

INDUSTRIAL COLLEGE OF THE ARMED FORCES

INDUSTRY STUDIES 2001

Services

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ABSTRACT: In recent years, there has been substantial growth of the services industry to the point where it now constitutes 80 percent of the U.S. GDP. The pace and breadth of the changes in the services industry have spawned new services in a highly complex marketplace. The U.S. has maintained its economic strength in traditional services industries such as transportation, tourism, public utilities, finance and insurance, accounting, engineering, architecture, medical, legal, food, custodial and retail services. However, the information revolution has provided a catalyst for the provision of new information technology services and the extension of the services industry into the manufacturing sector through "outsourcing". The industry is a major employer of U.S. workers. It will provide the greatest opportunity for employment in the future. The services industry is one of the main engines of growth for the U.S. economy. As such, it is critical to the nation's competitive position in the global economy and the ability of the U.S. to pursue its national security objectives.

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UUNet – A WorldCom Company, Cambridge, England

Royal Air Force Training Group Defense Agency, RAF, Uxbridge, England

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Young and Rubicam Advertising, London, England

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NATO Maintenance and Supply Agency, Luxembourg

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INTRODUCTION

The services industry can succinctly be described as “changing.” This is an industry whose definition continues to evolve. It is changing to adopt and adapt to new aspects of globalization and technology advances. The services industry has defied expectations and developed into a critical sector of the national economy of the United States as well as powering U.S. international trade. Change also characterizes the labor force and the job qualities that populate the economic activities that fall under the services umbrella. The more the U.S. services industry is examined, the more dynamic any comprehensive understanding of this industry becomes, including its role in and influence on the nation’s national security strategy.

The substantial growth of the services industries over the past two decades is inextricably linked to the dramatic advances in information technologies (IT). The information revolution has created new services industries in computer programming, information and communication service providers and consulting; and redefined existing, traditional industries. For example, modern information systems enable businesses to develop complex supply chain interdependencies and create "extended" or "virtual" enterprises that reach from supplier to consumer. New logistic "service" providers have replaced in-house activities of many large and small corporations. A similar development is occurring in government where many services are being outsourced to contractors to improve efficiencies and reduce costs.

Traditional services industries, such as education, legal, banking and finance, hospitality and leisure, and healthcare have also expanded due to the increased productivity engendered by the information revolution. The services industry has also absorbed many workers from traditional manufacturing jobs who have been displaced by improvements in productivity in their relevant sectors. In the modern U.S. business environment, the services industries not only cater to a domestic market but have also become major export industries in their own right.

The shift from an industrial economy to an information economy, dominated by the services industry, provides both opportunities and challenges to the U.S. national security strategy.

THE SERVICES INDUSTRY DEFINED

The major difficulty in studying the services industry is in providing it with a precise definition. The traditional approach was to divide the economy into distinctive, relatively exclusive categories of manufacturing and services. The manufacturing industry clearly involved economic activities that resulted in production of final, physical products from raw materials. The services industry involved the performance of functions or “intangible products,” and sometimes the production of a physical product, that were “consumed” by the customer at the time and location of performance or production. Economic activities that fall under the traditional rubric of services include transportation, tourism, public utilities, finance and insurance, and professions such as accounting, engineering, architectural, medical, and legal services at the high end of the spectrum. The opposite end of the traditional services spectrum includes functions like food, custodial, and retail services.

However, the definition of the services industry has grown more ambiguous and includes a broadening range of economic activities and job skills that are provided to two categories of consumers: (1) individuals and households, and (2) businesses and institutions. There is now a growing demand for an increasingly broader variety of services resulting from “demographic shifts, changes in consumer preferences, technological advancements, and increases in competitive pressures.” [\[i\]](#) Households seek increasingly sophisticated and higher quality services as well as new services (generated by technological innovations) as they realize greater affluence, more leisure time and the demands of dual-career and single parent families. These factors also gave rise to improved, more technologically sophisticated medical care, cable television, Internet service providers, childcare providers, fast food services, personal financial services, and a host of services that are emerging to meet changing household demands. In some cases, household services providers present an alternative to having a household member performing the activity so that member can engage in different, more “valuable” activities; in other cases, services have improved or new services have emerged to maximize quality of household life.

For businesses and institutions, the demand for services evolved and increased in response to technological advances, especially in information technology, globalization, and “complexity of management.” [\[ii\]](#) The confluence of these factors is ongoing and pushes businesses to maximize efficiency and focus on core functions so they can survive and thrive in the fiercely competitive economic environment. Business managers incorporate ongoing technological improvements to their processes and practices while many have moved toward specialization in their core “product.” Consequently, many of the “non-core” functions that were previously performed in-house by firms are now being outsourced and, therefore, in numerous cases, being considered as new additions to the services industry. When outsourced, functions such as payroll, personnel services, building and equipment

maintenance services, and marketing as well as the production of “intermediate products” that are consumed in the production of the final output are defined as part of the services industry. Supply Chain Management (SCM) is an outcome of the application of information technology to this phenomenon.

