Global Competitiveness and Knowledge Intensive Business Services

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1. Introduction
The world today thrives due to competitiveness. Any nation in any part of the world looks to develop and surge ahead of the rest of the world in all domains. Without a doubt the chief indicator of a country’s development is its economy and it’s standing in the global market. The drive to excel and the urge to develop and dominate in nations across the world has made them take a closer look at the success of the US and how it has built an economy which has made it a world power. This lead to the realization of the “knowledge economy” in the year 1962 by Machlup. Global competition thrives on knowledge, technology and information and these precisely have been the areas of focus in the US economy. In the U.S., the service sector accounted for more than half the gross domestic product in 1929, two-thirds in 1978, and more than three-quarters in 1993.

There was focus on developing manufacturing by using low skilled labor with the knowledge input coming in from external agencies like universities, research organizations etc. the use of services to increase national productivity and simultaneously developing a whole new sector has helped it to move ahead in terms of economic standing in the world. The unprecedented economy of the US has forced nations to sit up and take notice and the European nations have been the foremost in doing so. The restructured British economy had been widely regarded as an example of a “services economy” (Roberts et al, 2000) to be followed by other European nations if they were to survive in the existing global competition.

Traditionally Many economists have given low importance to the role of services in an economy. In the post-war period manufacturing was considered the origin of innovation and economic growth. But in the recent years, the role of services which use knowledge, experience, technology and manpower, is being recognized and economists are laying importance on identifying their areas of operation and spheres of influence with regards to performance, innovation & development, their subsequent role in international competitiveness and globalizing learning economy. These knowledge intensive business services (KIBS), which by themselves maybe considered to constitute a sector, constitutes one of the characteristics of the rise of knowledge based economy (Muller and Zenker,2001) and are considered to be the most dynamic components of services sectors in most industrialized countries(Strambach,2001). KIBS have been successful in driving many an economy forward and their growth especially in computing and IT related sectors has closely been related to its advancement. KIBS are now being seen as the answer to many challenges faced by the economies around the world and intensive research in countries like the UK, Netherland, Finland, Norway, France etc is underway.

2. KIBS

2.1 Literature
KIBS can be described as firms performing, mainly for other firms, services encompassing a high intellectual value added (Muller 2001, p.2). KIBS as services that involve ‘economic activities that are intended to result in creation, accumulation and dissemination of knowledge’ (Miles et al. 1995, p. 18). Based on the discussion in Miles et al (1995), a more comprehensive definition of KIBS was given; private companies or organizations who rely heavily on knowledge i.e. knowledge or expertise related to a specific(technical)discipline or (technical)functional domain to supply intermediate products and services which are knowledge based (den Hertog 2000 p.505).

Statistical classification of Knowledge-Intensive Business Services has been the subject of much discussion, and a fair level of agreement has been reached. (Services studies annex)

KIBS that are liable to be mainly related to new technologies include:

- Computer networks/telematics services (e.g. Internet Service Providers, on-line databases);some Telecommunications (especially new business services);
- Software;
- Other Computer-related services - e.g. Facilities Management, Web support services, disaster recovery and business continuity services;
- Training in new technologies;
- Design involving new technologies;
- Office services involving new office equipment);
- Those Building services that involving new IT equipment such a Building Energy Management Systems;
- Management Consultancy involving new technology;
- Technical engineering;
- Environmental services involving new technology; e.g. remediation; monitoring;
- Scientific/laboratory testing services; R&D Consultancy.

Some KIBS are hard to locate as being either technology-based or more traditional professional services: Architecture combines elements of both, as do some design services.

A list of professional KIBS which are not predominantly technology-based would include:
- Marketing, market research, and advertising;
- Training (other than in new technologies);
- Specialized Personnel Recruitment and headhunting;
- Design (other than that involving new technologies);
- some Financial services (e.g. securities and stock-market-related activities); Office services (other than those involving new office equipment, and excluding “physical” services like cleaning);
- Building services (e.g. architecture; surveying; construction engineering, but excluding services involving new IT equipment such as Building Energy Management Systems);
- Management Consultancy (other than that involving new technology);
- Accounting and bookkeeping;
- Legal services;
- Environmental services (not involving new technology, e.g. environmental law; and not based on old technology e.g. elementary waste disposal services).

