afforded opportunities to participate in further education and training (Kitching and Blackburn, 2002). When considering the Lisbon Agenda and the ethos of 'think small first', this represents a worrying situation. Leading analysts argue that the lack of investment in education and training can be attributed to

market failure caused by a range of institutional factors, such as short-term financial markets, adversarial unions, and weak employer organisations. For instance, in the UK, many companies have adopted lower skill strategies than their rivals in other national economies, suppressing the demand for training and confining the economy to a low skill equilibrium with low levels of innovation (Finegold, 1996). The key feature of this low skill equilibrium, or ‘skills trap’, is the lack of a pressing requirement among either employers or employees for a highly effective education and training system. This has further led to growing wage differentials between skilled and unskilled workers.

Skills gaps

The skills gap refers to disparities in the level of existing skills possessed by employees in a company, and the level required to meet its current and future business objectives. Broadly speaking, skills gaps represent the shortfall in employees’ skills, which in turn reduces the performance of the organisation for which they work. In other words, if these skills gaps were addressed, the performance of the organisation would improve. Skills gaps are different from skill shortages. Skill shortages describe a situation where an organisation is unable to recruit an employee for a current vacancy. For example, if a KIBS company had a vacancy for a research analyst but was unable to fill the position, for whatever reason, this would constitute a skills shortage. On the other hand, if a KIBS enterprise employed a research analyst who was unable to effectively fulfil the role due to inadequate skills, it could be said to have a skills gap.

Skills gaps cannot be defined in purely occupational or related terms. They do not describe, for instance, the number of vacancies by occupation. For example, a KIBS company may not report any skill shortages, in the form of hard-to-fill vacancies, but may nevertheless suffer from a skills gap that is damaging to its performance and competitiveness. In general, the presence of skill shortages forces employers to accept staff with sub-optimal skills for the role or occupation they are filling. In turn, this results in KIBS adopting sub-optimal working arrangements, and enduring production cuts, lost orders and dissatisfied customers. Whereas skill shortages are visible to managers and employers in form of hard-to-fill vacancies, skills gaps carry an additional risk – namely, the possibility that the skills deficiency remains unidentified by the employer. Factors such as the management’s perceptions of which skills are available, and the continued adjustment of operational processes to match available skills, often result in skills gaps going unnoticed.