Supply chains are life cycle processes supporting physical, information, financial, and knowledge flows for moving products and services from suppliers to end users. SCM is therefore the design, maintenance and operation of supply chain processes for satisfaction of end user needs. [iii] It includes activities such as managing supply and demand, sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, and delivery to the customer. Conceptually, SCM is not new, however the power of the information revolution has invigorated it to become one of the highest priorities in the business arena. SCM provides both a competitive advantage in meeting customer requirements and an ability to reduce overall process costs. The hallmark of effective SCM is an integrated approach throughout the entire supply chain process (physical, networked or virtual) supported by flexible and responsive organizational structures and business cultures. SCM provides speed, agility and flexibility in meeting the demands of business in the information age. In both the business and government domains, a fully integrated supply chain provides the ability to make informed decisions on outsourcing with a better understanding of second and third level effects.

CURRENT CONDITION

There has been a rapid expansion of the services industry in the second half of the twentieth century, ranging from just 9 percent of gross domestic product (GDP) in 1945 to 80 percent of GDP in 1999. [iv] The growth in services is in stark contrast to the proportionate decline in manufacturing from 30 percent of GDP to 17 percent during the same period. While the transfer of the economic activities from one category to another on economic accounting ledgers may seem like a “shell game” with no net gain, the movement of these activities has spurred growing efficiencies in the provision of these services and intermediate products as well as the original firm whose management now focuses on core functions. The efficiencies achieved in the U.S. services industry have been critical to the nation’s competitive position in the global economy. In addition, specialization and sophistication have spawned new services with the growing complexity of the marketplace. The pace and breadth of the changes in the services industry has outpaced the ability to measure them accurately and in a timely manner in many cases. U.S. government and private industry sources work continuously to revise data definitions and measurements to provide an accurate picture of this dynamic industry. [v] Nonetheless, a veritable explosion of diverse activities has developed within the blurred boundaries of the services industry and has propelled this economic sector into a leading role in national output as the U.S. enters the twenty-first century. The condition and strength of the services industry can be gauged by its export performance and its impact on employment.

Trade in traditional services activities such as transportation, tourism, banking, and finance played a small part in the U.S. aggregate trade picture for years. With the explosive growth in the services industry and the honing of highly efficient, competitive service providers, U.S. exports of services have also grown dramatically. The February 2000 Economic Report of the President reports that only about two percent of U.S.-produced services were exported in 1950, but that share tripled to about six percent by 1998. By the late 1990s, services exports comprised almost 30 percent of total annual U.S. exports. The diversity of the top ten U.S. services exports in 1996 portrays the competitive strength of U.S. services, underscoring their contribution to the U.S. and global economies. They are, in declining order of value: Travel; Transportation; Commercial, Professional, and Technical services; Financial services; Education and Training services; Entertainment services; Information services; Equipment Installation, Maintenance, and Repair; Telecommunication services; Healthcare services. [vi] Together, the businesses included in these ten services categories provided \$167.6 billion in services exports in 1996, or 76 percent of that year’s total \$221.2 billion in services exports. By 2000, total U.S. services exports rose to \$295.1 billion, an increase of \$23.2 billion over 1999, with additions in travel,

financial services, and business, professional, and technical services accounting for most of the increase. Of interest, U.S. imports of services increased to \$215.3 billion, up \$24 billion from 1999. Still, the net result of U.S. trade in services was a surplus of \$79.8 billion in 2000, down \$0.8 billion from 1999, but continuing the trend of strong performance of annual services surpluses that have partially offset the growing goods trade deficits accumulated by the U.S. in recent years. [\[vii\]](#)

The American workforce holds a large stake in the growth of the services industry in the U.S. and in its expanding trade gains throughout the world since service-producing industries employed 80 percent of nonagricultural workers in the U.S. in 1999. [\[viii\]](#) Furthermore, nearly half of all new jobs outside agriculture expected to be created between 1998 and 2008 are projected to be concentrated in health services, business services, social services and engineering, management, and related services. [\[ix\]](#) Ironically, these categories of anticipated job creation are representative of the spectrum of job quality across the services industry.

About 20 years ago, the manufacturing industry was characterized by the growing displacement of workers as technology improved production processes and some firms shifted production overseas to lower costs. Nay Sayers warned of doom as workers moved into the services sector that was despairingly associated with low wages, low skills, and low productivity. [\[x\]](#) To the surprise and delight of many American workers, the U.S. economy proved the prognosticators wrong. The dramatic growth of the services industry, particularly in non-technical, white-collar services using technology, provided a range of job quality in terms of wages, benefits, job security, and safety and health. [\[xi\]](#)

There is a wide diversity of job quality in the services industry. This quite naturally follows from the variety of economic activities that now fall under this sector's umbrella label. Many services jobs compare favorably with those in manufacturing and other industries. Nonetheless, a brief assessment of job qualities demonstrates the fallacy of generalizing when it comes to statements about employment in the services industry.

