

**Services and Global Competitiveness:
Growth Opportunities for Developed Economies**

**IBM Governmental Programs
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Services and Global Competitiveness – Executive Summary

The service sector includes a wide range of economic activities – from transportation to management consulting – that are essential for the efficient operation of an economy and a source of competitive advantage. Services constitute the vast majority of the global economy, covering two-thirds of world gross domestic product (GDP). In developed countries, services' share of the economy grew from 56% of GDP in 1971 to 72% in 2003, and services have been the source of most job growth over the last decade. Increasingly, services form intermediate inputs to the production process for goods and other services. For example, services now account for 25% of the value added in manufacturing.

In today's economy, a firm's productivity and competitiveness rely not only on its employees and capital equipment, but also on the services that it purchases. While a strong service sector is important, a country does not have to produce domestically all of the services that it needs. Global competition ensures lower prices, faster innovation and greater choice in services. Governments can enhance competitiveness of their economies both by supporting development of a competitive domestic service industry and by ensuring access to services in the global market.

Despite the service sector's large share of the economy, services account for only 20% of global exports. Many services, such as dental care and automobile maintenance, are generally considered nontradable, but information and communication technology (ICT) is enabling increased trade in knowledge-based services and creating tremendous export opportunities. Countries that invest in skilled human resources and develop strong service sectors can benefit by supplying services to meet growing worldwide demand, in addition to serving domestic customers. Opportunities exist for both developed and developing countries, but developed countries should be especially well positioned, given their advanced service sectors.

Innovation in services is a critical factor in increasing competitiveness and creating jobs. Government innovation policies and R&D budgets have historically focused on hard sciences and manufacturing, despite the fact that services are the source of most jobs and economic activity. To maximize economic competitiveness, governments should consider the production and use of services when devising plans to foster innovation and promote economic growth. Governments should create "innovation ecosystems" to promote innovation in services by pursuing an integrated, coherent approach across a number of policy areas, including the following:

- Develop skilled human resources, promoting Problem-Based Learning, technical skills and life-long learning to create a workforce of innovators who are able to adapt to change;
- Open markets to trade and investment in services, taking advantage of the WTO Doha Round, once negotiations are restarted, to eliminate barriers to trade in services;
- Create innovation policies for services, promoting multidisciplinary research and implementing balanced intellectual property policies to create incentives for innovation while enabling collaboration;
- Promote entrepreneurship and facilitate business creation, developing regional innovation "hot spots" and encouraging participation of small and medium businesses;
- Adopt flexible labor laws so companies can be responsive to changes in the marketplace;
- Create a tax environment that supports development of the service sector;
- Enable competition in the deployment of ICT infrastructure and services; and
- Create new metrics to provide insight into the contribution of services to the economy.

Services in the Global Economy

When we think of services – if we even think about them at all – we may not appreciate the breadth of economic activity that they encompass: the engineer's network design, the barber's haircut, the doctor's diagnosis, the waitress's service, the architect's building plans, the carpenter's craftsmanship and the consultant's business strategy. However, the contribution to the world economy of these and many other services is large and growing.

Services are essential for the efficient operation of an economy, facilitating commercial transactions and enabling the production and delivery of goods and other services. In developed countries, the service sector employs far more people and creates many more new jobs than the manufacturing sector. Services are a crucial component of innovation and production in a host of manufacturing industries and agriculture. They can build infrastructure, hone competitiveness, ignite technological development, increase productivity and expand trade capacity. Research has shown that ***economies with more efficient service sectors enjoy higher productivity and growth.***¹

A country with an open, dynamic and efficient service sector enjoys a competitive advantage in the production of both goods and services. As a critical component of the economy, ***it is therefore essential that government leaders focus on the service sector when devising plans to foster innovation, promote economic growth and create jobs.***

What is a Service?

The term "*services*" covers a broad range of activities that is difficult to encapsulate in a single definition.² Services are activities that produce value by providing solutions to customers' problems. The service sector includes everything from transportation, to legal advice, to custom software development and management consulting. In some cases, it is not easy to separate services from the goods with which they are associated, such as an extended warranty purchased with a consumer electronic device or the rental of an automobile. Services can also be embedded in a manufacturing process, as manufacturers procure inputs, such as inventory management and logistics services, from service providers, rather than perform these functions themselves.

The Growth of Services

For decades, the service sector's share of the global economy has grown steadily. Now the service sector accounts for over two-thirds of world gross domestic product (GDP) and has nearly equaled, and should soon surpass, agriculture as the largest source of jobs on the planet.

There are a number of explanations for this growth. One reason is that as incomes rise, consumer demand for services increases even faster than income. This is evident in services related to health care, leisure, education and travel, all of which can improve quality of life and are consumed in increasing levels as discretionary income rises.

Another explanation for service sector growth is the increasing role of services as intermediate inputs to the production process in manufacturing, agriculture and other services. Simply stated,

¹ Catherine Mann, *The U.S. Current Account, New Economy Services, and Implications for Productivity*, p. 2.

² United Nations Conference on Trade and Development, *UNCTAD Manual of Statistics 2005*, p. 208.

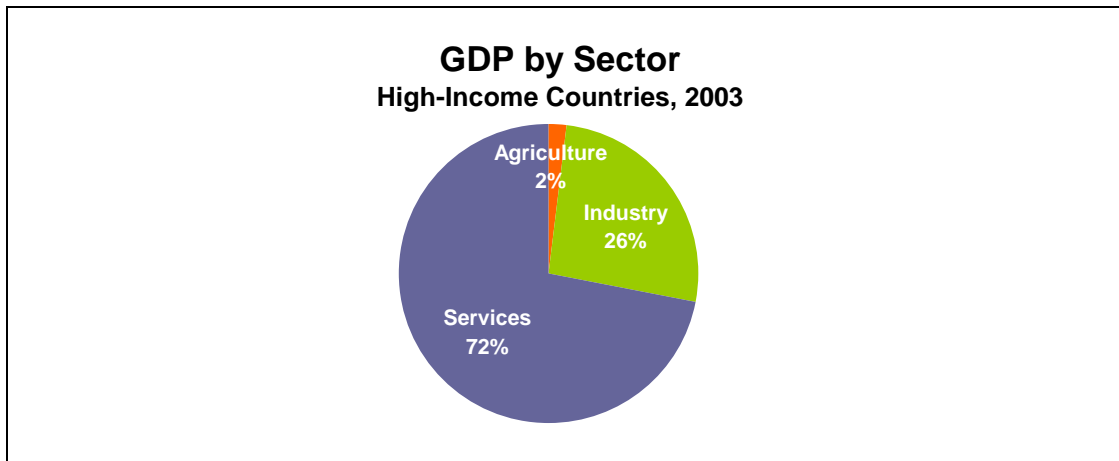
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manufacturers, farmers and service providers are purchasing more services as part of the production process, rather than performing the entire production process themselves, enabling them to increase productivity and competitiveness.

In addition, the increasing availability of many services through international trade, facilitated by ICT, boosts competition and choice. This, in turn, leads to lower prices, which further increases demand. The sectors accounting for the greatest share of trade in services include transportation, travel, and some business sectors, such as banking, insurance, computer and related services, and professional services.