The approach outlined above has been widely used in discussions of KIBS, but there are related concepts that have led to slightly different classifications. For example, strategic business services (Murphy and Vickery 1999) which consist of computer, R&D & technical, marketing, business organization, and human resources development services.

Services that do not fall within the scope of KIBS definitions, though they may be knowledge-driven, take various forms. Some are mainly excluded on the grounds of servicing final consumers to a large extent – e.g. Health/medical services; Consumer Financial and Real Estate services; Education services (other than specialized training for industry); Broadcasting and other mass media (with possible exceptions, such as when these media are also used for specialized delivery of business services as in data broadcast or encoded business video transmissions); Public administration (with possible exceptions in industry support schemes); Repair/maintenance (with the exception of activities related to advanced IT). Other services are less obviously knowledge-driven (in the main) as well as being consumer-oriented: Social welfare services; HORECA i.e. Hotels, etc. and Catering; Leisure/tourism; Personal consumer services; Entertainment; Retail and wholesale services (wholesale is business-oriented of course, and includes some knowledge-intensive branches); Post, Transport and Physical Distribution (although some specialized services may be included - e.g. priority delivery services, and transport logistics are highly technology-intensive). (IOIR Report on KIS and Science Base).

KIBS can also be distinguished as P-KIBS and T-KIBS. (Miles et al.1995, p.29-30) P-KIBS are ‘traditional professional services, liable to be intensive users of new technology’ (such as marketing/advertising services, business and management consulting services, legal and accounting services and so on) T-KIBS ‘are related to emerging technologies and technological challenges’ (such as IT related services, engineering services, R&D consulting services and so on).

2.2 What are KIBS?
KIBS are firms having other firms as their clients which rely principally on knowledge and information to provide services. KIBS consist of professionals who use their expertise to cater to the requirements of their clients. What KIBS would do or could be doing is to learn from and exploit the past and explore and innovate for the future. They use their knowledge and the information gathered through their sources in networking to
provide the type of service required by their client. The services provided by KIBS might vary though a large degree based on the requirement of the client. KIBS balance practicality and creativity in producing the “product” required for their clients which is often a difficult task to realize. An important feature that distinguishes them from other manufacturing firms is the type of “product” they supply and the role they play in innovation systems. Manufactured products and processes contain a high degree of codified knowledge; KIBS are considered to contain a high degree of intangible knowledge. (Windrum and Tomlinson, p.5) “Specialized expert knowledge, research and development ability and problem solving know-how are the real products of knowledge intensive services. Given increasing differentiation and accelerating growth of knowledge and information, indirect effects, like early recognition of problems and more rapid adjustment to current economic and structural change, can be expected when firms succeed in utilizing this external knowledge.” (Strambach 1997, p.35).

KIBS are also chief carriers of knowledge in the sense that they use the knowledge and information acquired from various sources and also that from their previous clients. They work with their clients by mutual learning and sharing of expertise and produce “new knowledge”. This new knowledge is what clients seek and it depends on the competence of the client and the knowledge intensive service in question. (Windrum, Flanagan and Tomlinson 1997).

3. Where KIBS come in
Global manufacturing firms have a stable base for raw materials and processes but research and development is an area which needs constant upgrading and a lack in this area might result in the firm losing its competitive edge. In today’s fast advancing age, they realize that the only way they can survive is by aiming for excellence and adapting themselves to fulfill the demands of the economy. Firms are in constant pursuit of entities which would propel them ahead, not only in the domestic markets but also globally. But at the same time they cannot afford to divert themselves from their core competencies. Firms cannot sacrifice one aspect of their existence for another. They know what they want but often do not know how to get what they want. This is where KIBS come in. They gratify to the needs of their clients by using the information obtained by elite techniques and utilizing the strong knowledge base. They allow the firms to concentrate on their core competencies while working towards reform and development on the side.