Probably the single most important element of job quality viewed by workers is wages and salaries. The measurement of average hourly earnings provides the basis for comparison among and within industry groups. In the case of services, the average hourly earnings in 1996 were \$11.79, almost even with the overall non-farm average of \$11.81. The wage gap between services and manufacturing has narrowed significantly, from 77 percent of the manufacturing average in 1964, when services earnings were first measured, to 92 percent of the 1996 manufacturing average of \$12.78. However, given the diversity of jobs within the services industry, there was a wide distribution around the average hourly earnings figure for all services. Despite the difficulties in developing a clear picture of the earnings distribution, data indicate "the best paid workers in some services industries (e.g., legal services, management and public relations) earned considerably more than the best paid workers in other industries". "The lowest paid workers in some services industries (e.g., hotels, beauty shops, car washes and cleaning services) earned less than the lowest paid workers in industries outside of services." [\[xii\]](#) For some perspective on these figures, low wage service jobs currently account for about 21 percent of all U.S. jobs (the same percentage as in 1959). In contrast, white-collar office jobs in services now constitute 41 percent of all U.S. jobs. [\[xiii\]](#)

Due to the large numbers of occupations and workers now in the services industry, a broad characterization of job quality is difficult to make, due in part to the "soft" nature of much of the data and the subjective judgments on the different qualities. It is interesting to speculate that current data averages cited for measurements in industries such as manufacturing and mining reflect downsized workforces that have benefited from technological improvements in their work processes and environments. Given the relatively low number of employees in industries outside of services, the interpretations of the comparisons in job quality elements could be

somewhat “skewed” to appear “better” than the broad averages assigned to services’ elements. The changes that have occurred and continue among industries and within the services industry suggest the evaluation of employment in the services industry will be difficult to “gauge” with any certainty before additional changes further impact its character. Underpinning the growth in employment in the services industry and the range of job quality across the industry, the one certainty is that human capital is the key to the economic impact of this important sector.

CHALLENGES

The challenges concerning the services industry fall into two categories. The first is those challenges the industry itself faces to remain a dynamic engine of growth for the U.S. economy. The second is the challenges that the growth of the services industry places on the U.S. pursuit of its grand strategic objectives. The challenges facing the services industry include maintaining and increasing international trade and attracting sufficient workers to the services industries. The challenges of the services industry to U.S. grand strategic capabilities will be examined in four short essays later in the report. Due to the ubiquitous nature of the services industry, the essays will only cover various aspects the industry has on U.S. Economic, Military, Diplomatic and Informational abilities.

International Trade The continued strength and potential growth of U.S. trade in services is dependent upon fair access to foreign markets. In 1998, Everette James, Deputy Assistant Secretary of Commerce for Service Industries and Finance, discussed U.S. government efforts to respond aggressively to open overseas markets and eliminate regulatory barriers to help U.S. service providers gain fair access in global trade. Secretary James noted the importance of the General Agreement on Trade in services (GATS) in 1994, the first multilateral agreement for trade in services, and the North American Free Trade Agreement in U.S. government efforts to level the playing field in services trade. [\[xiv\]](#) Nearly 130 countries returned to the negotiating table in 2000 to continue the work by GATS to increase transparency and predictability in the world market for services. [\[xv\]](#) With the growing role of services in the U.S. and global economies, the success of ongoing trade negotiations concerning trade in services will be critical to maximizing economic efficiencies and the potential of businesses and nations worldwide.

Secretary James highlighted several U.S. services industries as key to global economic growth and prosperity in the U.S. He noted the strength of U.S. providers of telecommunications, information technology and services and their potential to extend benefits worldwide to businesses, governments, and populations through a wide range of information services. He also observed the unchallenged expertise in U.S. education and training services, keying in on the nearly limitless potential in this area, particularly in emerging markets. Finally, he cited U.S. leadership in financial services, travel and tourism, professional services (e.g., accounting, management consulting, legal services and advertising), and healthcare. The U.S. has established a competitive advantage or a leading position in world trade in these areas, [\[xvi\]](#) in many cases only hinting at their potential, since innovation is a hallmark in these industries. If the U.S. and other countries are to continue to exploit their respective competitive advantages in services to maximize global economic efficiencies and benefits, multilateral trade negotiations will play an imperative role in the national security strategy into the future.

Worker Shortage A serious challenge facing many of the high-end service providers is the dearth of skilled personnel to perform jobs in this expanding sector. With the bursting of the dot com bubble, this problem has lessened. However, this downturn could be cyclical in nature, with a future return to employment pressure for qualified personnel. Services industries such as information technology, engineering, systems analysis, technical consulting and certain medical fields have had difficulty in recruiting and retaining qualified workers. This is particularly the case for the newer and fastest growing technical white-collar services industry jobs that require college degrees and technical training - for example, computer support personnel (database administrators),

computer engineers and systems analysts.