To illustrate the large and growing impact of services on the economy, it is helpful to consider some common metrics of economic activity. The following sections look at the service sector's share of GDP, employment, exports and foreign direct investment (FDI).

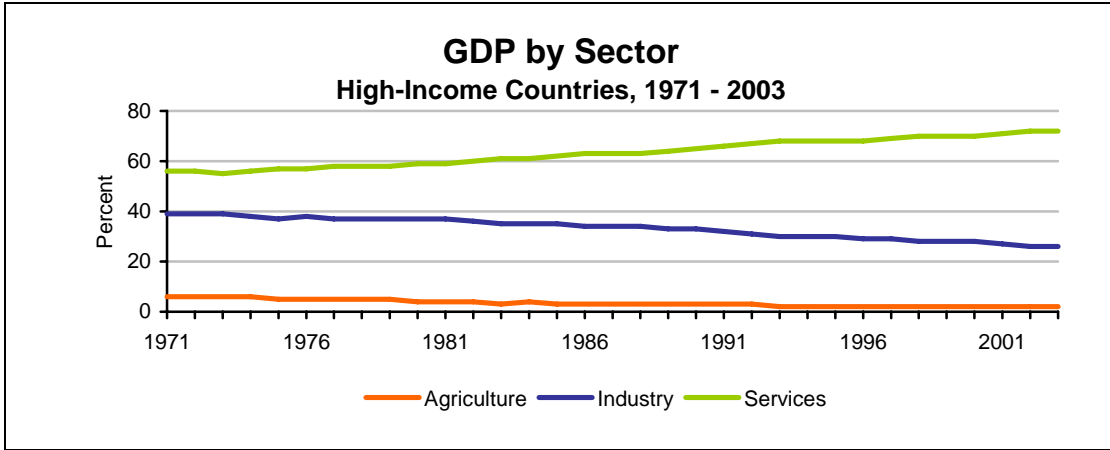
Gross Domestic Product. Services represent over two-thirds of world GDP. In the 55 high-income countries³ identified by the World Bank, services accounted for 72% of GDP in 2003, up significantly from 56% in 1971.⁴ In contrast, industry, made up of manufacturing, mining, construction and utilities, accounted for only 26% of GDP, while agriculture represented only 2% of these economies.



Source: World Bank, *World Development Indicators*

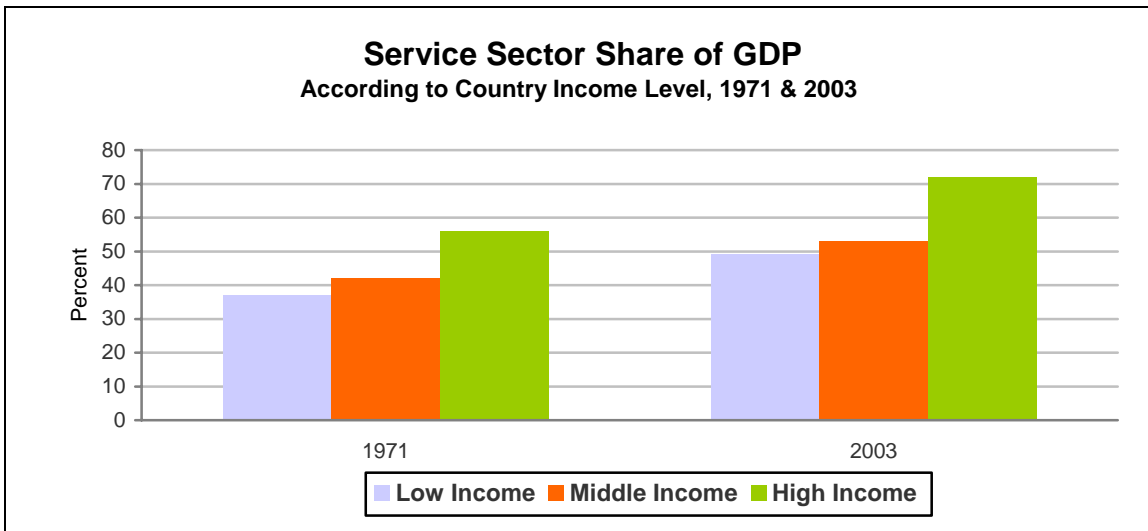
³ High income countries: 55 countries that have 2004 income of more than US\$10,065 per capita.

⁴ World Bank, *World Development Indicators*, Online Database.



Source: World Bank, *World Development Indicators*

The following chart shows how the service sector has expanded its share of GDP since 1970 across countries at all levels of development. In all cases, from the highest developed countries to the lowest developing countries group, the service sector already represents the largest sector of the economy.



Source: World Bank, *World Development Indicators*

Employment. In high-income countries, the share of employment in both manufacturing and agriculture has declined steadily over the last 50 years, as labor has increasingly shifted to services.⁵ The share of workers employed in services is now over 70% in most developed countries.⁶ In OECD countries, most employment growth over the last decade was due to services, and in particular, business services.⁷

⁵ International Labour Organization, *World Economic Report 2004-2005*, p. 110.

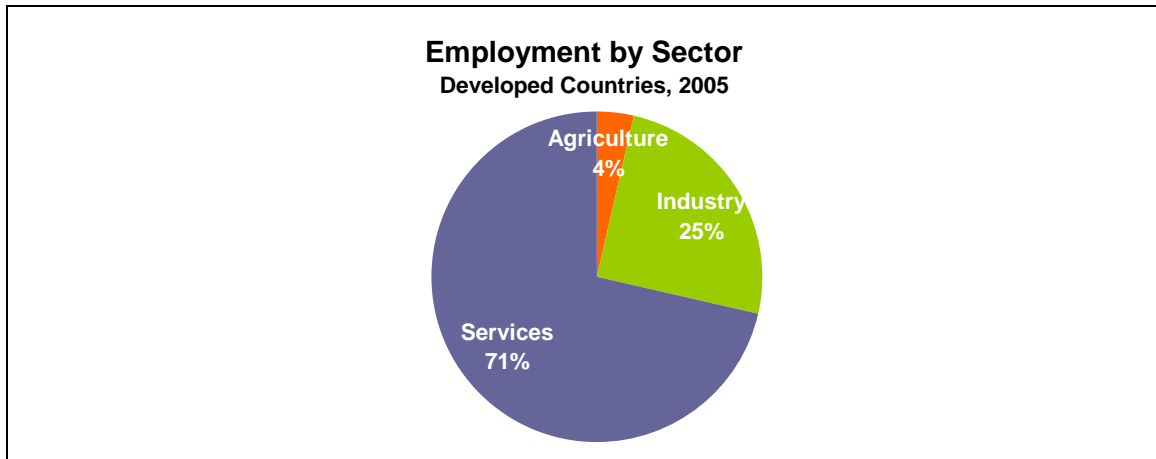
⁶ International Labour Organization, *Global Employment Trends*, January 2006, p. 12.

⁷ OECD, Working Party on Innovation and Technology Policy, *Promoting Innovation in Services*, October 2005, p. 9.