They constantly monitor and diagnose their client and the markets and look out for possible modules through which they can propel their clients forward. They constantly update the technology and research sections and keep their clients in the race to dominate globally. They are the key to renew the traditional industry. They have firm domestic and global networks through various sections of the society which they have cultivated on past acquaintances, experiences or on professional grounds. These networks are often based on strong mutual trust and survive because of it. These are used by KIBS to keep themselves abreast of the latest developments in the world and get inside information with relative ease which might otherwise be quite laborious. By utilizing this information coupled with their own expertise and the competencies of their client, they provide services to their clients which help them to stand out at the world stage. KIBS are thus the drivers of their client’s performance at the micro level and, through the collective effect, the drivers of the whole economy at the macro level. Criticism

4. Importance of KIBS to the economy of a nation
KIBS firms are spread widely in the structure of an economy at various levels. It is difficult to identify the role played by each and every one of them, how they operate and in what ways they contribute to the economy at both micro and macro levels. But most of them have a similar overall effect on the economy. Their operations often lead to similar implications on their importance to an economy.

Chiefly, the contribution of KIBS to an economy can be three fold, as reported by a broad body of CRIC work

4.1 KIBS and employment
Employment has been a major contribution of KIBS especially in the technology related areas. KIBS, being the users and creators of knowledge, employ a large number of highly skilled professionals who are experts in their respective areas. This is observed in the number of graduates employed by the KIBS firms.
## Table 1. Employment of graduates in services

<table>
<thead>
<tr>
<th>Sector Description</th>
<th>S&amp;E Graduates</th>
<th>Other Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>6822</td>
<td>68%</td>
</tr>
<tr>
<td>Technical Services</td>
<td>277</td>
<td>74%</td>
</tr>
<tr>
<td>Tech Services 1 – Architectural &amp; Engineering (SIC92 74.2)</td>
<td>194</td>
<td>68%</td>
</tr>
<tr>
<td>Tech Services 2 – R&amp;D and Technical Testing (in electronic media reproduction)</td>
<td>83</td>
<td>87%</td>
</tr>
<tr>
<td>InfoTech Services</td>
<td>202</td>
<td>78%</td>
</tr>
<tr>
<td>InfoTech 1 – Computer Services (ex. Maintenance &amp; Repair)</td>
<td>146</td>
<td>82%</td>
</tr>
<tr>
<td>InfoTech 2 – Telecoms and other IT services</td>
<td>56</td>
<td>68%</td>
</tr>
<tr>
<td>Financial Services</td>
<td>503</td>
<td>31%</td>
</tr>
<tr>
<td>Business Services (inc. Publishing, Property Dev.)</td>
<td>738</td>
<td>25%</td>
</tr>
<tr>
<td>Prof Services 1 – Qualification – Legal / Accounting</td>
<td>385</td>
<td>14%</td>
</tr>
<tr>
<td>Prof Services 2 – Informational – Publish, Trav/Est</td>
<td>180</td>
<td>33%</td>
</tr>
<tr>
<td>Mkt Res</td>
<td>173</td>
<td>41%</td>
</tr>
<tr>
<td>Transport &amp; Storage (not travel or tour agents)</td>
<td>472</td>
<td>23%</td>
</tr>
<tr>
<td>Transport 1 – Passenger</td>
<td>108</td>
<td>29%</td>
</tr>
<tr>
<td>Transport 2 – Freight (inc. Storage)</td>
<td>281</td>
<td>20%</td>
</tr>
<tr>
<td>Transport 3 – Other</td>
<td>83</td>
<td>24%</td>
</tr>
<tr>
<td>Wholesale</td>
<td>905</td>
<td>35%</td>
</tr>
<tr>
<td>Total (all sectors)</td>
<td>6822</td>
<td>45%</td>
</tr>
</tbody>
</table>

It has been observed that these employees in KIBS need to constantly upgrade their own knowledge if they are to remain and contribute to their sector. Therefore, they are involved in lifelong study and accumulation of knowledge and its usage. And knowledge is useful only when it is dynamic and is used for improvement. Thus,
5 employees in KIBS, through their respective firms give back something to the knowledge industry which has fostered their growth.