A longer term problem for the services industry is the aging of the baby boom generation and the impending demographic imbalance the U.S. faces. [\[xvii\]](#) The aging of the population will result in higher demand for services industry products. These services will include health care, domestic services and leisure and recreation services. A smaller proportion of working-age U.S. citizens to non-working citizens will also impact on the ability of all services industries to attract sufficient workers. A feature of the services industry is that it is manpower intensive. The demographic imbalance will therefore have disproportionate impact on this sector of the economy. Considering the importance of the services industry to U.S. economic health, this will be a considerable challenge to the U.S. government and economy.

OUTLOOK

As stated previously, the services industry is the fastest growing sector of the U.S. economy. It constitutes 80 percent of the nation's GDP. The strength of the services sector is therefore one of the main engines of growth for the U.S. economy. From a macro economic perspective, the services industry is critical to the economic health of the U.S. and the nation's ability to resource its national security requirements.

From a Government perspective, the increasing importance of the services sector will provide both challenges and opportunities to the DoD's ability to achieve surge and mobilization potential. The Defense Department is not immune to the general thrust in the economy to outsource non-core functions. This is driven by budgetary realities of the post Cold War environment and a requirement to achieve organizational efficiencies. The increased importance of the services sector in second and third party logistic providers and IT services affords opportunities for the DoD to concentrate on core activities and procure logistics and IT support as needed. The critical aspect of this strategy is to retain the in-house ability to be an informed and competent customer. The Department must also ensure that outsourcing does not degrade combat capability.

The future strength of the services industry can be gauged by the anticipated growth in its employment. The Department of Commerce predicts that the services industry will be the dominant source of employment through 2008. This sector will account for three out of every four jobs in the U.S. economy by 2008 [\[xviii\]](#). This represents an increase from 37.5 million jobs in 1998 to 49.3 million jobs in 2008. At a 2.8 % annual increase in employment, this will be the highest growth rate of any industry division. Nearly three-quarters of this growth will be in business, health, engineering, management, and related services. [\[xix\]](#) The growth in the high-end services industries is and will continue to be driven by information technologies, including information services, data processing, and professional computer services.

National vulnerabilities of the services industry are increased economic interdependence and an aging workforce. An issue of potential concern is the 'virtual' integration of supply and manufacturing chains. The interdependence of U.S. industry, both manufacturing and services, increases risk in time of national emergency. The whole system is only as strong as its weakest link, and the links in the chain are growing more numerous, both domestically and globally. Also, the impending demographic imbalance created by the aging of the baby boom generation make it imperative to find technology enhancements that will substitute for a smaller workforce at a time when the services industry's demand for workers will increase. Already, the services sector's share of total R&D in the U.S. has increased from less than 5% in 1983 to 26.5% by 1993. The ability of the services sector to incorporate innovative R&D will be critical for offsetting declining workforce participation. [\[xx\]](#)

The U.S. services industry is positioned to maintain a dominant position in the global marketplace. The increasing importance of IT to services industry competitiveness places the U.S. in a position of international comparative advantage. The “new age” economies associated with the information revolution work to the strength of U.S. technological and entrepreneurial abilities in the services sector. This is in addition to the U.S. international strength in traditional services industries such as banking, legal, health and general consulting services.

GOVERNMENT: GOALS AND ROLES

Due to the ubiquitous nature and size of the services industry, the Government's role falls into four main areas: Macro Economic Policy; Government Regulations (Micro Economic Policy); Government as a Service Provider, and Government as a Service Customer.

Macro Economic Policy Perhaps the most pervasive activity of government is its role in the nations economic system. It is many things at the same time: regulator, cheerleader, banker, buyer and credit manager. Due to the importance of the services industry to the overall economic health of the U.S., the federal government must consider the impact its fiscal, monetary and trade policies will have on the services sector. The size and complexity of the services industry precludes this report from prescribing detailed policy recommendations.

Government Regulations. Both federal and state government regulations directly affect the services industry. Examples include banking and public utilities regulations. The increasing importance of IT to the economic well being of the U.S. also makes laws concerning the Internet and e.business critical to U.S. domestic and international commercial success. With the increased outsourcing of government services, the regulatory framework assumes even greater importance to protect commercial operations and the consumer.

Government as a Service Provider. The government provides or subsidizes services ranging from education to health care to housing. [\[xxi\]](#) Increasingly, it has also become more involved in the dissemination of information through Web-based services. Even when the private sector is the service provider, the government’s presence as a purchaser is felt through its impact on market prices and standards. [\[xxii\]](#) In acknowledgement of the private sector’s ability to lead in innovation and productivity, the government itself is increasingly stepping away from the role of service provider. It is using outsourcing to provide products and services which have traditionally been governmental in origin. [\[xxiii\]](#) Consequently, the government now purchases services that it previously provided.