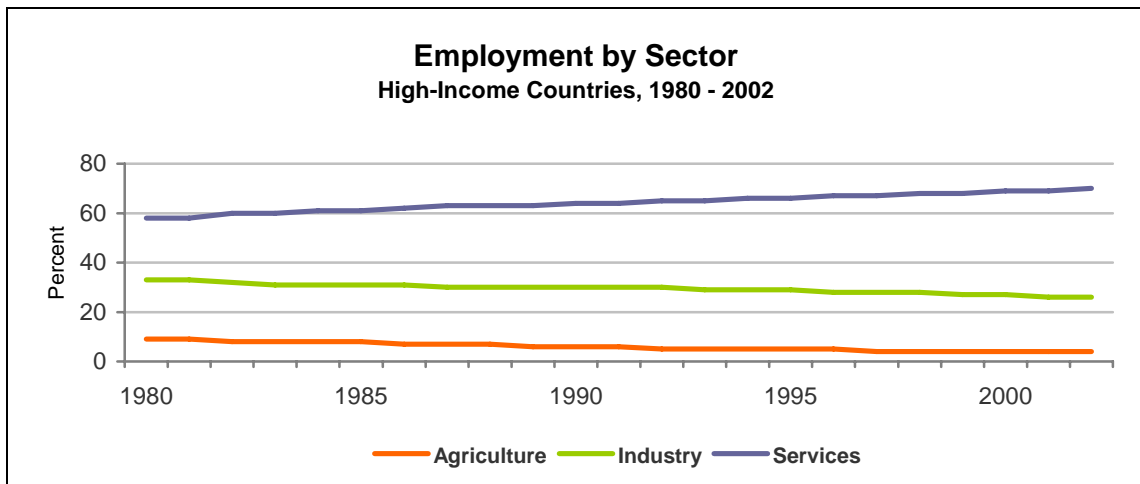
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Globally, agriculture still employs the largest share of the workforce, but the service sector is close behind and is expected to surpass agriculture in total worldwide employment in the near future. Since 1995, the share of worldwide employment in agriculture has fallen from 44% to 40% in 2005, while services have increased from 35% to 39% of total employment. During the same period, worldwide employment in industry was relatively flat at about 21%. Industry employment in developed countries has fallen from 29% in 1995 to 25% in 2005, but this is still more than in the world as a whole.⁸

Although employment historically has moved from agriculture, first to industry and then to services, as countries have climbed the development ladder, many workers are now moving directly from agriculture to services. In fact, since 1995, the share of employment in services has increased in all regions of the world except for the Middle East and North Africa.⁹



Source: International Labour Organization



Source: World Bank, *World Development Indicators*

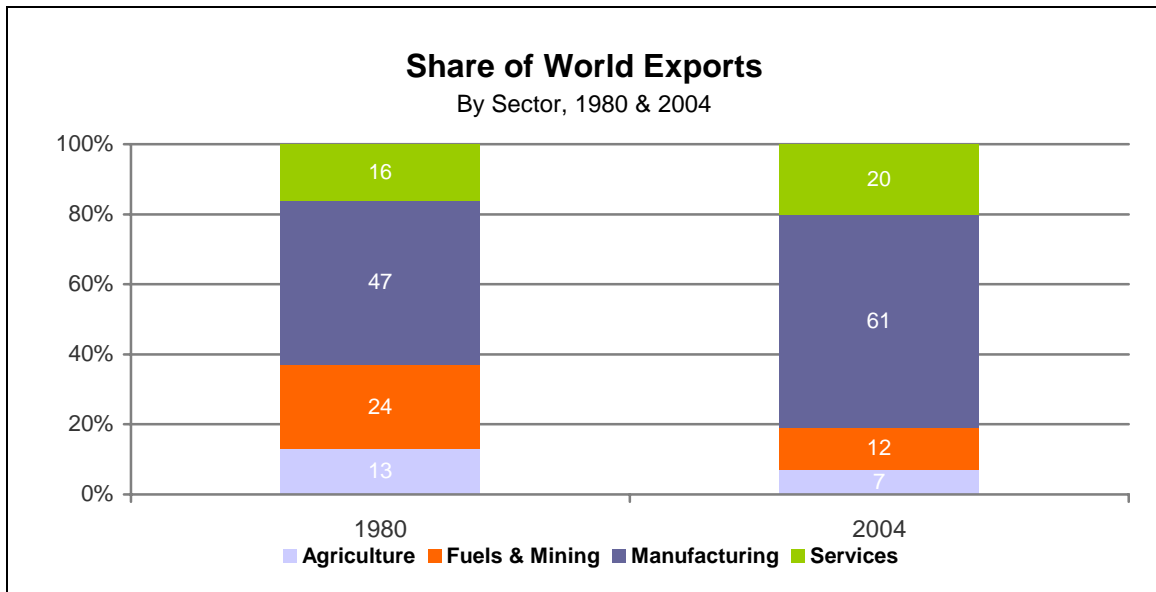
⁸ World Bank, *World Development Indicators*.

⁹ International Labour Organization, *Global Employment Trends*, p. 8.

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Service sector jobs include a wide range of activities and skill levels. While the service sector includes some low-skill jobs, many other service jobs require high levels of skills or advanced education to perform complex tasks in the information economy. In fact, the percentage of employees with a college degree is greater in the service sector than in the manufacturing sector.¹⁰

Exports: Exports of services have grown steadily for over two decades at a compound annual growth rate of almost 8%, the same as for manufacturing exports. **By 2004, services accounted for about 20% of world exports, up from about 16% in 1980. Services now lead both agriculture and fuels and mining products in share of exports.** Since 1980, agricultural goods' share of exports has fallen from 13% to 7%, while fuels and mining products have dropped from 24% to 12%. Services now trail only manufactured goods, which comprised 61% of world exports in 2004.¹¹



Source: World Trade Organization

Only about 10% of world services output enters the international trade stream, compared with over 50% of goods that find their way into international markets.¹² One explanation for the lower level of trade in services is that significant trade barriers exist across a range of service sectors in many countries. But a major reason for weaker trade in services is that many services, such as dental care and automobile maintenance, are generally considered nontradable. However, for many knowledge-based services, this is changing, because information and communication technology (ICT) enables these services to be provided remotely from the client at minimal cost.