Employees of KIBS often need to perform a wide range of activities other than the ones in which they are principally strong. They might be called upon from time to time to perform tasks which require additional knowledge. As a result the employees develop a sound knowledge of other basic skills. For example, computing and basic software skills have become commonplace among the employees who are expected to possess such skills at least at the basic level. Therefore the employees, if not formerly familiar with them, tend to learn them before they are found wanting.

In the period between 1970-1990, the contribution of manufacturing to the national value added has fallen. This period has also seen the migration of employees from manufacturing to KIBS. Prospective employees have chosen to strengthen their knowledge skills base and move to the more promising services sector than remain in manufacturing. But slowly the number of migrants has become down. This is because the low skilled labors have found it difficult to acquire new skills to compete with others for a place in the KIBS firms. They had thus settled down in the more familiar manufacturing environment.

Direct social relationships with staff, partners, suppliers and clients are very important in protecting knowledge in KIBS. There is always a threat of losing employees due to loss of job satisfaction, unfavorable job environment; break of relationship with colleagues etc. An employee leaving the KIBS firm tends to take away the knowledge with him which is a great loss for the firm. It if often difficult to replace employees having a suitable knowledge base to fill the dearth caused due to the loss of the previous employee and thus protection of employees is very important in the KIBS firm.

KIBS is the sector which requires the maximum number of employees to perform the wide range of activities at many positions in many firms and consequently they employ in huge numbers. The employment in OECD nations has improved from about 55% in 1980 to 65% in 1990. The overall level is up from about 55% in 1980. The share is expected to continue to rise over time as fast-growing knowledge-based services expand. Moreover, during 1980-97, more jobs were created in services in OECD countries than were created overall (meaning that growth in service-related jobs more than compensated for job losses in other sectors). While the largest proportion of persons engaged in service activities in 1997 were employed in community, social and personal services (45%), implicit growth between 1980 and 1997 was strongest in the finance, insurance, real estate and business service sector (4% per year), which increased its overall share by 4 percentage points, to about 15%. Growth in community, social and personal services was also relatively strong (2.4%), followed by distribution (1.9%) and transport and communication (1.3%).

4.2 KIBS as intangible investments - and investors
Firms realize that if they are to deal with the domestic and international competition, they have to invest in a wide range of so called intangible assets. They realize that these are the assets which eventually make the difference between success and failure in the business as they propel the firm towards excellence and quality in the technological age.

KIBS are relevant as heavy consumers of and investors in a range of intangible assets. The intangible assets of a client can be the workforce skills, intellectual property, software and information systems and also KIBS themselves. These intangible investments form the backbone of a firm’s working. They are the most dynamic regions of in the firm and thus form the influencing inputs in the decision making and forward planning process of a firm. Their importance to firms has a direct implication on KIBS, which also highly rely on these intangible assets.

One region where KIBS find a prominent role is in vocational training of the employees of the firm. To possess well trained skilled professionals within the firm will help it to become self sufficient in attending to many of its needs. In order to provide these services KIBS themselves need highly skilled professionals and therefore employ a large number of professionals, graduates, and scientists etc to strengthen their knowledge base. KIBS invest a lot in attaining the intangible assets from the society and through their networks as they are crucial to their functioning. KIBS have to develop and maintain these intangible assets within them for their own survival as these are the aspects on which KIBS are built KIBS involve with big clients have been found to use extensive software professionals and computing services. These help the firm to perform more effectively and reduce lead times in their work.
Thus KIBS push the economy to procure such assets which will help the services sector and also the firms which employ these services. In this way the economy builds on a strong foundation of important contributors to its growth which might be intangible but highly effective.

4.3 KIBS and innovation
The role of KIBS in innovation in services has been a subject of continuing interest. A wide range of research in this field has been done and numerous projects are ongoing. KIBS are central players in innovation. They are often sources of innovation (e.g. R&D and design services), agents of transfer of knowledge for innovators (consultancies, training, etc), and coordinators and integrators of different types of expertise (engineering services). KIBS are basically innovation driven. They acquire, produce and develop knowledge to innovate for their clients.