Government as a Service Customer. The government is a major purchaser of services to support its own operations. [\[xxiv\]](#) Commercial activity regulations challenge agencies to outsource any functions that the private sector can perform more efficiently. [\[xxv\]](#) 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. [\[xxvi\]](#) In the case of the DoD, the benefits of outsourcing depend on the Department’s ability to master the management of supply

and value chains, to re-think the business basis of its operations, and to do so without compromising operational readiness. [\[xxvii\]](#)

ESSAYS ON MAJOR ISSUES

Services Industry and U.S. Diplomacy

The rise of U.S. service exports to \$295.1 billion in 2000 underscores the importance of the global marketplace in maintaining the economic health of our nation. The Office of Commercial and Business Affairs (CBA) at the Department of State plays a major role in coordinating trade and investment matters to support U.S. firms doing business overseas. Established as part of the “American Desk” initiative, the CBA coordinates State Department advocacy on behalf of American businesses and offers problem-solving assistance in opening markets, leveling the playing field, and resolving trade and investment disputes. Supporting American firms in the global economy is a key objective of U.S. foreign policy and integral to the mission of State Department officers around the world. Former Secretary of State Madeleine K. Albright stated, “The State Department places the economic security of the American people and promoting U.S. economic and commercial interests overseas at the top of our foreign policy priorities.”

The Commercial and Business Affairs office at the Department of State is the service center for State officials in the U.S. and overseas. Additionally, the CBA provides similar services for other principal clients, specifically American businesses, large and small. [\[xxviii\]](#) They promote:

- Advocacy on behalf of U.S. companies with commercial opportunities or concerns about economic and trade policies
- Integration of business perspectives into the Department’s foreign policy and commercial diplomacy
- Representation of the Department’s agenda to the American business community and public at large

The Bureau of Economic and Business Affairs (EBA) formulates and carries out U.S. international economic policy, integrating U.S. economic interests with our foreign policy goals so that U.S. firms and investors can compete on an equal basis with their counterparts overseas. Given the expanse of the U. S. services industry around the world, our economic interests must be carefully balanced with our diplomacy. Efforts in each area must not convey our sole purpose for being in a nation as being to simply make money. The EBA seeks to maintain such a balance. They implement American economic policy in cooperation with U.S. companies, U.S. Government agencies, and other organizations. Under the direction of the Assistant Secretary of State, the bureau negotiates agreements with foreign governments and advances U.S. positions in such international organizations as the International Monetary Fund or the World Trade Organization. [\[xxix\]](#)

The mission of the Bureau of Economic and Business Affairs is to:

- Expand open market approaches to trade.
- Expand scope of multilateral trade regimes and development of international rules and standards.
- Enforce rules and agreements to reduce and eliminate foreign trade barriers, increase transparency, and strengthen the rules of law.
- Combat foreign competitive practices that impede U.S. access to markets in areas such as standards, barriers related to animal or plant health, tied foreign aid and corruption.
- Expand business opportunities for U.S. agricultural producers and processors
- Promote U.S. trade interests within the WTO and regional trade organizations such as Asia-Pacific Economic Cooperation (APEC), the North American Free Trade Agreement Secretariat (NAFTA), European Union (EU) and the Free Trade Area of the Americas (FTAA).
- Promote bilateral trade and resolve specific issues that impede such trade
- Facilitate U.S. trade policy development

The distinction between domestic and international issues is less clear today. Global economic transactions impinge upon national sovereignty interests with the proliferation of “borderless” e-businesses, especially in the services Industry. Nations are relying more on face-to-face international diplomatic forums, like the United Nations, to vent policies and concerns that they can support and more readily adopt for their own governance. Not so with industry. Multinational corporations freely replace companies operating in a country, with such decisions having first- and second-order effects on the country and its workers, thereby generating a diplomatic as well as an economic dilemma. An outsourcing decision by a company could result in the shifting of a portion of the industrial strengths of a nation, as well as employment, beyond their border. A good business decision may create a political tempest within which the EBA and our State Department officials must try to operate. While more and more companies realize that their survival depends on their unmitigated participation in the global marketplace, the U. S. diplomatic corps must also be enhanced and imbued with the resources necessary to balance U. S. economic and regional political interests.

Within the U. S., one could argue that significant conflict exists between the well-defined structure that promotes our international trade and the moralistic demands of our society that compels our nation to take action against states acting in a manner opposed to our core beliefs. In the 1990’s, the U.S. went on a sanctions spree, in an effort to punish foreign antagonists. History has shown that such measures seldom accomplish their publicized goals and often hurt the wrong people, including innocent populations of target countries, and U.S. companies forced to remove themselves from global trade opportunities. Recently imposed sanctions have compounded these problems by placing our allies in situations where they feel compelled to support our sanction policies because of poorly veiled threats of retaliation. Meanwhile, non-U. S. aligned states recognize these opportunities to begin new business associations with these countries, capitalizing on cheap technology and labor to provide needed services which the U. S. and allies have abandoned owing to politics and diplomacy failures.