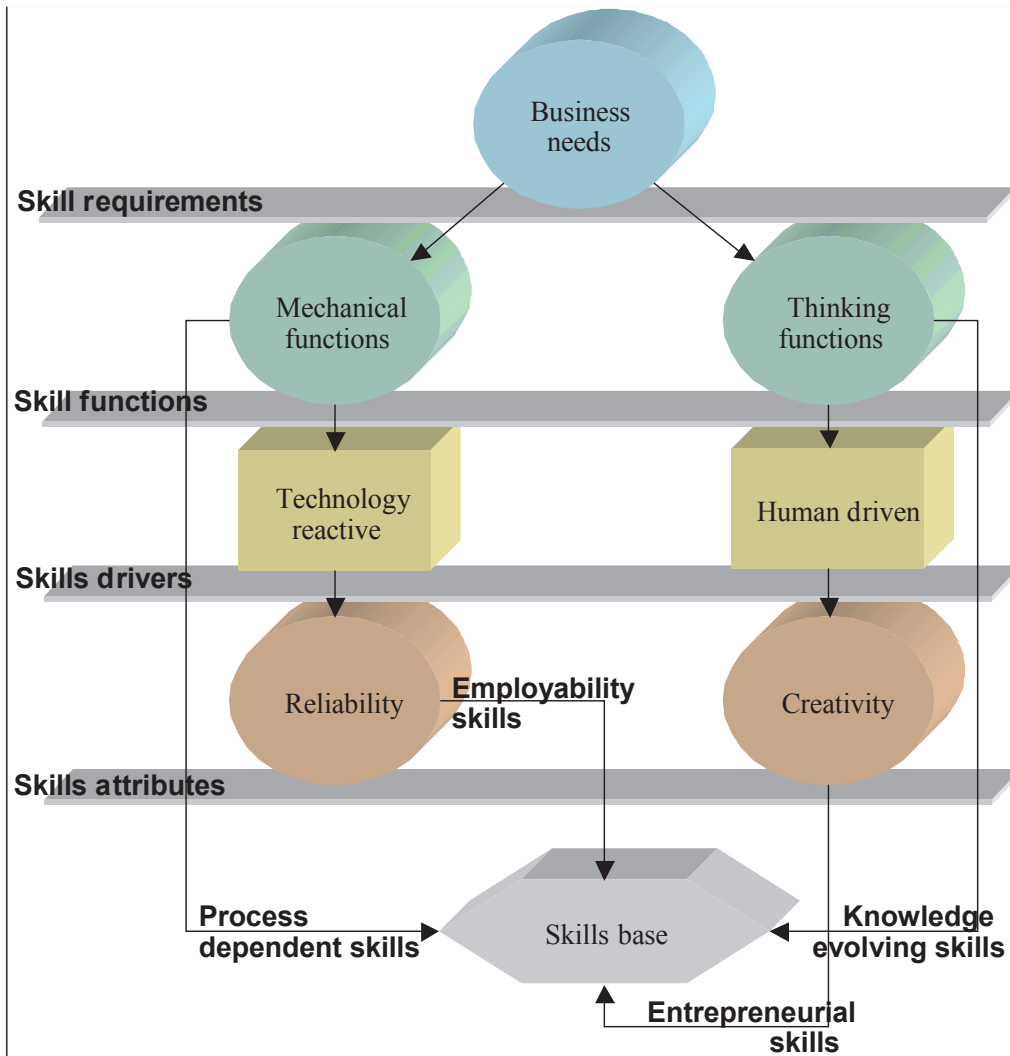
Company strategy

In many ways, the corporate strategies of many KIBS, particularly of small enterprises, do not clearly account for or have an understanding of the skills base of the company. Managers not only establish the overall strategy of a company, but also the context and environment for skills development and the extent of their application. Thus, it is managers who create an appetite for knowledge and who, therefore, play a crucial role in creating either ‘knowledge-rich’ or ‘knowledge-poor’ workplaces. However, given the rapid evolution of the work environment, most managers cannot now be expected to have a full grasp of how to achieve these objectives.

KIBS enterprises must therefore re-conceptualise how their workplace and workforce address the needs and objectives of the company. Once a degree of clarity is achieved in this respect, KIBS enterprises can explore the skill requirements necessary to meet such needs. From a knowledge-based perspective, the crucial factor involved in appropriately assessing these requirements is to distinguish between and develop an understanding of the different types of work within a company. As shown in Figure 18, a distinction can be made between ‘mechanical’ and ‘thinking’ functions as the two key sources of work activities. Mechanical functions relate to activities dependent on process skills and one-off or periodical instances of learning. Typical activities involve those in which the nature of work only changes when there is a change or upgrade in technology. For example, from the perspective of KIBS, mechanical functions consist of jobs with a high intensity of data processing, data entry or data management activities. It is these mechanical functions that

largely constitute the types of activities that KIBS have increasingly tended to offshore or outsource. The effectiveness of mechanical functions is dependent on both the reliability of the technology and its users. Effective users will be those who possess and further develop strong employability skills.

Figure 18: Skills in a KIBS company



Thinking functions are driven by human inquiry, and relate to workers who rely on continuous learning and an assessment of situations in order to undertake their role effectively. These functions are the life-force of knowledge workers, whose individual creativity lies at the heart of their key skills and attributes. From a KIBS perspective, the role of these companies is usually to supply solutions to other organisations, whether they are in the form of new software, advertising, legal or financial solutions. It is primarily those workers who are involved in producing these solutions that can be considered as having thinking functions as their key role within a KIBS enterprise. These workers tend to operate in a dynamic manner, using knowledge-building skills that are continually evolving. It is the workers who undertake ‘thinking’ functions, as opposed to ‘mechanical’ functions, that have the strongest propensity for possessing entrepreneurial skills. In other words, knowledge, creativity and entrepreneurship go hand-in-hand, as the factors on which successful corporate strategies are formulated. Thus, the major gaps in companies within the evolving knowledge economy relate to skills requiring such thinking functions. As changes in these knowledge-based skills continue to

accelerate, the effectiveness of those engaged in ‘thinking occupations’ must be given the opportunity to keep pace with such changes.

KIBS enterprises therefore need to create corporate and competitiveness strategies that identify and remedy gaps in these thinking functions. Ultimately, the enterprises that do not invest sufficiently in such strategies may have little part to play in the knowledge economy of today or of the future. Many KIBS enterprises today are potentially operating using occupations and skills that are going to leave them stranded in the long term. Moreover, it appears that too many individuals are entering the labour market seeking careers that may soon be redundant. In other words, too many resources are potentially being invested into economic activities that are quickly becoming obsolete, as customer expectations become more sophisticated and demanding.