The SI4S project summarized three functions that KIBS play in innovation systems (Hauknes 1998, p.54)

i) The facilitator of innovation when a KIBS firm supports a client firm in its innovation process, but the innovation at hand does not originate from this KIBS firm;

ii) The carrier of innovation when a KIBS firm plays a role in transferring existing innovations from one firm or industry to the client firm or industry. However, the innovation at hand does not originate from this particular KIBS firm;

iii) The source of innovation when a KIBS plays a major role in initiating and developing innovations in the client firm.

The first function can greatly be related to co-production where a KIBS firm works with its client in innovating. Here, as discussed earlier, the success of co-production depends on two competencies; of the KIBS firm and of the client. The joint venture will not only help in innovating for the client but will also help the KIBS firm to add to its assets. In the second function, KIBS use their networks to great effect. They use the existing innovations in other firms and transfer them to their clients, in this way KIBS act as the nodes and brokers in innovation networks. The third function of KIBS is that of a source of innovation, where it uses its own knowledge and expertise to innovate according to the specification of the client where initiation and development of innovations take place at the KIBS firm.

The role of KIBS in innovation is mainly on two fronts. The first being technology an product based and the second being organization and management based. In technology and product based innovation, the KIBS firm might adopt anyone of the three functions to serve its client. But often, if the client is to compete at the global level, it cannot be satisfied with existing technologies and products. Therefore they look to KIBS to help them in innovation for the future. Client firms which have a sound technical know-how would prefer the process of co-production as this will also help in the internal development of the firm. Co-production is also a more feasible and desired mode of innovation where firms do not want to depend completely on external agencies. On the other hand, some firms without a sound technical knowledge in the desired area of innovation, will not venture into co-production but will instead choose to invest more in KIBS and allow them to function as sources of innovation while concentration on their core competencies.

On the organization and management front, KIBS are used for sustained diagnoses of the client firm and its activities to suggest and implement a better structure so as to improve the efficiency of the firm at personal management and business perspective. Innovation could be complex to study and perhaps can be viewed at various levels. (J.Kuusisto, 2004)
Figure 1. Possible levels of service innovation

Source: Knowledge Intensive Services (KISA) and Innovation, research council Oslo, J.Kuusisto, 2004

The concept of service at strategy level, operational level and personal level is used by the client firms to strengthen their business organization and management base. The varied skills of KIBS and their accumulated knowledge of the management techniques and skills are put to use to devise the optimum techniques to tackle aspects such as business objectives, revenue logic (financial services), marketing, customer interaction, personal skills etc. These aspects are crucial for sustaining the existence and growth of the client.
### Table 2. Sources of information/knowledge used for technological innovation

<table>
<thead>
<tr>
<th>Source of Information/Knowledge</th>
<th>Services (I) %</th>
<th>Manufacturers (I) %</th>
<th>Services (II) %</th>
<th>Manufacturers (II) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Enterprise</td>
<td>81</td>
<td>85</td>
<td>33</td>
<td>38</td>
</tr>
<tr>
<td>Suppliers</td>
<td>77</td>
<td>83</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>Customers</td>
<td>73</td>
<td>80</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Technical Press, etc.</td>
<td>65</td>
<td>63</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Competitors</td>
<td>62</td>
<td>66</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Conferences, Meetings</td>
<td>62</td>
<td>52</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Fairs &amp; Exhibitions</td>
<td>58</td>
<td>72</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Trade Associations</td>
<td>58</td>
<td>58</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Consultants</td>
<td>56</td>
<td>48</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Technical Standards</td>
<td>56</td>
<td>71</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>H&amp;S Standards, etc</td>
<td>56</td>
<td>76</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Environmental Standards</td>
<td>52</td>
<td>73</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Within Group</td>
<td>48</td>
<td>51</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Government Offices</td>
<td>27</td>
<td>30</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Universities</td>
<td>24</td>
<td>36</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Private R&amp;D Enterprises</td>
<td>21</td>
<td>36</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Govt Research Organizations</td>
<td>19</td>
<td>23</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Private Research Institutes</td>
<td>18</td>
<td>24</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Public Science Base</td>
<td>29</td>
<td>39</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Private Sources of Expertise</td>
<td>61</td>
<td>56</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Standards &amp; Regulations</td>
<td>66</td>
<td>81</td>
<td>17</td>
<td>22</td>
</tr>
</tbody>
</table>

