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INDUSTRY STUDIES
2000

Services

ABSTRACT

The services industry is a “revolution” impacting all industries. It affects not only non-manufacturing, non-farm producers, but even those industries that make goods. By restructuring work, manufacturers can outsource segments to service providers, including assemblers of products. The services industry permits the optimization of the supply or value chain and provides increased efficiency. Although its definition is unclear, its contributions to the economy are not. The industry provides three-fourths of the gross national product (GNP) and the nation’s employment. It is the major growth engine for the U.S. economy, the primary source of new jobs in the next decade. It is a new way of doing business. The services industry provides solutions.

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PLACES VISITED

Domestic

DynaCorp Technical Services, Fort Worth, TX

EDS, Plano, TX

Greater El Paso Chamber of Commerce, El Paso, TX

JW Marriott Hotel, Washington, DC

Westat, Rockville, MD

International

ADC Telecommunications, Juarez, Mexico

Baltic Exchange, London, England

BOS GmbH, Hanau, Germany

CGU Insurance, London, England

Delphi Automotive Systems, Juarez, Mexico

Frankfurt Stock Exchange, Frankfurt, Germany

GM Europe Supply, Adam Opel AG, Russelsheim, Germany

Headquarters, U.S. Army, Europe, Germany

Lloyd's of London, London, England

Logistics Information Systems Agency, Bicester, England

Royal Air Force Training Group Defense Agency, RAF Cranwell, Gloucester, England

U.S. Consulate General, Dept. of Commerce, Frankfurt, Germany

INTRODUCTION

The services industry is not really an industry, but rather a revolution affecting all industries. It has resulted from the re-engineering and segmentation of economic processes into individual service components and from the strategic redesign of customer solutions. The services industry is an economic revitalization providing a broad spectrum of valuable, marketable productivity to all industries. From agriculture to industry to information, the services industry has permitted the restructuring of work and organizations, challenging management to redefine business models, vision, and core competencies.

As the economy has progressed, services have expanded. Several factors have contributed to the economic shift from manufacturing to services. First, as manufacturing has become more efficient, fewer workers are required to produce needed goods. Second, globalization has permitted manufacturing to migrate to sites where it can most efficiently occur. Third, the information revolution has created more opportunities for knowledge workers to create value. Finally, the quest for efficiency has driven most entities to focus on their core competencies and to rely on others for support tasks or services. This final driver to services, termed "outsourcing," involves a different way to view product creation. It recognizes that many steps in the manufacturing process are services that entities can acquire from outside sources. For example, semiconductor chip production could be viewed as 3 percent raw materials, 5 percent equipment and facilities, 6 percent production and

routine labor, and 85 percent design, patents, copyrights, and engineering—85 percent services.

The shift from an industrial economy to an information economy provides both opportunities and challenges to the U.S. national security strategy. The concentration of jobs in the services sector reflects its importance to the national economy and security strategy.

THE SERVICES INDUSTRY DEFINED

Definitions fail to capture the diversity represented by the term *services*. In order to grasp the contribution that the services sector makes to the nation, an appreciation of the wide range encompassed by services is helpful. One approach is to divide services into two categories:

1. Intermediate services, which occupy a portion of a larger value chain and contribute to the delivery of some other good or service
2. Personal or final services, which are functions to the direct benefit of consumers or customers

Another way to categorize service activities is by the customer served. There are business-to-business (B2B), business-to-consumer (B2C), and business-to-government (B2G) services.

Under any categorization scheme, services tend to be activities that a firm or household could provide for itself, but for reasons of efficiency or quality chooses to purchase from an outside source. This confuses economic measures. Different providers measure activities differently. For example, if a manufacturer assembles a product, the assembly process is treated as part of the manufacturing productivity. If the manufacturer outsources the assembly process, however, it is typically measured as a service. Service providers range from unskilled laborers to engineers. Available literature, including Circular A-76 from the Office of Management and Budget (OMB), "Performance of Commercial Activities," provides the following categories of services:

- Accounting and management consulting

- Advertising, public relations, insurance and legal
- Architectural, engineering and construction
- Audiovisual
- Banking and securities
- Computer and data processing
- Education
- Energy
- Environmental
- Health care
- Intangible intellectual property
- Professional and industrial
- Public administration
- Retail and wholesale
- Telecommunications
- Transportation
- Travel, tourism, art, and recreation

The Bureau of Labor Statistics tracks employment data by major industry divisions: non-farm, agriculture, and several smaller categories. Non-farm divides into goods-producing and service-producing sectors. Services prominent in the latter sector include transportation, wholesale and retail trade, finance, insurance, real estate, government, business, health, engineering, management, computer and data processing, social, and other services.

The OMB is working to develop a classification system to improve measures of productivity in the services sector. No formal classification system now exists for service industries, and there is only a limited process for identifying the products produced by service industries.^[1]

Although the term *services sector* includes components of all existing industries, the

remainder of this report restricts the term *services* to non-farm, non-goods-producing industries.