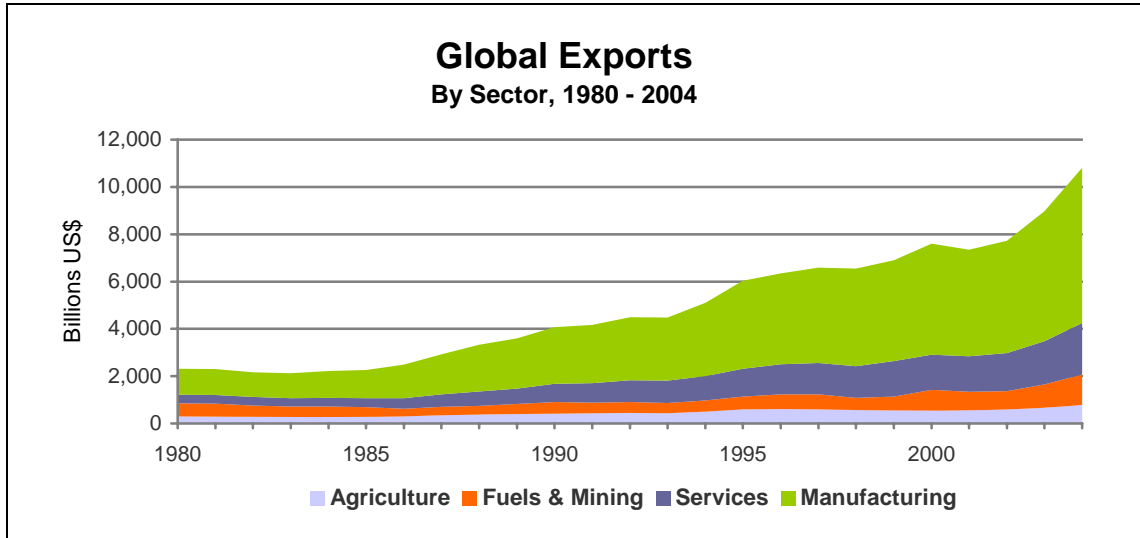
¹⁰ OECD, *Promoting Innovation in Services*, p. 26.

¹¹ World Trade Organization, Online Trade Statistics Database.

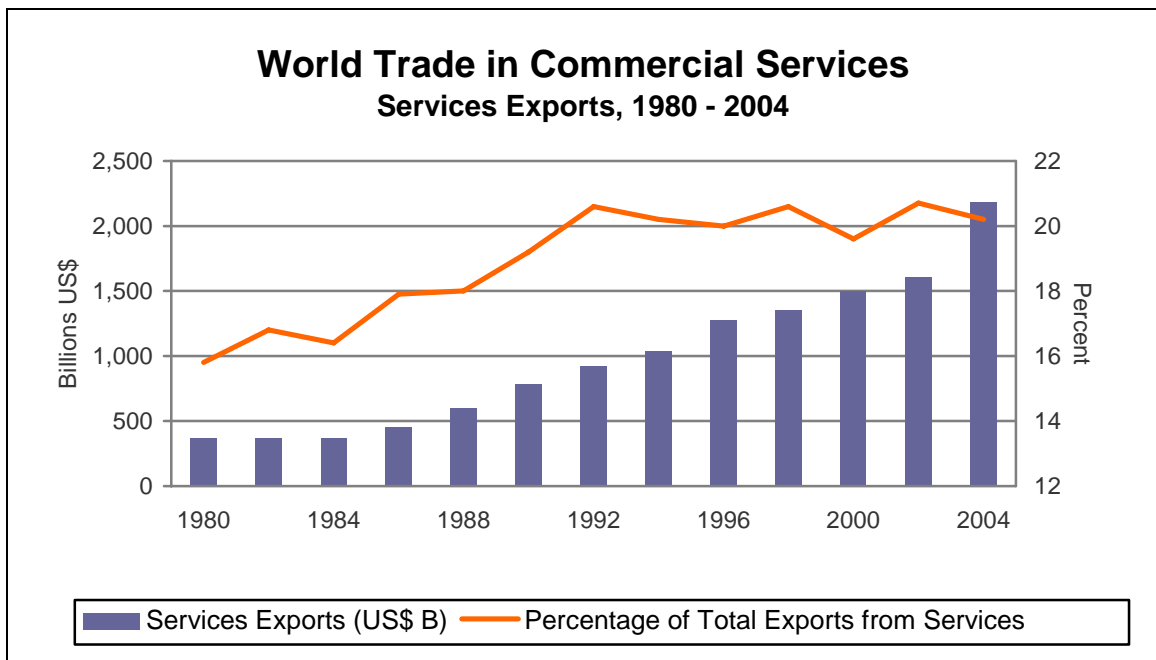
¹² UNCTAD, *World Investment Report 2004: The Shift towards Services*, p. 97.

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In addition to trade in services through exports, services can also be traded when a service provider establishes a local commercial presence in a foreign country.¹³ Such foreign affiliate trade is estimated to exceed services exports by about 50%.¹⁴ The ability of service providers to invest in other countries is, therefore, a critical factor in overall trade in services.



Source: World Trade Organization



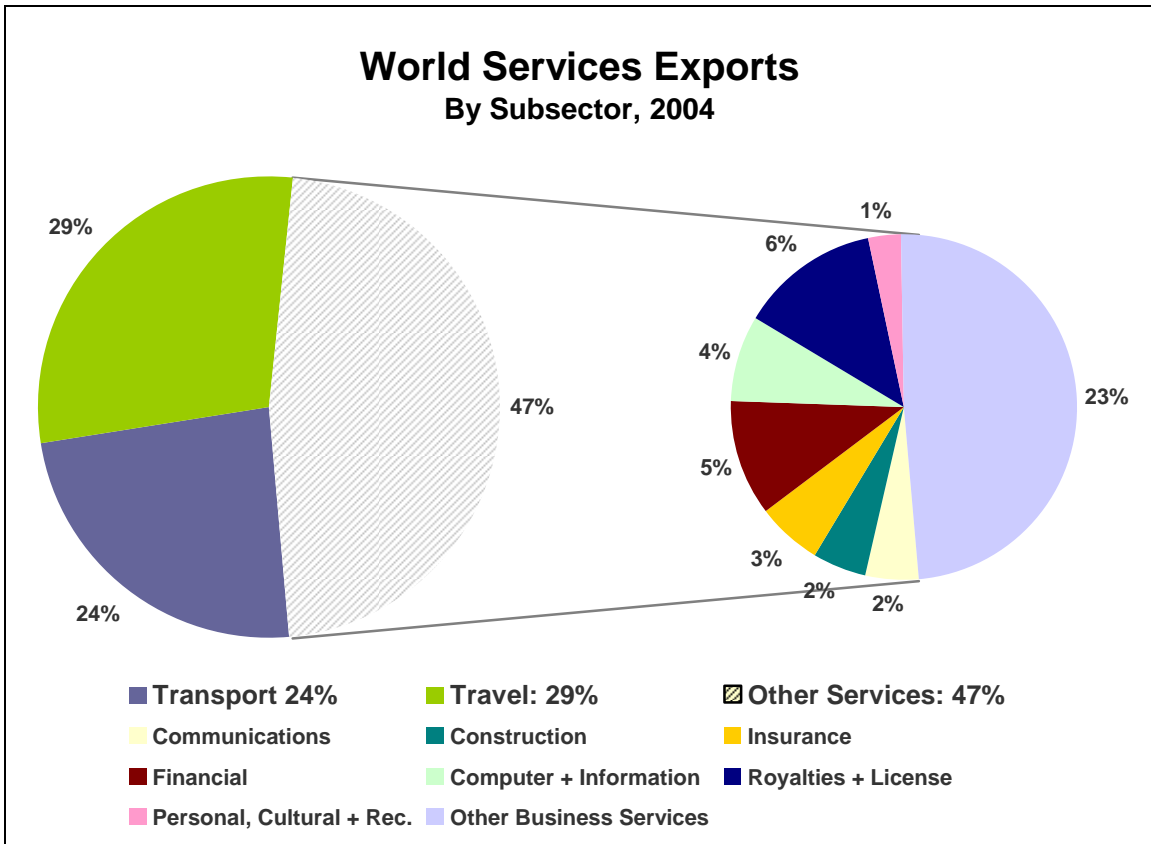
Source: World Trade Organization

¹³ Trade in services via establishment of a local “commercial presence” or branch office is known as “mode 3” in the General Agreement on Trade in Services (GATS). Other modes include: mode 1, “cross-border supply” – exporting services to another country; mode 2, “consumption abroad” – traveling to another country to obtain a service; and mode 4, “presence of natural persons” – temporary travel by a service provider to another country to provide a service to a client.