The first pair of columns shows how often the various sources of information were used by service and manufacturing enterprises respectively. The second pair of columns shows how often these sources of information were regarded as of ‘high importance’ to innovation activities.

### Table 3. Participation in co-operative arrangements for innovation

<table>
<thead>
<tr>
<th>Co-operative Arrangement</th>
<th>Services in %</th>
<th>Manufacturers in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Partner Type</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Suppliers</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Other Enterprises in Group</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Customers</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Consultants</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Universities</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Competitors</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Private R&amp;D Enterprises</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Private Research Institutes</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Government Research Organization</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Public Science Base</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Private Sources of Expertise</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>
5. The German stand
Germany is a world leader when it comes to technology. It challenges the US in various sections of the technology sector. In fact its competencies in many aspects of manufacturing and technology are better than those of any other nation in the world. Germany has followed the high skills, high quality, batch production and high wages approach in its industrialized system. Most of the services produced and utilized were an internal activity performed by highly skilled staff and operatives as an integral part of their functions. This is contrary to the low skilled and low paid ‘personal services’ followed by the US where low skilled external help was employed at low wages to provide services.

But now many economists suggest that Germany follow the road taken by the US to counter the threat of unemployment especially after the unification of Germany. Germany has traditionally been regarded as a “services laggard”. This is highly debatable and a few researchers have done it. (E.g. Windrum and Tomlinson). A close look at the statistics shows that Germany has always had an active services sector. In the period between 1979-1994, the contribution of KIBS firms to national value added rose from 24% to 36% (a rise of 12%) in Germany which is comparable to that in the UK where it rose from 22.1% to 34.7% (a rise of 12.6%) (Eurostat 1996). And in the period of 1980-1994, the representation of knowledge intensive services was higher in Germany than in the UK which is regarded as an example of “services economy” to be followed. This shows the need for extensive research into Germany’s economy and the type of services and their role in the German economy. It is still a world power where technology is concerned. But how strong is its economy in the global arena? And is it prepared for the future? Germany is embarking on a rage of reforms in recent times from education to employment and the observation of the German economy might lead to vital observations.

6. KIBS in the future

6.1. Globalization and KIBS
Globalization pressurizes the firms to innovate to keep up with the competition. With more and more firms becoming international in operations, the need to compete and innovate at the international level is also being realized. International operations have direct implications on the quality and quantity of work which requires to be done without any room for complacency. This globalization helps in the consequent developments of the KIBS sector. KIBS themselves need to global in working and should exist at the international level. Their networks and operations can no longer be confined to domestic or regional levels.

KIBS will now have to function with international networking with the advent of globalization, many of the transactions which were performed with the physical presence of personnel will now have to be done with the use of communication systems. This increases the need for more reliable and sophisticated communication systems. Global networking will also ensure that KIBS perform and innovate in ways which are different from those already existing.

KIBS will also have to realize that working at the global level means catering to the needs of international clients who come from different cultures and different work ethics. The knowledge levels vary from client to client in depth and also in diversity. It is of prime importance for KIBS to keep them abreast of the latest and keep in mind the traditional knowledge which they inherently possess. The balancing of these functions is very important for the functioning of a KIBS firm. They must also familiarize themselves with the legal and ethical aspects involves in doing business with their clients. A study of these aspects of a client is crucial before accepting any assignments.

With all this and more, KIBS no doubt will develop and rise to the challenges of the international stage. The development of KIBS internationally will result in the central growth of the sector like that in Netherlands (Kox 2003) and will thus, lead to the development of the economy as a whole.