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CURRENT CONDITIONS

The services sector is by far the largest sector in the U.S. economy, providing 75 percent of U.S. employment today. In 1945, the sector accounted for 10 percent of non-farm employment compared with 38 percent for manufacturing. Services passed manufacturing in 1982 as the largest employer among major industry groups.^[ii] Between 1983 and 1998, it grew at ten times the rate of the non-service sector. Demographic shifts, changes in consumer preferences, technological advances, and increases in competitive pressures have resulted in growing demand for services. Technical innovation, downsizing, and selective outsourcing have all contributed to productivity improvements.

In output terms, the services industry accounts for a growing proportion of the gross domestic product (GDP). In 1945, the services industry accounted for 9 percent of the GDP. By 1994, its share was more than 79 percent. Manufacturing's contribution to the GDP fell from about 30 percent to 17 percent over the same period.^[iii]

The increasing availability of personal computing and Internet access has accelerated the natural transition to an information-based service economy. Electronic commerce (e-commerce) has acted as a catalyst to increase services' contributions to the economy. Web-enabled B2C, B2B, and B2G applications provide new opportunities for entrepreneurs and service providers.

CHALLENGES

Global competition, the Internet, proliferation of e-commerce, and widespread use of technology offer new opportunities for economic change and growth. The shift to services is a part of that transition. Employers, workers, industry, and government will face new challenges. The services sector, as a major component of the economy, will have to deal with a shortage of skilled workers, e-commerce, outsourcing, and, specifically, contractors on the battlefield.

The Skilled Worker Shortage

The services sector spans the spectrum of labor skill levels. In general, however, it requires above-average educational attainment. Because of global competition, communication improvements, newer and more sophisticated systems of work, new ways to deliver products, and innovative systems of management, the majority of new jobs will require employees to have a broad range and depth of skills. The lack of qualified people already is especially acute in highly technical service areas such as information technology, engineering, systems analysis, technical consulting, and certain medical fields. The fastest growing jobs require additional education and training, with the greatest increases in technology-related fields. Eight of the ten fastest growing jobs of the next decade require college education or moderate- to long-term training.

Of these ten job categories, only two—home health aides and personal and home care aides—require skills that can be acquired through short-term, on-the-job training. The three positions that will increase at the highest rates—computer support personnel (database administrators), computer engineers, and systems analysts—all generally demand college degrees.

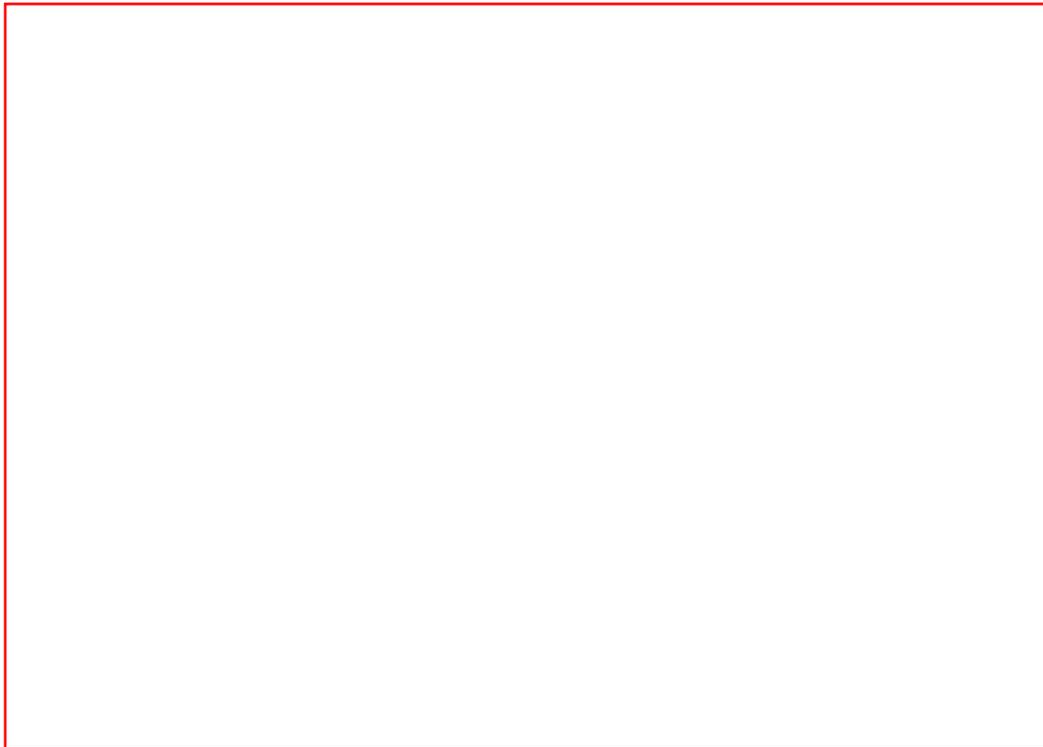


Figure 1: Projected % Change in Employment, 1996–2006[\[iv\]](#)

The facts are clear. As the nation approaches the 21st century, the need for educated and skilled service workers is greater than ever. The challenge of educating, recruiting and retaining employees is a daunting one, however.