An integral feature of the European competitiveness agenda, particularly with regard to the KIBS sector, is the need to ensure, as much as possible, that the managers of current and future workforces have an understanding of the types of skills they should be demanding, and of how emerging skills gaps can be addressed. At a practical level, the development of new awareness and skill-raising activities, encouraging both businesses and individuals to capitalise on their latent skills’ capacity, are crucial to enhancing the skills economy. In a broad sense, it is vital that these new activities incorporate the integration of a skills agenda within the overall corporate strategy agenda.

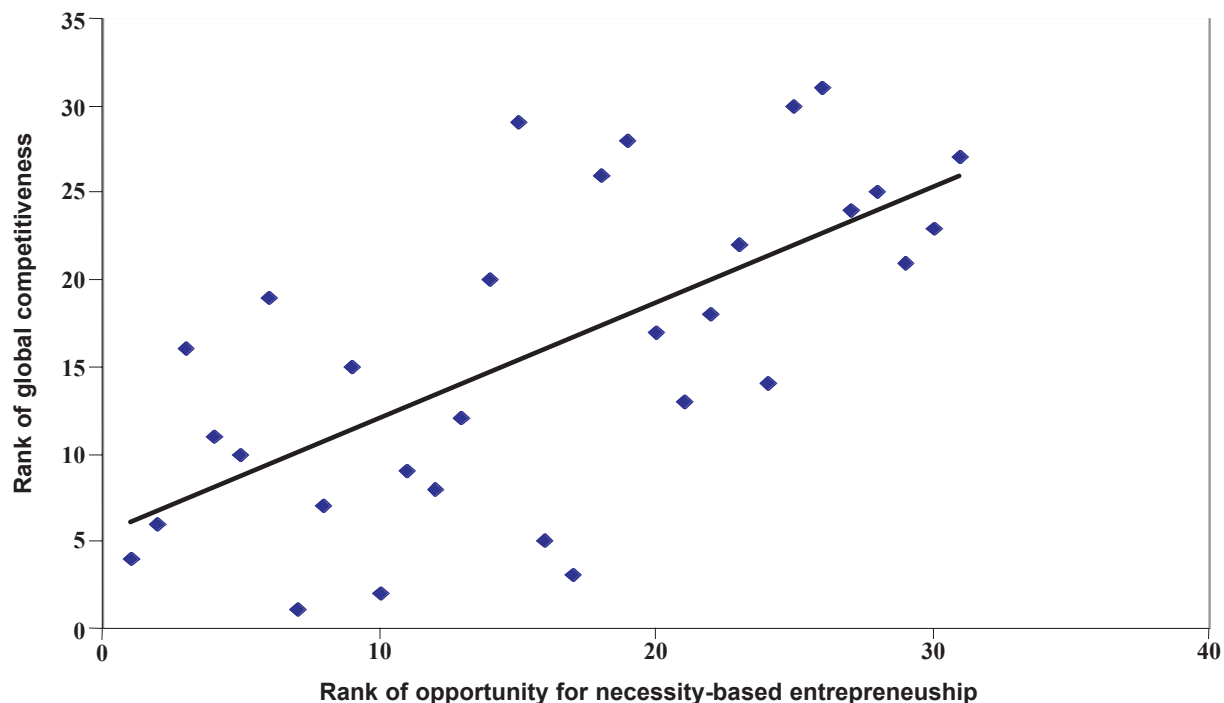
Entrepreneurial skills

If KIBS enterprises are to grow, they will require the skills of entrepreneurs, enabling them to flourish. The role of skills in creating an entrepreneurial culture and in building entrepreneurial capacity and sustainable growth is therefore vital. The most important international study of entrepreneurship is the annual *Global Entrepreneurship Monitor* (GEM) report (Minniti, Bygrave and Autio, 2006). The key objectives of the GEM are to measure differences in the level of entrepreneurial activity between countries, and to uncover factors determining the levels of entrepreneurial activity. The GEM distinguishes between opportunity-based entrepreneurship – where an individual starts a new business due to an idea, innovation or perceived market gap they are aware of or in possession of (i.e. knowledge-driven) – and necessity-based entrepreneurship – where their motivation is due to the lack of better job alternatives.