¹⁴ World Trade Organization, *International Trade Statistics 2005*, p. 8.

IT-Enabled Services

Advances in information and communication technologies have facilitated trade in services, making it unnecessary for providers and users to be near one another. Information is being digitized and sent across borders and around the world at very low cost. This allows many services to be supplied from wherever they can be provided most efficiently and enables service providers to reach new markets. IT-enabled services can now take advantage of global supply chains just like manufacturing. Some of the services that are now more readily traded due to the development of information and communication technology are: financial; insurance; computer and information; personal, cultural and recreational; and other business services, such as professional services.



Source: World Trade Organization

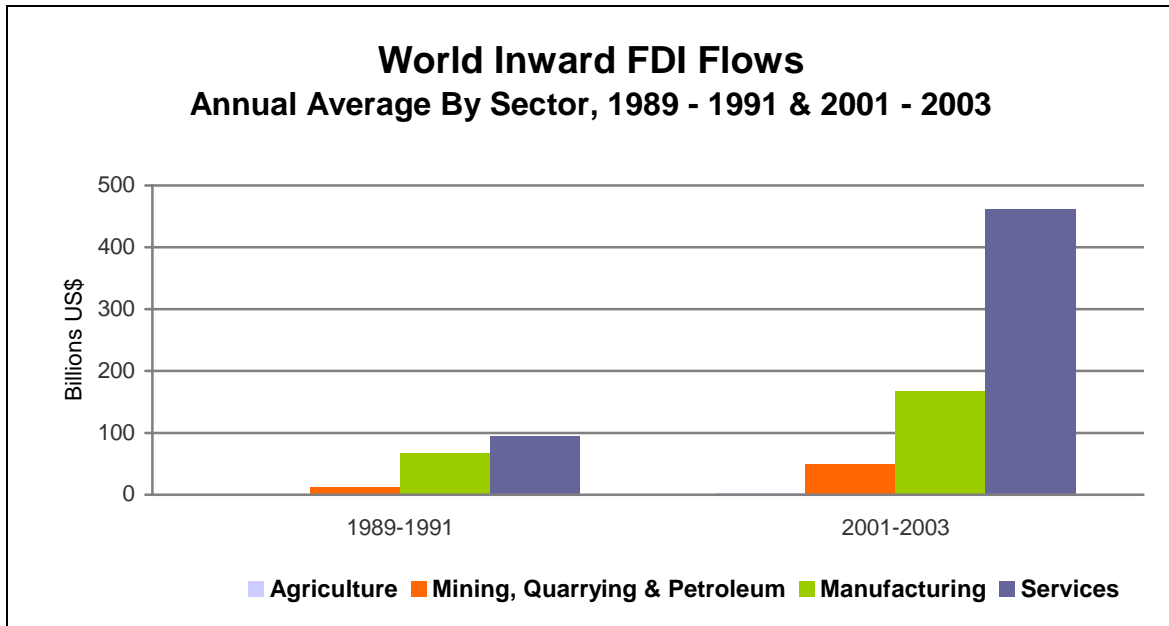
Foreign Direct Investment: FDI in services has expanded, with the world's inward stock of FDI in services quadrupling from 1990 to 2002 to over four trillion U.S. dollars and the share of services in the world's FDI stock rising from around 25% in the 1970s to about 60% in 2002.¹⁵ In terms of inward flows, service industries received 66% of FDI in 2003, amounting to over US\$461 billion.¹⁶ Developed economies remain the main source and recipient of FDI flows in services, providing 95% of FDI,¹⁷ while receiving 77% of inward flows in 2003.¹⁸

¹⁵ UNCTAD, *World Investment Report 2004: The Shift towards Services*, p. 98.

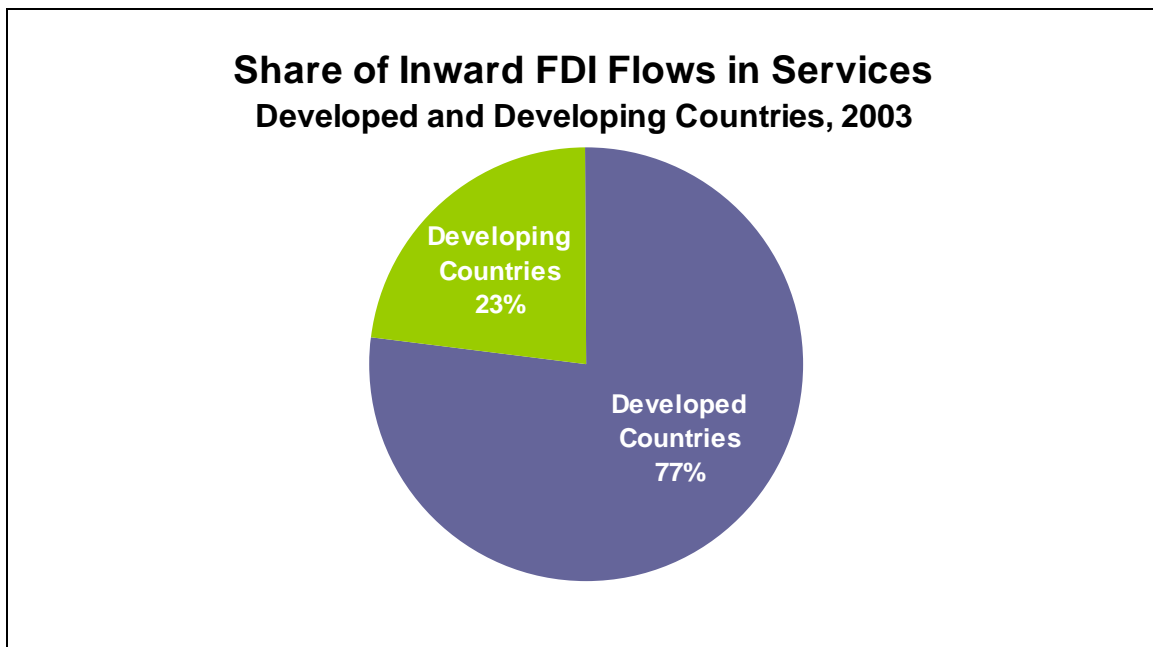
¹⁶ UNCTAD, *World Investment Report 2005: Transnational Corporations and the Internationalization of R&D*, p. 262.

¹⁷ *Ibid.*, p. 263.

¹⁸ *Ibid.*, p. 262.