Electronic Commerce

The Internet and e-commerce are causing the reevaluation of business practices, cycle times, and supply-and value-chains. “Virtual enterprises,” primarily virtual service industries, without a brick-and-mortar presence or physical inventories, challenge existing rules and have no precedents from which to gauge the level of activity. Government must carefully consider taxes, tariffs, security, and infrastructure protection and their potential impact on the new economy. Industry must partner with government and consumers to devise solutions on issues of privacy, security, encryption, and standards. Future growth and national economic leadership depend upon the cooperative partnering among government, business, and consumers.

Government Resistance to Outsourcing

Although the government, particularly the Department of Defense (DOD), has made progress in its efforts to contract for certain functions with outside sources, some resistance from several different quarters remains: Congressional anti-outsourcing caucuses, government labor unions, and military commanders. Yet, the mandate to reduce military billets and to incorporate modern business practices will continue to challenge the status quo.

Defining Core Competencies—Public Service vs. Corporate Business. In industry, the first step in the outsourcing process is identifying the core competencies of the business. In the government, only “inherently governmental” tasks cannot be outsourced. Passage of the Federal Activities Inventory Reform Act of 1998 reflected the drive toward greater government outsourcing. Within the DOD, the concept of strategic outsourcing has emerged as a means of resolving the conflict between the push to outsource and the need to retain appropriate functions within the government. Continued debate will refine outsourcing criteria. That debate should identify where business concepts support the public service ideal of stewardship.

Developing the Right Skills. Continued outsourcing demands that the government become a “smart customer.” This role requires that government possess the necessary skills for defining its requirements, evaluating proposals, and overseeing the service provided. The traditional civil service system was not designed to produce and retain such outsourcing public administrators. At the same time, the government is divesting itself of many functions, it is eliminating the primary training source for the corporate personnel performing much outsourced work. This is particularly true of many increasingly outsourced DOD functions. In addition, the antiquated commercial activities studies dictated by law encourage win-lose competition rather than the needed long-term, cooperative partnerships. Success of

such partnerships depends upon skills different from those exercised in more traditional, adversarial relationships.

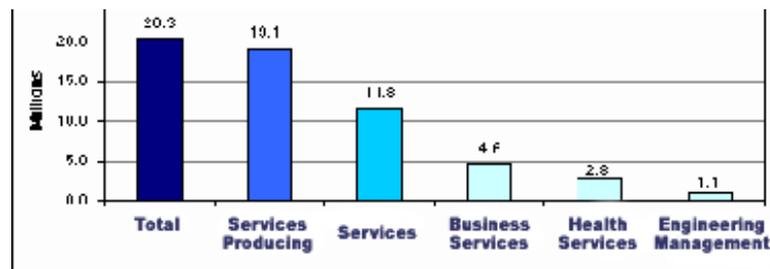
Contractors on the Battlefield As the military services downsize, the number of its peacekeeping, humanitarian aid, and other non-war operations continues to increase. The resulting imbalance of forces to requirements has driven the DOD to become reliant on contracted services to fill in where service members traditionally served. Civilian contractors have become the essential ingredient in the DOD's ability to provide logistics support to sustain military operations. The viable integration of the contractor workforce into theater operations depends upon the maturation of exit strategies and the refinement of roles and responsibilities.

OUTLOOK

Projections show the service-producing sector as the dominant source of employment and output growth between 1998 and 2008. This sector is expected to provide an additional 19.1 million jobs (Figure 2), accounting for three of every four jobs in the U.S. economy in 2008.^[v] This represents nearly 95 percent of employment growth in the period.

Figure 2: Projected Employment Change, Selected Industries

1998-2008 (in millions)



The services industry will also continue this growth in employment and real output throughout the projected period. Employment in the services industry is expected to increase from 37.5 million jobs in 1998 to 49.3 million jobs in 2008. This is the highest annual growth rate of any industry division, 2.8 percent. Within the services division, nearly three-quarters of the projected growth is concentrated in business, health, engineering, management, and related services.^[vi]

According to the Department of Commerce,[\[vii\]](#) the fastest growing services industries are dominated by information technologies, including information services, data processing, and professional computer services.[\[viii\]](#) Mutual fund and securities industries are expected to grow at similar rates, as the stock and bond markets continue to post record trading volumes. Strong growth is also expected in management consulting and accounting as many companies continue to outsource certain activities. Unlike manufacturing, all services industries showed positive annual growth rates in 1999; where low single-digit numbers are considered good, the growth rates in the following areas of the services industry are all in double digits:

<u>Service</u>	<u>Annual Growth Rate 1999</u>
Information retrieval services	+26.7%
Data processing services	+15.1%
Computer services	+15.1%
CAD/CAM/CAE software	+14.0%
Cable television	+11.1%
Mutual funds industry	+17.6%
Securities industry	+12.8%
Management, consulting	+13.1% [ix]

Services will contribute to more job growth than all other industry divisions combined.[\[x\]](#)

Information Technology Services

According to the Department of Labor, nearly 1.7 million people are employed in the computer and data processing services industry, up from 700,000 a decade ago.[\[xi\]](#) Spending on computer services is expected to have increased 10 percent in 1999 to an estimated \$326.2 billion, according to the International Data Corporation (IDC), a market research firm in Framingham, Massachusetts. The U.S. information

technology services sector is the global leader and is poised to stay on top.