Economic sanctions today cost the United States \$15 to \$20 billion in lost exports resulting in the loss of 200,000 jobs [\[xxx\]](#). In the global marketplace, unilateral sanctions have a more devastating effect on a company. When forced to curtail sales in a foreign market due to U.S. sanctions, the company must break contractual arrangements. They are seen as unreliable and sales are permanently lost to foreign competitors. The services Industry is dynamic and performance based, and as such, any diplomatically imposed decision that complicates or precludes a company from delivering its contracted services will suffer globally in today’s market place.

Diplomacy must facilitate relationships throughout the world that will support our economic growth through expansion of our

trading base and creation of regional security. For this to work, America must check its desire to condemn immediately what we perceive as injustices in developing nations around the world. We must consider a stern, but softer remediation approach that maintains diplomatic ties with other nations and encourages continued economic development while maximizing future courses of action if necessary. We must carefully consider alternatives to sanctions or military intervention because of the devastating impact on our industries in the region and future commercial relationships.

Services Industry and U.S. Informational Ability

The nation is experiencing a growing dependency on critical infrastructures and cyber-based information systems to manage information. These systems are essential for the minimum operations of the economy and government. The services industry provides most of and is also a primary user of the nation's critical infrastructure. Success of the services industry in maintaining operational capability of the critical infrastructure is vital to the success of all industries. For any industry to achieve efficiencies and effectiveness, the services industry must provide uninterrupted utilities, network connections, health and safety services, etc. Because of information technology, these critical infrastructures, particularly cyber networks, are increasingly interlinked and automated. Yet, because of their growing interdependence, the infrastructures are becoming extremely vulnerable to outside physical or cyber attacks.

Recognizing the vulnerabilities, on 22 May 1998 President Clinton signed Presidential Decision Directive 63 (PDD63), "Critical Infrastructure Protection". PDD63 envisioned a public-private partnership, working together in eight sectors, each representing a different critical infrastructure. Each partnership would "assess the vulnerabilities of the sector to cyber or physical attacks; recommend a plan to eliminate significant vulnerabilities; propose a system for identifying and preventing attempted major attacks; and develop a plan for alerting, containing and rebuffing and attack in progress, and rapidly reconstruct minimum essential capabilities in the aftermath of an attack" [\[xxxix\]](#).

Security measures have not kept up with the pace of technological developments. The vulnerability of the cyber system was recently demonstrated in April 2001 when Chinese 'hackers' infiltrated nine U.S. government and business web sites, posting messages declaring their displeasure at the collision of a U.S. surveillance plane and a Chinese military jet fighter. Computer consultants caution that such attacks should be taken as a warning of inadequacies in electronic systems defenses.

Both public and private players in the services industry have roles in protecting the critical infrastructures. Because private industry owns 85% of the infrastructure, it is critical for them to fully participate in protecting the nation's critical infrastructure. Critical to the success of PDD63 is the open exchange of information regarding safeguards, attempted attacks and countermeasures to prevent further attacks. PDD63 sets forth basic protection requirements, essentially that owners and operators of the critical infrastructures be strongly encouraged – but not required - to create Information Sharing and Analysis Centers (ISACs) for their individual infrastructure sectors to gather, analyze, appropriately sanitize, and disseminate private sector information to both industry and the government and vice versa [\[xxxix\]](#).

Much of this information, critical for the protection of the infrastructure, is proprietary. Justifiably, most private services industry concerns have a legitimate desire to protect proprietary and sensitive information on behalf of their companies, shareholders, and clients. Disclosure of system faults or vulnerabilities could result in a lack of consumer confidence as well as liability issues. Publicizing hacking incidents can draw negative publicity to a company reporting a breach. Conclusions about vulnerabilities that

are rightly or wrongly drawn from disclosed information could result in stock price dips and drops in consumer confidence. The Freedom of Information Act (FOIA) currently allows the release of information held in government files to interested parties. For example, information collected by an ISAC would be available upon through a FOIA request and could include an industry's trade secrets and experience with cyber attacks. In the wrong hands, this information could be devastating to industry, but just as importantly, national security.

Companies, including those in the services industry, want the government to recognize their efforts to avoid or reduce cyber-threats and other harm to critical infrastructure, and they want regulatory "safe harbor" status. Furthermore, they do not want disclosure of vulnerabilities to expose them to additional regulatory requirements or other liability. In short, they would more readily share information needed to protect critical infrastructure if appropriate protections were in place.

There are many costs associated with critical infrastructure protection. One cost is identification of the critical infrastructure. Additional costs include documenting interdependencies of the critical information networks; assessing threats, vulnerabilities, and risks; system protection; intrusion monitoring and response; and recovery and reconstitution. The government is beginning to collect this information and intends to fund research and development to improve the state of the art in system security. Resources devoted to infrastructure protection will enhance bottom lines by ensuring critical infrastructure is identified and protected from unwanted attacks. Of course, resources allocated to these activities will not be available for investment in other areas of the services industry's businesses or other government programs. However, the cost of protecting the infrastructure far outweighs the cost of disruption and recovery from a catastrophic failure of the infrastructure.