Note: FDI in agriculture was less than US\$1 billion in 1989-1991 and less than US\$2 billion in 2001-2003.
Source: UNCTAD, *World Investment Report 2005*



Source: UNCTAD, *World Investment Report 2005*

Top Recipients of Inward FDI Flows in Services

Rank	Country	2000-02 Average Annual Inward FDI Flows (US\$ millions)
1	United States	108,175
2	Germany	91,495
3	United Kingdom	51,477
4	Netherlands	37,604
5	France	35,398
6	Hong Kong	30,647
7	Spain	23,014
8	Japan	18,442
9	Brazil	15,757
10	Denmark	14,584
11	China	12,805
12	Ireland	9,820

Note: Data for India's inward FDI flows are not available.

Source: UNCTAD, *World Investment Report 2004*

Services and Global Competitiveness

For a modern economy to be globally competitive, it must provide its producers of both goods and services with access to a full range of efficient services. How a company produces has become as important as what it produces; a company must produce efficiently to be competitive, and services are a critical factor in improving efficiency. All sectors of the economy – agriculture, manufacturing and services – can benefit from access to services.

Services enhance productivity and competitiveness in many ways. Efficient business services reduce transaction costs and allow companies to focus on their core competencies. Health care and education services are vital to the formation of human resources. A well-functioning financial sector enables allocation of investment to where it will give the highest return. Transportation services facilitate the distribution of goods inside a market and are essential for global trade. Environmental services support sustainable development by alleviating the negative environmental impacts of economic activity. And retail services provide an efficient link between producers and consumers.¹⁹

The rise of services as intermediate inputs to production significantly changes our perspective on productivity. ***A firm's productivity and competitiveness rely not only on the productivity and competitiveness of its own employees and capital equipment, but also on the competitiveness of the full range of services that it purchases as inputs to its production processes.*** For example, by the mid-1990s, services accounted for almost 25% of the value added in manufacturing production in many OECD countries, compared to only about 15% or less in the early 1970s.²⁰ This means that services are now inextricably linked to manufacturing, enabling improved efficiency and competitiveness and promoting innovation. It also means that a weak service sector can be a handicap for the manufacturing sector, as well as for the rest of the economy.

¹⁹ World Bank, *Sustaining India's Services Revolution: Access to Foreign Markets, Domestic Reform and International Negotiations*, 2004, p. 16.

²⁰ OECD, *Promoting Innovation in Services*, p.7.

Developed countries typically have a strong and diverse service sector, providing a significant boost to their overall economic performance and competitiveness. This is one reason why developed countries enjoy high productivity rates and correspondingly high standards of living. It is important, however, that developed countries not take for granted the relative strength of their service sectors. Many countries, including developing countries, are recognizing the importance of services and are seeking to improve this vital component of their economies. Increasing competition in services could lead to diminished comparative advantage for those developed countries that do not promote continual innovation and development in services.

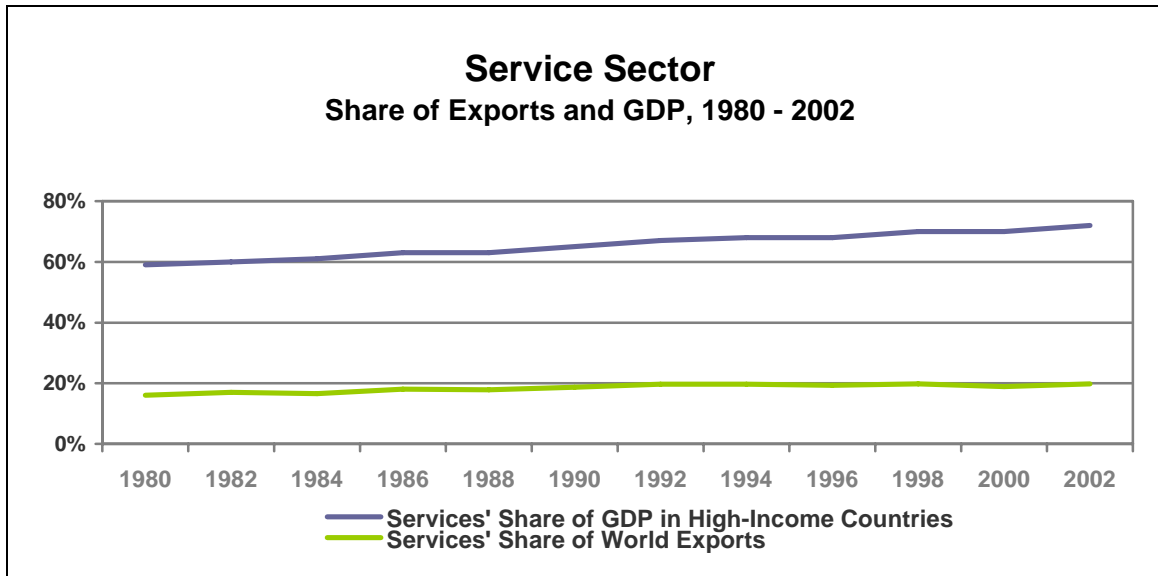
Global Economic Integration and IT-Enabled Services

Declining transport and communication costs have helped drive international trade and open up new opportunities for global integration. Lower transportation costs made the first wave of global integration possible, facilitating the movement of goods, service providers and tourists.

Information and communication technology and the advent of the Internet have enabled a second wave of global integration by slashing transaction costs and linking service providers with their clients. As a result, a whole new array of services has become tradable. International electronic banking and cross-border Web hosting are just two examples of this rising phenomenon.

Trade in these IT-enabled services creates unprecedented opportunity for countries that invest in human capital and make sound policy choices to support development of a strong service sector. Global economic integration enabled by information and communication technology leads to the creation of new enterprises and the pursuit of service opportunities around the world. This results in job creation, expanded global markets, greater cost effectiveness in the delivery of services and lower consumer prices.

In recent decades, services' share of GDP has grown significantly, yet services' share of exports is still relatively small, as illustrated by the following graph. This implies that ***there is tremendous opportunity for expanded trade in services as the global economy grows, especially considering how many IT-enabled services are now more readily tradable.*** Any knowledge-based service, including sophisticated design work and complex management consulting, is now a candidate for expanded trade, given advanced communication networks and information technology that provide easy access to foreign markets. Competitive service providers from both developed and developing countries should find new opportunities as trade in services expands.



Source: WTO and UNCTAD, *World Development Indicators*

In a world integrated by technology, where many services that support industry can be delivered from virtually any part of the world, a country does not have to produce domestically all of the services that it needs to be competitive. A country that wants to enhance the overall competitiveness of its economy must enable its manufacturers and service providers to access best-of-breed services from around the world. ***Global competition ensures lower prices, accelerated innovation and greater choice in services that are vital to efficient production.*** Governments can enhance the competitiveness of their economies both by supporting the development of their own globally competitive domestic service sector and by allowing access to a broad range of services from providers in the global market.

Business Process Outsourcing (BPO), enabled by ICT, is growing rapidly as a source of intermediate inputs for many companies. BPO is a way to improve productivity and quality by viewing business functions as components that can be obtained from the most cost-effective and highest-quality source. For example, many services that are not considered to be the core activities of a given company, such as accountancy, legal and logistics services, may require significant investment to gain specific skills. However, this investment may not provide sufficient return to justify providing these services internally. Instead, those resources might be better allocated to focus on the company's core competencies. Therefore, many companies are able to improve productivity by outsourcing activities that are outside their main area of expertise to service providers that have specialized skills and offer economies of scale.