Electronic Commerce

Industry experts estimate that every 30 seconds a new user joins the Internet,^[xii] gaining access to the full spectrum of e-commerce services. From on-line banking to buying airline tickets on-line, from auctions between individuals to virtual shopping malls, e-commerce services are endless. They also include personal shopping agents, financial services (e.g., investment and insurance services), recreation (including virtual reality, interactive games, and virtual travel), research, education, government, and social services. Accessible to consumers, organizations, businesses, and governments, e-commerce is expected to be a \$1 trillion market by 2003.^[xiii]

According to Standard & Poor's,^[xiv] the number of users making purchases on the Internet is estimated to grow from 31 million in 1998 to 183 million by 2003. Strong growth should continue beyond 2003 as well, as the 183 million estimate is still barely more than one-third of all Internet users. According to the IDC, the worldwide Internet services market surged 71 percent in 1998 to \$7.8 billion. The United States accounted for nearly 60 percent of the global market, with \$4.6 billion in revenues. The IDC projects worldwide revenues to increase tenfold, to \$78 billion by 2003. This represents a compound annual growth rate of 59 percent. Forrester Research, a Cambridge, Massachusetts-based research firm, estimates that Internet and e-commerce services totaled \$5.4 billion in 1998. This market seems likely to grow at a 57 percent compound annual rate, reaching \$32.7 billion by 2002.

As with most service statistics, there are variations in the definitions of the Internet services market. Regardless of the imprecision of revenue measures, however, it is certain that this is a very large, high-growth market opportunity.^[xv] In the 1997 Defense Reform Initiative, the Secretary of Defense mandated full implementation of e-commerce across the Department to allow one-stop shopping for DOD customers and industry.

Outsourcing

The focus of outsourcing has shifted from cost containment and reduction to its use as a tool for business and market share growth. The largest area of outsourcing within the services industry is computer services. Worldwide spending on outsourcing should grow at a compound annual rate of 15.8 percent, reaching \$173 billion by 2003.^[xvi]

One of the newer, fast-growing areas of outsourcing is business process outsourcing. In this area, a business outsources an entire function, such as its human resources or financial operations. This kind of outsourcing typically carries higher profit margins, as risk and complexity are greater. Outlook for increased business process outsourcing is very good—an estimated \$2.7 billion in 1998, according to the IDC, and expected to double by 2002.[\[xvii\]](#)

Consulting

Because of mergers, acquisitions, deregulation, privatization, technological advancement, restructuring, globalization, and the Internet, consulting services are growing rapidly. The fastest growing segments include financial services, banking, retail, and communications. According to Dataquest, worldwide spending on consulting services (including both business consulting and information technology consulting) totaled \$29.4 billion in 1998 and is expected to rise 18 percent to 34.7 billion in 1999. Growth is projected to continue at that pace, reaching 67.5 billion by 2003.[\[xviii\]](#)

GOVERNMENT GOALS AND ROLE

In the services sector, government goals and roles are as broad as the sector itself. The government regulates many service industries; it buys services for itself and for citizens; and it provides services, sometimes uniquely and sometimes in competition with the private sector. Government pursues efficiency and value in its own purchases and operations, redistributes resources to the disadvantaged, invests to promote economic growth and national competitiveness, and ensures market efficiency and fairness. These activities take place across the B2C, B2B, and B2G segments.

The government intervenes in B2C services commerce as a regulator, purchaser, and provider. Regulation of services such as insurance, health care, and legal counsel stems from the idea that consumers may not have enough knowledge to make informed choices in unregulated markets. Regulation may take the form of practitioner training and licensing, service performance standards, or rate and price structures. While the intent of regulation is to protect consumers, excessive regulation raises the cost of doing business and stifles innovation. Traditional consumer protection standards are being applied to services advertised and even provided over the Internet, although the issue of taxing Internet transactions has yet to be resolved. Many personal service industries depend heavily on low-wage labor and are, therefore, sensitive to minimum wage and immigration laws.

The government provides or subsidizes B2C services ranging from education to health care to housing. It also seeks to spread information and increase citizen access through its own Web-based services. When the private sector provides a service, government purchases still affect market prices and standards. Recognizing the ability of private sector innovation to improve quality and productivity, the government increasingly outsources and privatizes consumer services. More and more, contractors are providing traditional government services from trash collection to social work.

The government role in B2B services is less visible. These markets seek their own most efficient function. Usually, the government is content to allow that market force to prevail. Still, commercial and labor codes enable the flexibility of domestic markets, and trade and tariff agreements structure global service commerce. Partial deregulation of communications, energy, and transportation markets has created broad opportunities for service providers to try innovations and for businesses to gain efficiencies by outsourcing logistical activities. Still, government retains a major role in these markets through its control over the electromagnetic spectrum and real estate rights of way, as well as through its investment in common infrastructure such as highways, harbors, and airports. Terrorist threats have raised questions over the proper government role in protecting the public and private infrastructure critical to providing these services.