Another issue is protection of the critical infrastructure that extends beyond the nation's borders. Identifying and protecting critical infrastructure in the U.S. must be done first before the U.S. can participate in any activity to ensure that the critical infrastructure worldwide is identified and protected. Although there are diplomatic and legal issues to be worked out, lessons learned at home can be shared around the world so that the critical infrastructure that is increasingly reaching around the world can be similarly protected from unwanted attacks.

Critical infrastructure protection results in the diminished likelihood of attack and its consequences. Knowing the architecture of the critical infrastructure and understanding associated vulnerabilities allows the government and private industry to prepare defenses against unwanted attacks and reconstitute quickly should there be an attack. Comprehensive sharing of information between private industry and the government results in being able to review and decide which threats are widespread and which countermeasures have wide-ranging applicability. This information can be used to develop a set of best practices for network security, promote improvements in state of the art system security, and exchange threat information so companies can make investments in infrastructure protection commensurate with the identified risks.

Cooperation between the government and the services industry, is essential for maintaining the operational capability of the infrastructure. The government needs to assure private industry that information provided by industry regarding their efforts at protecting their critical infrastructure, vulnerabilities, and any attacks, will be protected from release. This will encourage greater sharing of information that will, in turn, result in a more comprehensive protection effort.

Services Industry and the U.S. Economy

As stated previously, the services industry is now the largest sector of the U.S. economy. The industry is now also the second largest U.S. export commodity. U.S. exports in 2000 totaled \$772B with services comprising 38% of that total second only to capital equipment. U.S. services exports make up 18% of the global services exports with the United Kingdom a distant second at 7%. [xxxiii] The December 4, 2000 Wall Street Journal reported that our services trade advantage (total numbers and surplus) is set to further expand over the next ten years. In short, the service industry has become and will continue to be the corner stone to our economic dominance.

U.S. companies are taking advantage of two dynamics to maintain a competitive edge. First, we have more experience in operating in a market based financial, banking, outsourcing and insurance business sector. As the European countries continue and the Asian countries begin their market reforms, reorganization and government deregulation, we are uniquely qualified and in position to market our experience, successes and capabilities to help governments and companies alike plan for and execute their transformations. Second, the U.S. companies made better investments in and use of information technology (IT) to support business strategies and processes. The IT revolution coupled with changes in corporate cultures, strategies and processes has been greater in the U.S. than any other country and gives us full advantage over any international competitor. Our productivity improvement without a corresponding increase in inflation is evidence of our success. A recent industry entry into the services sector that is part of our current and future dominance is the Third Party Logistics (3PL) sector. The 3PL niche is the manifestation of service and product providers focusing their efforts on providing customer value via the supply chain to gain and maintain market share versus a pure price based strategy. Original equipment manufacturers (OEM) use new supply chain management strategies to concentrate on core functions while outsourcing logistics and administrative functions to companies that have greater competency in those areas. The OEMs then focus their efforts on their competencies and make better use of capital assets for future capabilities to maintain competitive advantage. The outsourcing movement led to new company start-ups and saw traditional transportation companies take on greater roles in end-to-end logistics functions. As the major 3PLs solidified their domestic gains, they have started to make major inroads in the international market as well.

The early to mid 1990's were explosive growth (industry and revenue) years for 3PL companies. Revenue growth is expected to increase roughly 18% a year between 2000 and 2002, with the major 3PL players continuing to get larger and accrue the lion's share of the projected revenue increase. [xxxiv] While the numbers have been impressive thus far, we have under performed in this area. The under performance is apparent in two data points. First, only 18% of total 3PL revenues come from international markets (with only 11 3PL's operating overseas). [xxxv] Second, most companies using 3PL's do so to reduce logistics costs versus providing downstream value to their partners and customers. Despite these numbers, the U.S. is not yet at risk of losing position to international competition.

European industry participants say 3PL has been part of their business environment for centuries. This history and their higher logistics budgets, they believe, gives them an advantage over U.S. service providers. A review of the European business environment does not support this position. There have been several strategic European alliances formed to establish global presence, but in fact, the European position is not very strong.

While there are several top-tier European suppliers in the 3PL sector, there are no dominant players. The larger continental players (Schenker, Kuehne & Nagel, Danzas) are partnered with American firms (Ryder International, BAX Global, Penske International, Schneider Logistics, UPS World Wide Logistics) to take advantage of early U.S. 3PL success. While U.S. companies have acquired European 3PLs, there have been no reciprocal acquisitions by European companies. Several are looking, but to gain information technology capabilities, not to acquire market share in North America or elsewhere. [xxxvi] Finally, there are conditions on the European continent that actually impeded domestic company 3PL growth. The simplification and standardization of pan-European

regulations is not complete so the regional players are not sure what the rules will be nor the conditions in which they will have to operate. The power potential of the European Union is losing momentum to the enthusiasm for globalization and the complexities of dealing with the Eastern European countries. In fact, most European 3PLs are hesitant about the market potential of both Southern and Eastern European countries. [xxxvii] Finally, European corporate leaders fear losing control of their processes, intellectual capital and profits; a dynamic U.S. corporate leadership is already coming to grips with. The European service providers have not yet demonstrated the corporate ability to compete in their chaotic environment nor do the overwhelming majority of them have (or access to) the capital needed to make the IT investments to be competitive in the 3PL arena. Asia does not offer even a remote challenge in the sector. Economic reforms have fallen behind across the region except for Singapore and Taiwan. Coupled with poor infrastructure and over government regulation across the region, there is not a strong Asian domestic 3PL services movement of any kind.