Expanding trade in services creates opportunities for developed and developing countries alike, but some developed countries, which have the largest and most robust service sectors and are the current leading exporters of services, should be especially well positioned to benefit from this trend. Lower labor costs may give some developing countries an advantage in the provision of certain services, but there are many other factors, such as innovation, that determine competitiveness, enabling developed countries to build on their strengths in services.

Top Services Exporting and Importing Countries

Services Exports			Services Imports		
Rank	Country	2005 (US\$ Billions)	Rank	Country	2005 (US\$ Billions)
1	United States	353.3	1	United States	288.7
2	United Kingdom	183.4	2	Germany	198.6
3	Germany	142.9	3	United Kingdom	150.1
4	France	113.7	4	Japan	135.9
5	Japan	106.6	5	France	102.9
6	Italy	93.4	6	Italy	92.3
7	Spain	91.2	7	China	85.3
8	China	81.2	8	Netherlands	69.2
9	Netherlands	75.0	9	Ireland	67.5
10	India	67.6	10	India	67.4
11	Hong Kong	60.3	11	Spain	65.3
12	Ireland	54.7	12	Canada	62.3
13	Austria	53.8	13	Korea, Rep. of	58.0
14	Belgium	53.4	14	Austria	51.7
15	Canada	50.6	15	Belgium	51.2

Source: World Trade Organization

Trade in services has historically been dominated by transportation services (including shipment of goods and carriage of passengers) and travel services (including lodging, food, entertainment and local transportation consumed by travelers in foreign countries). However, “other commercial services” are claiming an increasing role in trade, now accounting for about 47% of world exports. This category of services captures the offshoring opportunities in knowledge-based, IT-enabled services that are the main focus of this paper. These services, including communications, computer and information, financial, management consulting, engineering and research services, are vital to improving productivity and competitiveness across an economy and present expanding export opportunities. The following table shows top country exporters of services, breaking out exports by the major categories of transportation, travel, and other commercial services. Countries are ranked by exports in other commercial services, rather than by total services exports, to highlight this expanding area of services trade.

Top Services Exporting Countries
Ranked by 2004 Exports of Other Commercial Services
 (Billions of U.S. Dollars)

Rank	Country	Other Commercial Services Exports	Transportation Services Exports	Travel Services Exports	Total Services Exports
1	United States	172.2	55.7	93.9	321.8
2	United Kingdom	126.9	29.9	28.2	185.0
3	Germany	73.0	33.2	27.6	133.8
4	Japan	51.5	32.1	11.3	94.9
5	Ireland	45.6	2.3	4.3	52.2
6	France	43.2	25.6	40.7	109.5
7	Netherlands	42.1	19.4	10.3	71.8
8	Italy	33.1	14.0	35.4	82.5
9	India	28.6	4.5	5.3	38.4
10	Belgium	28.2	13.0	9.2	50.4
11	Hong Kong	28.0	17.2	9.0	54.2
12	Luxembourg	27.3	2.0	3.7	33.0
13	Switzerland	27.0	4.2	10.4	41.6
14	Canada	25.1	8.5	12.8	46.4
15	Spain	25.1	14.0	45.1	84.2
16	China	24.2	12.1	25.7	62.0
17	Sweden	24.2	8.0	6.2	38.4
18	Austria	23.6	9.4	15.3	48.3
19	Singapore	21.4	14.6	5.1	41.1
20	Taiwan	16.2	5.3	4.0	25.5
21	Korea, Republic of	11.9	22.4	5.7	40.0
22	Denmark	9.3	21.3	5.7	36.3
23	Israel	9.3	3.2	2.4	14.9
24	Norway	8.1	14.9	2.9	25.9
25	Russia	7.1	7.8	5.2	20.1
26	Australia	6.2	5.8	13.7	25.7
27	Brazil	5.9	2.5	3.2	11.6
28	Malaysia	5.9	3.1	8.2	17.2
29	Finland	5.3	2.4	2.1	9.8
30	Hungary	4.9	1.3	4.0	10.2

Note: The previous table showing exports and imports of services is based on 2005 data, but this table is based on 2004 data, which are the most recent available data showing breakout of exports by transportation, travel and other commercial services.

Source: World Trade Organization

Services and Innovation

Innovation in services is vital to maintaining competitiveness and taking advantage of new opportunities. According to the OECD, "innovation" is a new or significantly improved product (good or service) introduced to the market or the introduction within the enterprise of a new or significantly improved process.²¹ Innovation across an economy leads to new jobs, new companies and even new industries. Since the service sector accounts for the vast majority of

²¹ OECD, *Promoting Innovation in Services*, p. 11.

GDP and employment and is the main driver of productivity and economic growth, ***innovation in services is a critical factor in increasing competitiveness and accelerating economic growth.***

Companies are innovating in new areas, such as supply chain management, engineering design services, human resource management, after-sales services and customer care. Institutions are overhauling their business operations and processes using information technology and business process transformation services. A networked, interconnected, on-demand business model enables organizations to achieve higher levels of responsiveness, flexibility and efficiency. This new flexibility offers great potential for increasing productivity and creating entirely new capabilities. The demand for services in this new environment is opening up new possibilities for growth.

Government innovation policies and R&D budgets have historically focused on hard sciences and manufacturing and have not been designed to support the service sector, despite the fact that services dominate the economy. ***To get the most out of the service sector, government leaders should engage service providers and respond to their needs when designing programs to promote innovation.*** How these programs are designed is important, because the innovation process in services can differ from that in manufacturing.

Innovation in services is driven by much more than basic research and development. The changing nature of innovation requires a combination of expertise, advanced technology and business insight in an “***innovation ecosystem***” that not only generates fresh ideas and intellectual property, but also transforms them into new value. The ecosystem includes the policies (e.g., research, education, tax, intellectual property) and physical infrastructure (e.g., research labs, high-speed networks, transportation) that accelerate or hinder innovation. What is needed is an integrated, coherent approach across a number of policy areas for countries to enhance their innovation and competitiveness. This integrated approach to innovation must include a deepened understanding of how services support and interact with manufacturing and other areas of the economy.

In a knowledge-based economy, services innovation depends on the ability to create, acquire and manage knowledge. Skilled human resources, a new approach to R&D, a well-developed ICT infrastructure, collaboration among business partners and customers, and facilitation of business creation are critical factors to enable innovation in services and to enhance competitiveness.

Human Capital: Skilled and creative employees are a fundamental factor in the innovation process and a major source of competitive advantage. In the Agricultural Age, land and farm production defined competitive advantage. In the Industrial Age, it was raw materials and manufacturing capability. Today, it is the ability to create and apply intellectual capital based on multidimensional expertise – increasingly in the area of services. Workforce skills must include both technology and strategic expertise. An understanding of technology – its current capabilities as well as its future potential – is now integral to business decision making. Importantly, these skills are not static, requiring continual refreshing through life-long learning and retraining.