Government played a substantial role in the rise of the Internet, from directly funding research to fielding the initial DARPA NET prototype. Not only is the government a user of the net, but also it is searching for its proper regulatory role. Law enforcement officials are working to define, prevent, and punish Internet crimes while trying to balance access and privacy priorities. Network efficiencies also present new challenges to antitrust law, as epitomized by the Microsoft case.

Government is a major purchaser of services to support its own operations. Commercial activity regulations challenge agencies to outsource any functions that the private sector can perform more efficiently. Like businesses, government can lower costs, avoid labor problems, tap into the latest innovations, and enhance flexibility by outsourcing non-core functions such as personnel, logistics, information technology, and facility management to private providers. For example, the outsourcing of services is an essential element in efforts to improve DOD efficiency and performance. Benefits depend upon the Department's ability to master the management of supply and value chains and to rethink the business basis of its operations.

CONCLUSION

The services revolution offers both opportunities and challenges. It provides a major

growth engine for the economy while confronting traditional business practices and organization structures. Government is a major player in the continued development of the services sector, determining the appropriate mix of regulation and encouragement. The services industry offers new solutions, new opportunities, new jobs, and new challenges. The main challenge is to exploit this new way of business.

ESSAYS ON MAJOR ISSUES

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GOVERNMENT OUTSOURCING

Kathleen Zalonis and Billy J. Dowdy

In the private sector, companies seek competitive advantage to be successful. One of the ways that they gain such an advantage is to concentrate their resources and energy on those areas where they have the potential to dominate their industry. Today's most successful enterprises outsource those functions that do not contribute directly to those core areas. The movement to reinvent and make government more efficient has led public officials to adopt best business practices and other private sector benchmarking techniques. Government outsourcing of non-core functions to the private sector has become one of the primary tools of reform. It is one means of reducing costs and gaining efficiency in government operations. The government's process to determine which functions will be outsourced is vastly different from the private sector decision-making process, however.

The Commercial Perspective

By focusing on what they do best—their so-called core competencies—businesses gain competitive advantage. They obtain flexibility and agility, which enable them to react more quickly to changes in the marketplace. Outsourcing often leads to increased innovation and improved business relationships because it allows management to focus more attention on core processes than was possible when in-house personnel carried out the non-core functions.

There are a number of models available to help private sector enterprises decide what is appropriate for outsourcing. A review of the outsourcing decision models from

Price Waterhouse Coopers,[xix] Firmbuilders,[xx] AT&T,[xxi] University of California–Irvine,[xxii] University of North Carolina,[xxiii] and North Carolina State University[xxiv] showed that they had the following considerations in common:

What is the degree of process standardization? Can the process be performed as a routine, or does it have a degree of variation or specialization?

Is competition available? Usually looked for in the local area, competition in the marketplace provides some assurance of quality and price stability.

Are cost savings available through competition? Unless an entity really does not want in-house personnel to perform a function, it is not considered cost-effective to pay more for someone else to do it.

Are service improvements or innovations likely? If someone else can do a task better, it may be better to outsource it. A supplier that specializes in a particular function is likely to be more efficient and more interested in improving the process. One of the unforeseen benefits of outsourcing has been the development of improvements and innovations in outsourced processes.

What is the inherent risk in outsourcing the function? What are the consequences and effects of degraded performance? Is the risk level acceptable, or are there ways to mitigate the risk of outsourcing?

Is this considered a “core” competency—a skill that is embedded in the organization that enables it to dominate its field?

Interestingly, the considerations drawn from educational institutions also addressed factors of workforce impact and legal/ethical considerations (e.g., environmental and safety issues), while criteria used by the business models did not.

The Government Process

The government must follow a completely different procedure in determining whether to outsource a function. The latest version of OMB Circular A-76 lays out a mandatory, rigid process that requires agencies to track completion milestones and

report those that exceed certain standards. The first determination is whether an activity or function is “inherently governmental,” whether the function under consideration for outsourcing is

so intimately related to the public interest as to mandate performance by Government employees. These functions include those activities that require either the exercise of discretion in applying Government authority or the making of value judgements. Inherently governmental functions normally fall into two categories: (1) the act of governing, i.e., the discretionary exercise of Government authority, and (2) monetary transactions and entitlement.^[xxv]

Functions that are not inherently governmental and provide a product or service obtainable from a commercial source are designated commercial activities. Those functions are potentially subject to public–private competition identified in OMB Circular A-76. The prescribed competitive process has recently been under fire from many different constituencies, which believe the process to be unfair both to the private sector and to government employees. This discussion is gaining more importance since the Federal Activities Inventory Reform Act of 1998 requires all federal agencies to identify their inventory of jobs that are not inherently governmental and, therefore, subject to competitive sourcing.