In this context, true entrepreneurship can be considered as being limited to those individuals motivated by knowledge-driven opportunities rather than necessity-driven factors. The GEM produces a ranking of opportunity-driven entrepreneurship as a proportion of necessity-based entrepreneurship within the countries it benchmarks – namely, those economies where entrepreneurship is mostly driven by opportunity. Figure 19 illustrates the association between this ranking and a composite ranking of the economic competitiveness of these countries.¹⁰ It shows a significant relationship between the competitiveness of a country and the proportion of opportunity-driven entrepreneurship.

¹⁰ The calculations are based on an average of the ranks produced by the Institute for Management Development's *World Competitiveness Scoreboard* and the World Economic Forum's *Global Competitiveness Report*, as a method for producing a composite rank of global national competitiveness. Both produce an annual competitiveness ranking for most nations which is based on a differing set of secondary and empirically derived indicators. For further details, see Huggins and Day, 2005.

Figure 19: Correlation between national opportunity for necessity-based entrepreneurship ranking and national competitiveness ranking



Source: GEM, 2006; Institute for Management Development (IMD), 2004; World Economic Forum (WEF), 2004

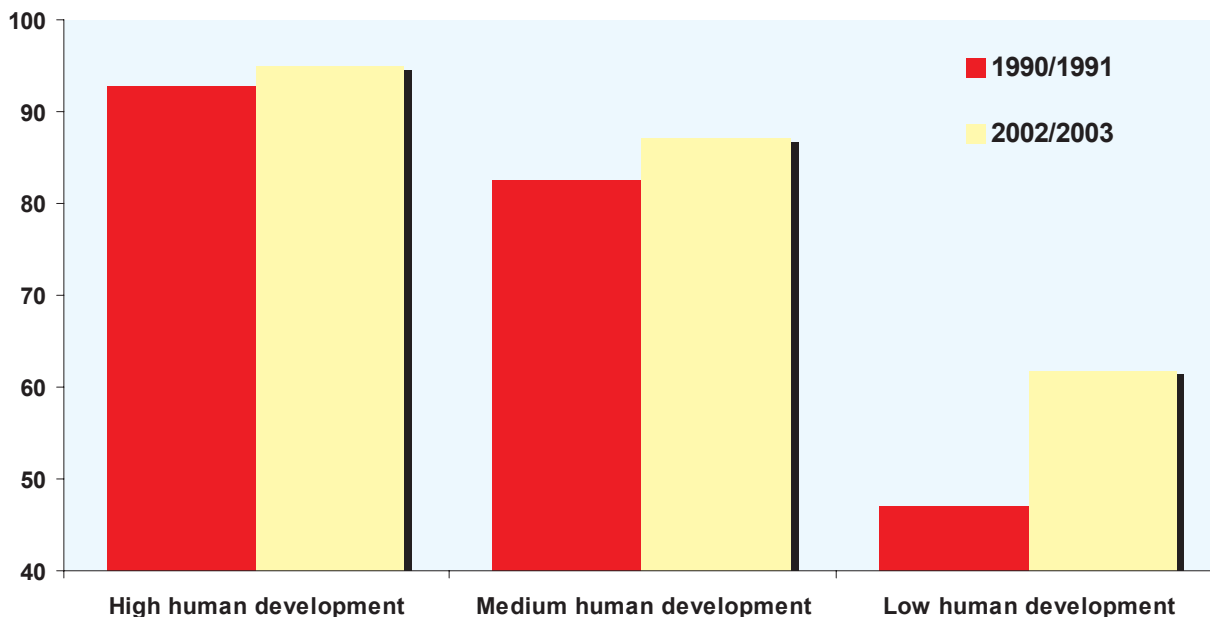
Individuals with the highest propensity and opportunity for establishing a new business are often suitably qualified managers within existing corporations. Whether or not the manager of an existing KIBS will attempt to become an entrepreneur may however be determined by the socioeconomic business culture within which they work. Primarily, it is underlying cultural attitudes towards risk-taking that have the capacity to influence a prospective entrepreneur. Ongoing disparities between the economic competitiveness of Europe compared with North America are at least partly the outcome of the more risk-averse nature of European culture, which may stifle entrepreneurial activity (Mueller and Thomas, 2001; Hayton et al, 2002; Hofstede, 2001). Also, the cultural esteem given to the possession and utilisation of entrepreneurial skills is higher in North America, resulting in a more proactive outlook towards entrepreneurial engagement.

Education in developing countries

KIBS enterprises are logically directly linked with knowledge. Such services will both be demanded and provided by knowledge-rich enterprises and individuals. As countries develop economically, culturally, and in terms of skills and education, they will start to demand and to provide an increasing proportion of KIBS.