In the information technology industry, these needs are particularly acute. The information technology sector is experiencing a pronounced shift in demand for specialized skills that fuse industry-specific knowledge, information technology capability and business process expertise. New information technology jobs are mushrooming in areas like business analysis, security analysis, vendor management, service management, systems integration, and others. These emerging occupations require higher skills and are well paid.

Research and Development: In addition to continuing fundamental research in science, technology, engineering and mathematics, there is an increasing need for multidisciplinary research into the role of services and how to improve them. Exciting possibilities are opening up in modeling and analysis of business processes and business models. Understanding the global

market for services requires significant research in economics, econometric data, management science, political science, and other social sciences, coupled with a keen understanding of current technologies and likely future directions. Future progress will require deeper study within and among these disciplines.

A wide community is beginning to discuss new developments in global connectivity, automation, open standards, technology integration and Web services, opening a new scientific discipline. Leading universities are working with IBM to understand better the social and technical issues involved in collaborating across global enterprises. Much in the way the first computer science department was established at Columbia University in collaboration with IBM, IBM is now working with academic institutions to develop Services Science, Management and Engineering (SSME) curricula. Government research investment and collaboration could significantly accelerate learning in this area.

Investment in ICT: Information and communication technology is a major enabler of innovation and productivity growth in the service sector, since it is used to implement new or improved services, business models or processes. For example, service sectors with high information technology penetration, such as communications, finance, and wholesale and retail trade, have experienced higher productivity growth than sectors such as health care and education, which rely less on information technology.²² ICT has been the most dynamic area of investment in the past two decades, with the share of ICT in total nonresidential investment more than doubling in many OECD countries. Within ICT investment, software has been the fastest growing component, with its share of investment multiplying by several times between 1980 and 2000. A study of service providers in Japan demonstrates the importance of ICT in service sector innovation. Top-performing firms were found to implement effective ICT-supported business models to manage and deliver their services. But ICT alone does not make companies more innovative; process, management and organizational reforms must accompany it. However, ICT facilitates and supports such reforms.²³

Collaboration and Outside Sources of Knowledge: Knowledge is vital to the success of services firms, and tapping into external information networks is essential, since much knowledge resides in a firm's customers and suppliers, and in government and research institutions, for example. Collaboration among all of these groups is an excellent way to spark innovation. Surveys have shown that the more innovative the firm, the more it relies on customers as a source of information. Input from customers may help a company develop a new service or improve an existing one, and research may help to improve connections between companies and their customers. Although much research is conducted by governments or in universities, few service firms rely on these sources of knowledge.²⁴ Therefore, it may be possible to spur innovation in the service sector by revising research agendas and improving collaboration between service providers and research institutions.

Entrepreneurship and "Creative Destruction": Entrepreneurship and the process of "creative destruction" play an important role in reallocating resources to more productive enterprises. Service providers may appear, disappear or transform themselves completely as new services or more productive firms enter the market. As a result, new jobs are created and old jobs are destroyed. Such "churn" among firms and jobs facilitates innovation and technology adoption, as entrepreneurs and innovators within existing enterprises increase competition and introduce new ways to fulfill customer needs. Studies show this process is more intense in services than in manufacturing, and it is most prevalent in dynamic sectors such as business services and ICT-related industries. Studies also show that new firms account for a larger share of innovative firms in the service sector than in manufacturing.²⁵

²² Catherine Mann, *Globalization of IT Services and White Collar Jobs: The Next Wave of Productivity Growth*, p. 2.

²³ *Ibid.*, p. 23.

²⁴ *Ibid.*, pp. 24-25.

²⁵ *Ibid.*, p. 28.

The Service Sector and Global Competitiveness: Policy Recommendations

As we have seen throughout this paper, the service sector accounts for the vast majority of GDP, FDI, employment and employment growth in developed economies and provides essential inputs to the manufacturing and agricultural sectors. Given the size and importance of this sector, government strategies for economic development and competitiveness must include policies to foster employment, productivity, innovation and growth in the service sector.²⁶ Government leaders should consider the following recommendations:

1. **Develop skilled human resources.** Education must be transformed to prepare students to become innovators. An education system that focuses on acquiring discrete skills and memorizing information will not produce the leaders and innovators that the world needs. Schools should provide Problem-Based Learning (PBL) that focuses on ill-structured problem solving. PBL can provide deeper meaning, applicability and relevancy to classroom materials and promote the development of crucial analytical skills that are required in the workplace. Curriculum reform should stress the importance of science, mathematics and information technology skills, while continuing to provide strong reading, writing and communication skills. Schools should also include more experience in working in teams on complex, collaborative projects. At the undergraduate and graduate level, universities should promote multidisciplinary courses of study. The education system should create a solid foundation for, and encourage, life-long learning to ensure the future competitiveness of the workforce in a globally integrated market. A human capital tax credit or other incentives should be considered to encourage companies and individuals to invest more in education and training. This would help to ensure that the workforce has the skills to adapt to change and to take advantage of job opportunities created by innovation.
2. **Open markets to trade and investment in services.** There is tremendous opportunity for increased trade in services. Developed countries should have a competitive advantage in many services, due to the size and sophistication of their own service sectors. Therefore, it is in their interest to support and secure an ambitious outcome in the WTO Doha Round, once negotiations are restarted, including significant market-opening commitments in services from as many countries as possible. Countries can also benefit by further opening their own markets to competition in services. Studies show that the benefits to the global economy from liberalizing services would greatly exceed the benefits from liberalizing agriculture and manufacturing.²⁷
3. **Create innovation policies for the service economy.** Establish R&D programs that address the needs of the service sector. To complement research in physical sciences and engineering, create research programs in Services Science, Management and Engineering (SSME), encouraging multidisciplinary research oriented to new potential for product and process innovation. Ensure that intellectual property policies strike a proper balance between incentives for innovation and the promotion of collaboration and diffusion of innovations throughout the economy.
4. **Promote entrepreneurship, industry clusters and small and medium businesses.** Facilitate the creation of new businesses. Create economic development programs to promote regional innovation “hot spots” and create more dynamic and innovative industry clusters. Support participation of small and medium businesses in these programs, since smaller companies are a major source of job creation.

²⁶ A more detailed discussion of policy options is available in the OECD documents, *Promoting Innovation in Services and Growth in Services: Fostering Employment, Productivity and Innovation*.

²⁷ Mann, *The U.S. Current Account, New Economy Services, and Implications for Sustainability*, p.17.

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5. **Adopt flexible labor laws.** Adopt flexible labor laws to facilitate adaptation and reallocation of human resources to more productive and innovative areas of the economy. This will enable enterprises to be more responsive to changes in the marketplace, including changes in demand and increasing global competition.
6. **Create a tax environment to support the service sector.** Ensure that tax laws do not hinder the development of an efficient domestic service sector or discourage service exports. Where appropriate, adopt an R&D tax credit that includes R&D in services and business processes.
7. **Enable competition in deployment of ICT infrastructure.** Governments should promote competition in ICT infrastructure, network services value-added services and applications as a way to spur deployment, innovation and choice.
8. **Create new metrics for the service sector.** New metrics for the service sector could provide greater insight into the contributions of services to the general economy. These metrics could help investors and policymakers make better decisions about this growing sector and enable them to track progress.

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