Special Considerations

Government outsourcing efforts face many hurdles that industry outsourcing does not. The former is extremely political and subject to scrutiny and criticism by politicians and political organizations, industry, unions, and government employees. Internally, a recent report of the General Accounting Office (GAO) questioned the reality of DOD’s outsourcing goals and suggested the need for a comprehensive assessment of the competitive sourcing process.^[xxvi]

The issue of whether the OMB Circular A-76 process is working very much depends on one’s perspective. From a taxpayer’s viewpoint, the process seems to be working very well if the main objective is to provide efficient government. Estimates are that the government saves 20 percent when the function stays in-house and 40 percent when the work goes to the private sector.^[xxvii] If the process is indeed averaging 30 percent across-the-board cost reductions because of public–private competition, then the process is working. Moreover, the fact that the government and the private sector each win head-to-head competitions in the 40–60 percent frequency range indicates that neither side has an overwhelming advantage over the other.

The Road Ahead

An area where evolving government policy and private sector desire for reform coincide is in the adoption of best value contracting practices rather than a reliance strictly on cost and low-bid considerations. The private sector is concerned that the in-house bid also undergo evaluation for best value and past performance. The DOD has been slow to implement the move toward best value contracting, despite its support from senior DOD officials responsible for acquisition reform.

There has been a proposal to establish a blue ribbon panel made up of both public and private sector participants to reform the public-private competition process. The proposal would repeal OMB Circular A-76, end public-private competition, and eliminate cost comparisons between public and private proposals. The proposal would contract out all identified commercial activities to the private sector, based on best value competition among private sector participants. This proposal is unlikely to gain much support in Congress until after the elections, and even then it is not likely to have the support of representatives with any significant federal employee constituency.

The probable outcome of any joint public-private panel is a compromise in those areas where there is already some agreement; such as activity-based costing and best value contracting. In the interim, the present process seems to be working pretty well, and there is no shortage of competent private sector service providers.

CONTRACTOR LOGISTICS SUPPORT TO THE DOD

Michael G. Ahern, W. Scott Aitken

and Richard G. Hatch

During the past decade, there has been a significant effort by the federal government to push federal agencies to adopt the best business practices of the private sector. Private industry has demonstrated that by determining their true core competencies and turning to outside experts to handle other than core tasks (outsourcing), it achieves tremendous cost savings. The DOD is a prime candidate for exploring the potentials of outsourcing because of its size and the myriad tasks that the Department handles.

Within the DOD, a subset of outsourcing is contractor logistics support (CLS),

generally associated with weapon systems supply and maintenance support. A CLS system offers cost savings and enables the military services to allocate more resources to the tip of the war-fighting spear.

Contractor logistics support can encompass many areas of logistics support for a weapon system. Depending upon the contractual structure of the arrangement between DOD and the provider, the degree of CLS can vary widely. This diversity is exhibited in the scope of work required in various weapon

system CLS contracts. For example, some CLS contractors are required to perform supply and maintenance functions; other contractors, either supply or maintenance functions. The level of support depends entirely upon the contractual arrangement. The advantage for DOD is that the contractor is not constrained to work totally within the DOD logistics system. Since contractors are motivated by profit, they will strive to support the system or end item in the most efficient manner. Therefore, CLS often can be more cost-effective than using the organic DOD infrastructure to support weapon systems.

Impetus for DOD's Increased Use of CLS

Private companies have increasingly turned to third parties to outsource many functions that had in the past been accomplished in-house. Outsourcing has historically saved these institutions critical resources and enabled them to focus on their core business.

During the 1990s, both the Commission on Roles and Missions and the Defense Science Board recommended that the DOD emulate the trends of private industry and outsource functions where feasible. Because of its large annual expenditures (\$80 billion annually) and the similarity of DOD and commercial logistics functions, DOD logistics was a prime candidate for outsourcing. Outsourcing could save approximately 15–20 percent of the logistics budget, and the DOD could then use those savings for capital reinvestment (i.e., the modernization of military equipment and systems).

In June 1996, the Department promulgated the revised DOD Instruction 5000.2R, defining policy for all DOD acquisition programs. A fundamental change in the Instruction reflected the Department's new position on outsourcing and CLS. This change was a major impetus for DOD to pursue CLS for weapon systems. The following is an excerpt from paragraph 3.3.7 of DOD Instruction 5000.2R:

It is DoD policy to retain limited organic core depot maintenance capability to meet essential wartime surge demands, promote competition, and sustain

institutional expertise. Support concepts for new and modified systems shall maximize the use of contractor provided, long-term, total life cycle support that combines depot-level maintenance along with wholesale and selected retail material management functions.

During the 1990s, the defense industrial base was downsizing simultaneously with DOD. As reductions in defense procurement occurred, the private sector became increasingly more receptive to performing traditional logistic support. Defense contractors now pursue CLS as a method to increase revenues and maintain a stable workforce. Defense contractors compete aggressively for CLS work.

This trend toward outsourcing CLS is unlikely to be reversed. In July 1999, DOD published "Product Support for the 21st Century," built upon the Section 912(c) report submitted to Congress in April 1998 by Secretary William Cohen. Undersecretary of Defense for Acquisition and Technology J. S. Gansler referred to an earlier DOD report as an implementation strategy that "defines how DoD will capitalize and expand on best practices—commercial and government—to transform weapons system support processes to meet the urgent operational needs of our warfighters." The report highlights the following four specific areas for immediate DOD focus:

1. Re-engineer product support processes to use best commercial practices
2. Competitively source product support
3. Modernize through spares
4. Greatly expand prime vendor and virtual prime vendor contracts

To encourage the exploration of CLS opportunities, the DOD will competitively source product support for 30 pilot programs. By 2005, the DOD expects to competitively source all major weapon systems support. The DOD organic depot infrastructure will be competing head to head with private industry for logistics support. This competition could lead to the continued future expansion of CLS within the DOD.