Figure 20 shows how developing countries are ‘catching up’ with the developed nations in terms of education. Between 1990/1991 and 2002/2003, the proportion of children of primary school age enrolled in schools increased considerably in the less developed countries from 47% to almost 62%; this represents an increase of over 31% of children enrolled in primary schools in developing countries. In the same period, the increase in the proportion of primary school age children within the ‘high human development’¹¹ and ‘medium human development’ categories rose by just 2% and 5% respectively.

Figure 20: Net primary school enrolment ratios in developing countries



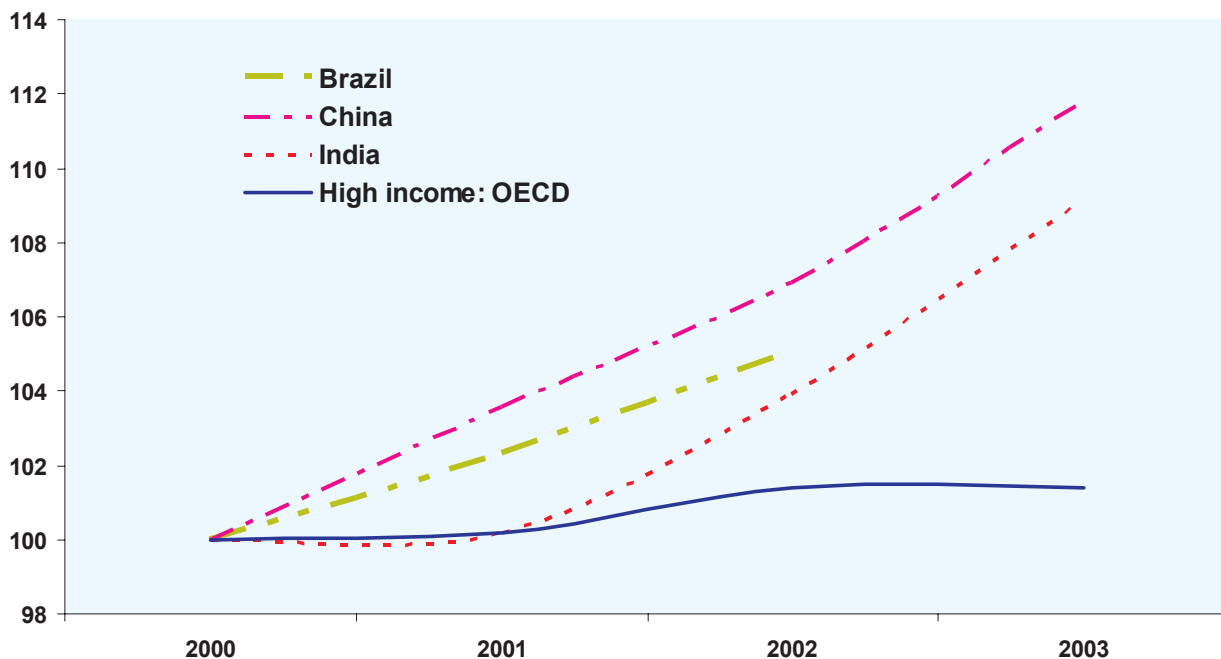
Note: Averages are based on Human Development Group categories.

Source: Human Development Reports (various years)

These changes are likely to have a significant impact on the global development of the KIBS sector. One of the greatest factors that will increase the demand for KIBS is the increase in knowledge and skills in developing nations. In many developing countries, investment in education and skills is growing at a faster rate than in developed nations. As a result, a narrowing of the worldwide skills gap could be expected between developed and developing countries. An increase in skills is also likely to have an effect on communications between countries. Improvements in language skills, in particular, are likely to have an impact on interaction between countries, resulting in a homogenisation of culture and language that can only further increase interaction between international markets.

¹¹ Note: the Human Development Index is a composite index measuring average achievement in three basic dimensions of human development: a long and healthy life, knowledge and a decent standard of living.