6.2. growth of KIBS
As the markets develop and expand globally, firms will continue to require expertise to focus in key areas both within and outside the firm. At the domestic level firms often tend to use what is already available elsewhere in the world. This might help the firm to grow domestically but when the firm comes to the international arena often there is a need for innovation without replication. Thus there will be a growing need for expertise from the KIBS in the future.

Also client firms will realize the need to improve themselves from within, thus there will be focus on training their workforce and building them up to international standards. In this age of advancement, the workforce will
need to be constantly trained with emphasis on the products of change. KIBS will provide the required inputs and help in tuning the workforce. This is one of the areas where KIBS could expect a demand from.

The growth of KIBS is practically ensured on the pure basis of the kind of operations they are involved. With division of labor being such a key issue in the development of a firm, majority of which focus on the global markets, KIBS will definitely experience a growth at not only the domestic level but also at the international level.

6.3 steps for rise and development of KIBS
KIBS in the present are definitely helping the economies to move forward. They have contributed greatly to the economy and will continue to do so. But certain changes could be brought about to improve the present situation to a higher level by nourishing KIBS and supporting their growth. For example, we could have a service provision which not only more advanced but also more flexible. The awareness of KIBS as contributors to the economy could be increased among practitioners. The economists might also perhaps explain their importance to the government and help in bringing about political reforms which would encourage the KIBS sector. KIBS could be involved in innovation activities domestically and internationally. This way KIBS themselves would contribute by developing and working on various research projects.

The basic requirements for KIBS are the strong knowledge and skill base. Thus the required implementations should be made at in the education and training levels. Another key area to be focused upon while discussing the future of KIBS is the regional imbalance they are accused of causing. As KIBS tend to work predominantly in the metropolitan areas, these areas tend to develop much faster than the peripheral regions. This results in regional imbalance which should be attended to. Importing of services to these regions and encouraging services to set up base at these regions could be a step in the right direction. Also services can be provided fringe benefits for operating in these areas.

7. Conclusion
Knowledge Intensive Business Services—their presence, role and future in an economy have been discussed here with a generalized global perspective. Through this paper the need for these services has been seen and identified at various levels in the economy. KIBS are an integral part of the economy and thus are vital to its functioning and development. The nature of work of KIBS is such that it exercises strong spheres of influence with regards to performance and development of their clients. They provide their clients with the vital inputs of technical know-how and information which propel them forward in the global competition. KIBS also act in the management and organizational sectors to enhance the efficiency of working of their clients. Through their networks they learn and use the latest information available on the international scene and hence help their clients to compete globally. The aspect of co-production plays a vital role in the innovation and advancement areas of both the client firm as well as the KIBS firm. In this paper, the networking in KIBS has been discussed in different sections and its importance in the functioning of KIBS has been identified as pivotal.

A brief look at the role played by KIBS in the employment sector shows the contribution they make to the economy by not only dealing with the problem of unemployment but also with that of underemployment. By increasing the knowledge and skills of the people in the society, KIBS help in building a better more advanced economy. Their role as investors and consumers of intangible assets cannot be undermined in the economy. Focus has been laid on the innovative function of KIBS and how it drives an economy with this characteristic. These aspects of KIBS lead to the acceptance that KIBS definitely deserve a place in the highest stratum of the economy.

Germany has been given a special mention in this paper because of its decision to choose a different industrial approach compared to other EU countries. The approach of Germany to the economy might have been different but services have not been ignored in the German economy. The decision of Germany might have helped it to rise technologically but its economy is a question which still remains to be answered.

KIBS have developed rapidly over the past few decades and will continue to do so as they are the catalysts for innovation and development on which the economies of the future are going to be driven. They will continue to dominate as contributors to the economy and thus their growth should be encouraged and various steps need to taken to ensure their growth not only at the domestic level but also at the global level.
Through this paper a brief overview was given about the development of KIBS in the modern economy and the contribution made by this sector to the economy and the future for the KIBS sector with the chief purpose of showcasing their importance and influence on global competitiveness by using a generalized approach.
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