Impediments to DOD's Ability to Utilize CLS

Despite the Department's considerable effort to use effectively CLS for weapon systems, current law could significantly hinder this outreach.. Title 10 of the U.S. Code greatly restricts the DOD's ability to use CLS in the following ways:

- *Section 2466:* Limits depot maintenance performance by other than government employees to no more than 50 percent of funds available in a fiscal year to a military department or defense agency for depot level maintenance and repair.
- *Section 2464:* Establishes the requirement to identify and maintain core logistics capabilities and facilities and prohibits performance by non-government personnel of a core logistics capability.

These provisions are currently affecting the Air Force's capability to utilize CLS. For fiscal year 2000, the Secretary of the Air Force found it necessary to waive the Section 2466 requirement that not more than 50 percent of the funds made available for depot maintenance work be performed by the private sector. According to the GAO, the Air Force "is implementing initiatives to outsource total systems support responsibility to the private sector . . . for 64 new or modified systems. Thus, the question for the future is: Will Congress continue to decrease the percentage of work required in organic depots, or will the services continue to need waivers to the law?"

CLS Initiatives and the Use of National Stock Numbers

Historically, the DOD has used national stock numbers (NSNs) as the principal means of identification to requisition consumables and repair parts. Because NSNs are fully integrated with the military services' financial, transportation, maintenance, and supply information systems, their use has enabled the entire Department to use standard processes and procedures across military services and individual weapons system boundaries, facilitating a truly universal supply chain.

The 30 pilot programs pursuing CLS indicate variance in their use of NSNs. Some programs are planning to use NSNs to identify and requisition all material. Other programs are using NSNs only for common material and plan to use original manufacturer part numbers for peculiar material. Still other programs are currently undecided on which course to follow for the use of NSNs.

Contractor logistics support for weapon system can be a method to reduce operations and support costs, but should not be employed at the expense of the operators. As noted earlier, there are various levels at which CLS can be integrated. However, if a

weapon system or subsystem is on a platform that has the potential for deployment anywhere in the world, and military personnel maintain that system, any CLS for that system should be seamless and invisible to the operator. If agencies do not adhere to this concept and CLS becomes more prevalent, the number of logistic supply chains or sources of supply could increase exponentially. Instead of simply dropping a requisition into the supply system, a supply clerk would have to deal with a multitude of CLS contractor infrastructures and systems. In the end, this would increase the fog of war and reduce combat effectiveness.

TWO FACES OF THE SERVICES REVOLUTION

Ralph H. Graves

The services industry is more than a vastly diverse group of industries; it is even more than the dominant sector of the U.S. economy. It is a new way of thinking about commerce and provider–receiver relationships. One face of this services revolution seeks to provide the customer with a complete “solution.” The other face focuses on optimizing the entire value chain of in-house and outsourced functions to deliver a final product. Both faces depend heavily on information, strategic management, and partnership.

As the lives of individuals and organizations become more complex, services meet emerging needs. The services sector performs tasks that a growing percentage of an increasingly prosperous population can no longer perform for itself (such as maintaining a car or preparing tax returns), or specializes in non-core administrative and logistics support tasks.

Companies have long sought to gain competitive advantage and differentiate themselves by providing more complete customer service. McDonald’s revolutionized the restaurant industry by inventing the fast-food experience, and dozens of other firms followed the lead. Air travel service has many dimensions. Airlines not only must deploy reliable aircraft and trained crews to deliver timely, safe, point-to-point air transportation. They must also administer complex reservation systems; handle, track, and deliver baggage; provide in-flight food, drink, and entertainment; and provide lodging or other help in the event of missed connections or schedule disruptions. Goods industries can also have a service component. In addition to selling automobiles, for example, most car companies now offer financing, insurance, maintenance, and travel services. One of the most imaginative recent service expansions is the OnStar system available on General Motors cars. Through a satellite system, it provides drivers with real-time navigation information, food and lodging suggestions, and immediate assistance in the event of accident. The system can even remotely open a vehicle after the owner has

inadvertently locked the keys in it.

Yet even as consumers demand and expect more comprehensive and individually tailored services (and goods), companies have perceived the inefficiencies of meeting all needs from one vertically integrated organization. In a modern economy, most goods and services involve complex value or supply chains, and managing these chains has been a major challenge for business. According to the Council of Logistics Management, “Supply chain management (SCM) employs comprehensive arrangements that span from source of raw material to end-customer delivery and includes activities ranging from new product introduction through the end of the product life-cycle.”^[xxviii] Driven by market competition, firms employ SCM in order to

- Integrate actions and meld interfaces among the links for *effectiveness*
- Identify cost and value at each link to pursue *savings* and *efficiencies*
- Use customer-demand information to make the chain more *responsive*
- Choose where on the chain to operate and which activities to *outsource*
- Flexibly alter configurations through *continuous adaptation*

Two great enablers of these improvements are modern information technology and cooperative relationships among the players.