Figure 21: Index of density of secondary school participation (2000=100)



Source: World Bank, [Data query](#)¹²

Just how exactly would increasing skills and a narrowing of the worldwide skills gap affect KIBS in both developing and developed countries? A number of issues are likely to arise in this respect:

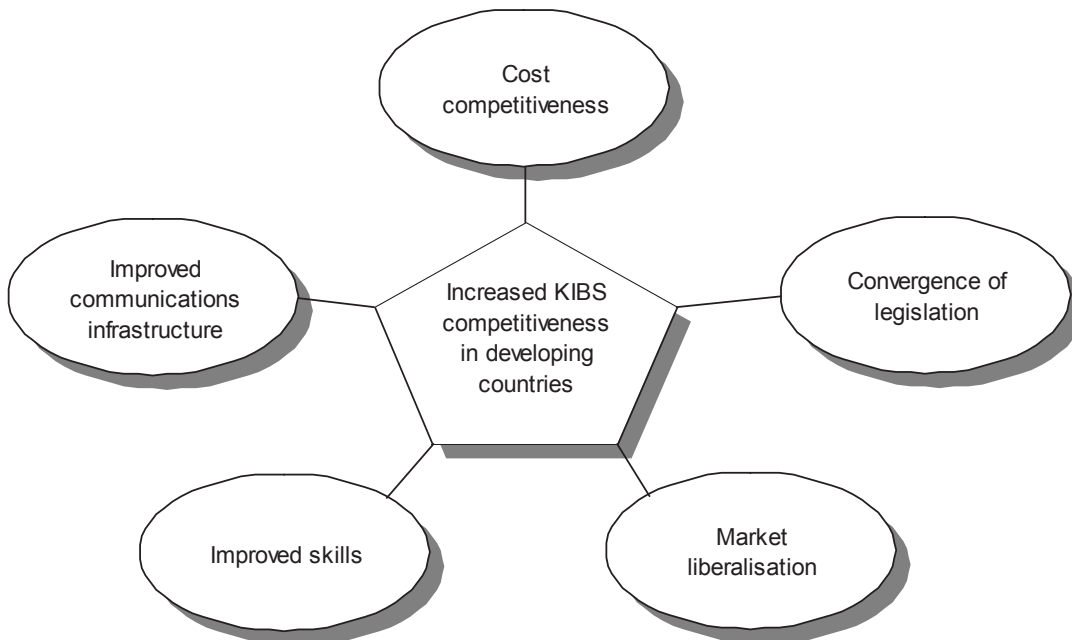
- Increased demand for KIBS can affect employment in both developed and developing countries.
- An increase in the ability to supply KIBS from emerging and developing countries may have a positive impact on the sector's development in developing nations, displacing employment from developed countries.
- Increased demand for KIBS may result in higher prices.
- Increased use of KIBS in developing countries may help to accelerate economic growth.

Key factors for entering international markets

The improvement of skills and a narrowing of the skills gap will not necessarily mean that developing countries will be able to penetrate the KIBS market in developed countries. As well as ensuring that they can compete with the mature KIBS sector of many developed countries, these countries will also have to overcome additional barriers to development. Other important factors in this respect include cost competitiveness, an improved communications infrastructure, the convergence of legislation and market liberalisation (Figure 22).

¹² <http://devdata.worldbank.org/data-query/>

Figure 22: Factors contributing to increased competitiveness of KIBS sector in developing countries



Source: Robert Huggins Associates, 2006

Communications

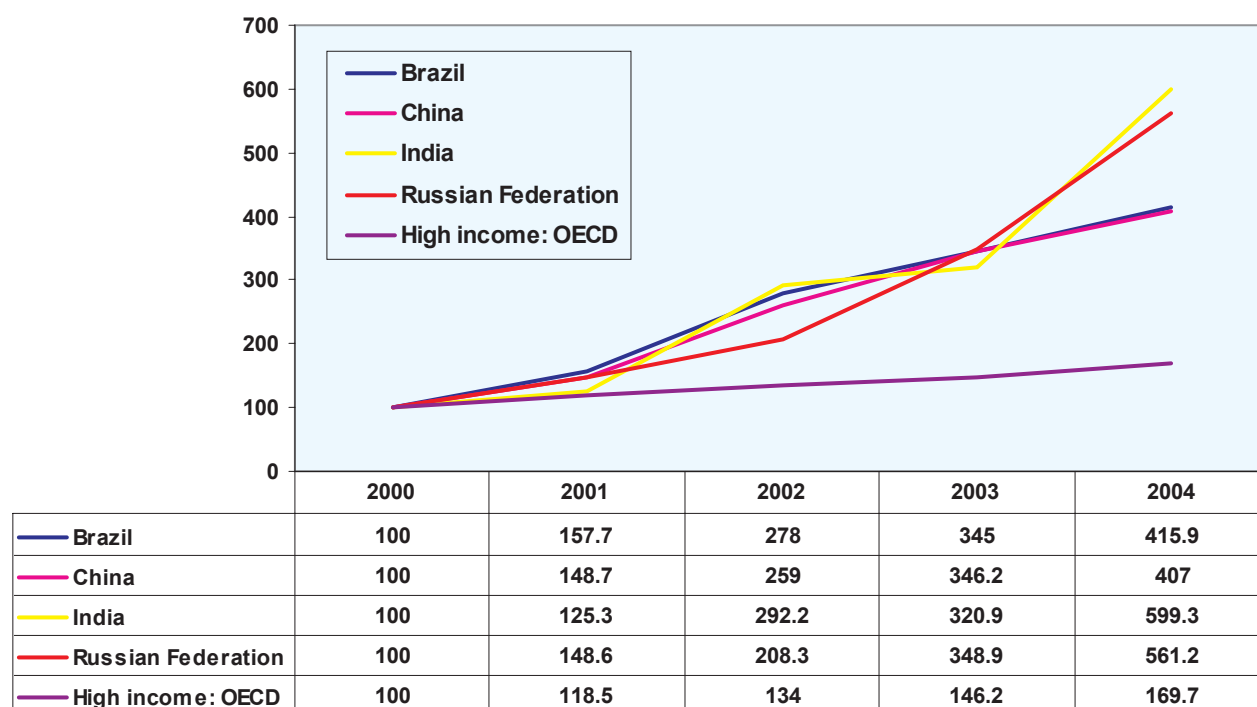
The increased use of the internet is likely to be a significant catalyst for globalisation in the KIBS sector. One of the key features of KIBS is that they rarely depend on physical products. Improvements in communication technologies result in easier global knowledge transfer, whether by telephone, fax, email or the myriad of technological communications systems that have emerged over the past 10 years. In some fields, such as the accounting sector, an online system can be developed in one country for use throughout the world.

Use of advanced ICT and the internet have increased considerably in less developed countries. Figure 23 illustrates the growth in internet usage experienced in the BRIC (Brazil, Russia, India and China) countries, as well as the average for the high income OECD countries. The figure shows how the growth in internet use in the BRIC countries has considerably outstripped that of the high income OECD nations.

While the overall use of internet technologies is still higher in the OECD countries than in the BRIC countries (on average, there are less than 85 internet users per 1,000 people in the BRIC countries, compared with over 300 per 1,000 people in the high-income OECD countries¹³), the narrowing divide in internet technology usage illustrated by the data in Figure 23 seems to suggest that communications is becoming an ever-decreasing obstacle to KIBS growth in developing countries.

¹³ Source: World Bank, 2004

Figure 23: Index of internet usage (2000=100)



Source: World Bank, Data query

Market liberalisation

The KIBS market is a relatively liberal one, and in developed countries many of the KIBS sectors are quite new compared with the more traditional tariff-protected manufacturing industries.

It is also relatively difficult to impose trade barriers on KIBS, as these types of services do not generally entail a concrete physical product; therefore, it is far less easy, in comparison with manufacturing enterprises, to impose trade tariffs on such services. Trade liberalisation of services is also at the top of the agenda for many developed countries, and it is likely that increased rather than less liberalisation will be a priority for many developed nations.

Cost competitiveness

While cost competitiveness in the KIBS sector is aided by the relative absence of transport costs in many circumstances, the main overheads will continue to revolve around labour expenses associated with the production or provision of KIBS. Increasing earnings are likely to erode the cost competitive advantages that many developing countries currently possess – a natural consequence of higher skills, training and qualification levels. Although the KIBS sector in these countries will maintain their cost competitiveness in the short term, it is likely that such advantages will begin to diminish in the long term as their economies and overall labour costs grow.

Table 13: *Growth in earnings of software professionals, UK and India, 2002–2004*

UK software professionals	India – Entry level software developer	India – Project manager
3.9%	47.4%	90.8%

Source: *NASSCOM, 2005; Office for National Statistics, 2005*

Convergence of legislation

The impact of the narrowing skills gap is likely to be compounded by the convergence of international legislation. For example, within the accounting sector, there is a global movement towards a homogenised international financial reporting standard. A key catalyst for this movement has been the International Accounting Standards Board (IASB).

The increased convergence of accounting standards will clearly have an impact on countries' ability to export accounting services. A fully homogenised service would mean that skills taught and learnt in any country could be exported to virtually anywhere in the world. Therefore, the narrowing of the worldwide skills gap may have a greater impact on globalisation than could be anticipated.