Supply chain management aims to be agile and responsive, but it must also deliver quality products. Whereas old-fashioned bosses tried to achieve integration through hierarchical control, modern supply chain managers employ total quality management with employees and suppliers by sharing information and delegating responsibility. Profit-sharing compensation plans and long-term contract relationships spread the benefits of seamless cooperation. Nevertheless, sound integration is built on disciplined adherence to standardized specifications and procedures.

The best companies find ways to integrate the widespread performance of logistics functions, either by giving a logistics department formal oversight or by thorough interdepartmental coordination. Wherever possible, simplified procedures and designs seek to reduce the cost and effort of complying. Structural adaptations from physical and virtual networks to customized distribution buildings facilitate the achievement of faster and more accurate supply chain logistics.

Corporations spend an estimated 7–12 percent of their total revenues on supply chain activities, so locating and quantifying logistics cost centers can help identify significant savings opportunities. Under the broad headings of customer service,

physical distribution, and materials management lie many complex subprocesses, such as order processing and tracking, production planning, supplier management, purchasing, warehousing, transportation, and automated communications and payment. High-performing firms measure logistics performance and benchmark against their best competitors in the categories of cost, asset management, timeliness, and productivity.

The drive of companies to become ever more responsive to customers and markets brings new urgency to the classic supply chain challenge of deciding where to locate the “decoupling point,” the boundary between push and pull delivery. Supply chain management seeks to move that point ever farther toward the beginning of the manufacturing process in order both to reduce inventory costs and to make the chain more responsive to consumer demands. From WalMart’s use of sales transactions to trigger supplier reordering and restocking to Dell Computers or Cisco Systems’ custom assembling products in response to Internet orders, automation systems are increasing the responsiveness of providers to demand. This responsiveness requires not only speeding information flow, but also reducing the friction imposed by “functional” managers who are still trying to optimize their links at the expense of the chain.

As strategic managers seek competitive advantage, they identify core competencies and outsource to more efficient providers many parts of the value chain. In order of frequency, the logistics services most often provided by outside parties are

- | | |
|-------------------------------------|---|
| -Outbound transportation | -Product returns and repair |
| -Freight-bill auditing/payment | -Traffic management |
| -Warehousing | -Information technology |
| -Inbound transportation | -Product assembly/installation |
| -Freight consolidation/distribution | -Inventory management |
| -Cross-docking | -Order fulfillment |
| -Selected manufacturing activities | -Customer service |
| -Product labeling and packaging | -Order entry/order processing ^[xxix] |

Several companies with ties to General Motors—Delphi in Juarez, Mexico; Opel in Russelsheim, Germany; and EDS in Dallas, Texas—demonstrate the challenges and opportunities of integrating a global value chain. Delphi was a major parts subsidiary of General Motors until it became an independent company in May 1999. Operations in Juarez began in 1978 with assembly of a simple taillight wiring harness. Today, in

a modern Delphi design facility, a largely Mexican staff of engineers and technicians design and test a variety of automotive components for sale to General Motors and other automobile manufacturers around the world.

Global reach is not new to the automotive industry: General Motors bought a controlling share of Opel in 1929. In Russelsheim, U.S. and German managers describe the matrix General Motors supply management system that crosses final product lines with categories of parts and supplies. General Motors, Ford, and DaimlerChrysler are also establishing an electronic components marketplace to facilitate competition and information flow among automotive firms and suppliers.

Until 1996, General Motors had an in-house consulting firm in EDS. The now independent company still does substantial work for General Motors, including playing a leading role in developing and fielding the OnStar system. However, EDS' worldwide \$18 billion business encompasses many different customers and sectors, of which 13 percent involves government work. This vast business is pure consulting: EDS makes no hardware or software. Its major services fall into the categories of strategic management consulting, e-commerce, SCM, business process management, and information technology. In order to deliver the solutions its customers need, EDS forms strategic partnerships with such industry leaders as Sun, Netscape, SAP, Oracle, Microsoft, Cisco, BellSouth, and Hewlett-Packard.

Driven by competition for markets and for capital, firms cannot expect any supply chain solutions to be final. The top firms configure themselves for almost continuous change. By measuring performance and cost, comparing themselves against peers and industry leaders, and developing innovative solutions, they seek to stay a step ahead of the competition. Particularly at Opel, managers feel a sense of urgency to speed and optimize their supply chain. It is no small task: General Motors spends some \$87 billion a year in purchases from its 30,000 suppliers. Yet the potential payoffs are huge: Opel managers estimate that their new purchasing process has the potential to reduce the current \$100 cost of each transaction to around \$10.

It is evident that the two faces of the services revolution characterize developments even in the established automotive manufacturing industry. At the customer end, companies compete for market share not only on the basis of product cost and quality, but also on customer service and solutions like the OnStar system. Yet the chains that deliver goods and services are increasingly broken up so that firms can concentrate their expertise and optimize core competencies. Integrating the chains requires strategic management, information management, and partnership. The challenges and the opportunities at both faces of the services revolution are immense.

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