Summary

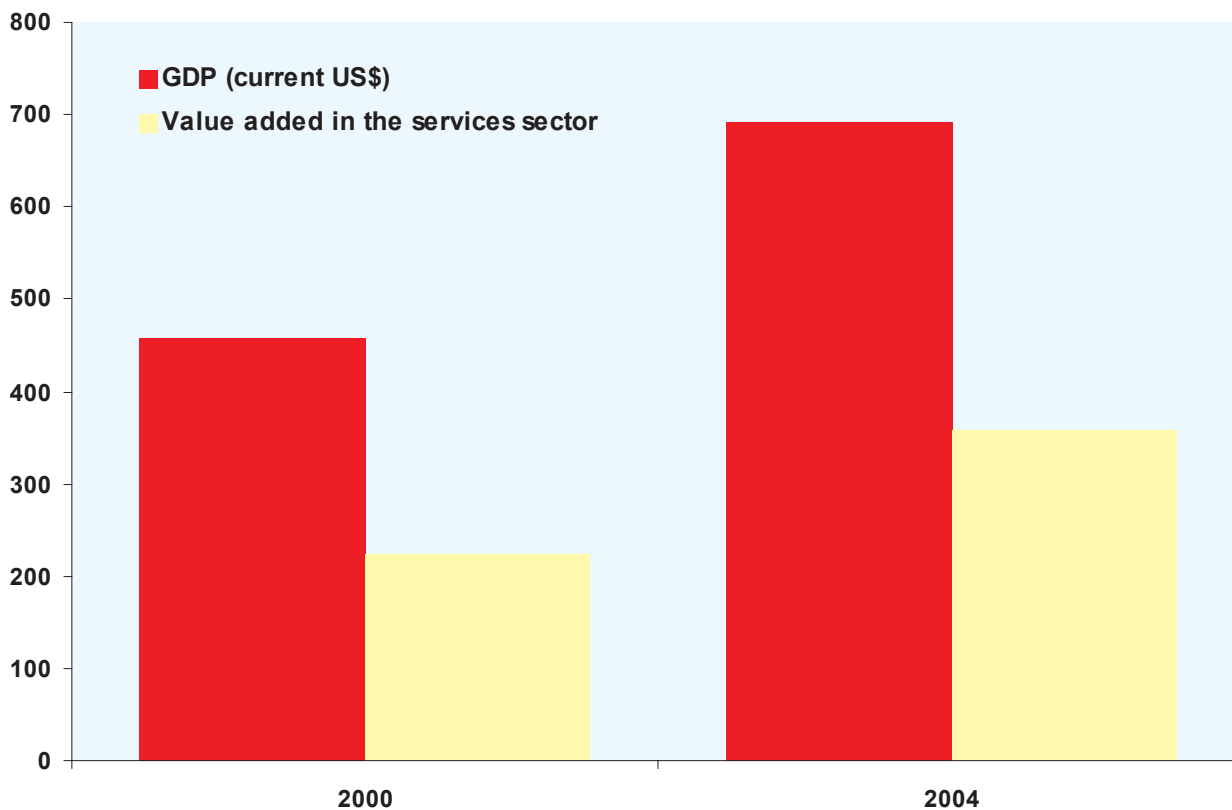
Overall, the affect of increasing skills levels in developing countries on accessing KIBS markets will be accelerated by:

- increasing liberalisation;
- convergence of legislation;
- improved communications infrastructure.

The one factor that is likely to decrease the rate at which developing countries can access KIBS markets globally is falling cost competitiveness. However, it is worth noting that this will still vary between countries.

One possible effect of the narrowing skills gap could be the impact that increasing skill levels in developing countries may have on the demand for services, particularly KIBS. Figure 24 illustrates how India's services sector has grown with the economy. Typically, a country's services sector could be expected to grow faster than its overall economy, as the more developed a country is, the greater the proportion of its economy is likely to be found within the services sector.

Figure 24: Growth in the services sector economy in India



Source: World Bank, April 2006

Growing domestic markets will therefore have an impact on the demand for KIBS. The main requirement will thus be a suitable supply of labour and entrepreneurs to help satisfy this demand. Logically, the knowledge intensity associated with KIBS means that the market can only be fully satisfied domestically by increasing skills levels.

As a result, alongside increasing skills levels in developing countries, an increase in demand for domestic KIBS can also be expected. Factors that may, however, affect this demand could include:

- increased competition from overseas KIBS enterprises;
- difficulties experienced by start-up KIBS in competing with more mature KIBS internationally;
- decreasing relative costs of foreign KIBS.

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