The U.S. service providers across all sectors have demonstrated the ability to manage change, risk and be successful in a high tempo competitive market. As U.S. companies continue to market our capabilities in the high-end services, we will maintain a dominant trade position and remain the most powerful economic power in the market. We can expect a supporting benefit in the manufacturing arena as well. More domestic OEMs see that logistics outsourcing is a means of generating market share through value added to the customer, vice just a reducible cost center. By entering into supply-chain management partnerships with the dominant U.S. 3PLs, they will be competitive in both the domestic and international markets, further strengthening the U.S. economic power base.

Services Industry and U.S. Military Ability

The military is not immune to the same challenges that face the civilian business world with regard to the need to maximize efficiencies and reduce costs in order to remain competitive. There are, however, certain aspects of the military operational environment that create challenges unique to efforts to transform the military way of doing business. One of the biggest areas where this impact is seen is in the area of acquisition of goods and services.

Since 1955, federal agencies have been encouraged to obtain commercially available goods and services from the private sector, if doing so is cost effective. In 1966, the Office of Management and Budget (OMB) issued Circular A-76, which established federal policy for the government's performance of commercial activities and procedures for studying them for potential conversion to performance by the private sector. In 1979, OMB issued a supplemental handbook to the circular that included procedures for cost comparison studies to determine whether commercial activities should be performed in-house, by another federal agency, or by the private sector. OMB updated this handbook in 1983, 1996, and again in June 1999. [xxxviii] The Department of Defense (DoD) has renewed emphasis on privatization through the A-76 process. As such, they expect to study approximately 230,000 positions over the next five years. Savings associated to the A-76 process are controversial, however, they are expected to exceed a cumulative total of \$11.2 billion between 1997 and 2005 and \$3.3 billion in annual recurring savings each year thereafter.

The DoD has a bureaucratic mountain to climb between decision and reality. Unlike its private sector industry counterparts, the DoD has very little if any control over its infrastructure. The following are examples of the control Congress has upon the DoD decision-making ability: [xxxix]

- Requires the Pentagon to conduct exhaustive analysis before outsourcing any function performed by more than 45 DoD

employees

- Stipulates that the Secretary of Defense identify core logistics functions which then cannot be outsourced unless Congress is notified
- Prohibits DoD from contracting out civilian guards and fire fighters at most military bases
- Requires a public vs. private competition before depot maintenance workload of more than \$3 million can be outsourced
- Mandates that no more than 40 percent of the money allocated for depot maintenance be spent on private contractors
- Prohibits outsourcing any function at the McAlester, Oklahoma, or Crane Indiana, Army Ammunition plants, among others.

With the above controls in place, the DOD is significantly limited to what they can do to streamline their business practices. Congressional leaders must develop a new mindset that empowers the Service Chiefs, “just like a board of directors empowers the Chief Executive Officer”, to make decisions as they relate to the overall combat readiness of the military.

There are several major problems with the A-76 policy. (1) During the post-Cold War military drawdown, DoD reduced both the Defense support structure and the force structure. Nevertheless, infrastructure reductions – including military bases, facilities, and buildings have lagged behind. We may be performing A-76 studies on unneeded infrastructure. (2) We do not have an accurate way to determine the actual cost or savings of these efforts. (3) It takes too long to determine and award a contract, be it government to government or government to contractor. Some sources estimate that single function competitions can take up to 24 months and multifunction competitions up to 48 months.

Force structure has fallen 32 percent since 1989 and because of the Quadrennial Defense Review (QDR), it will continue on the decline to an estimated 40 percent by 2003. At the same time, even after four rounds of base realignments and closures, DoD's international base structure has only declined 26 percent and domestic base structure has declined even less by 21 percent.

The disparity is obvious. Because of the reductions in force mentioned above, the Department is encumbered with facilities it no longer needs which in turn drives up Organizational and Maintenance (O&M) cost. Excess facilities drain increasingly limited resources that could be otherwise spent on modernization of the remaining force structure or procurement of new state of the art weapon systems. More importantly as a Department we must not only seek to close excess infrastructure and consolidate operational support activities, but when possible, divest ourselves of the buildings and land which they occupy. This must be done after careful consideration of potential needs in the event of full-scale mobilization in the future. What the DoD must do during the next five years is no different from what has taken place throughout industry over the past 20 years. Industry reduced plant and office space as part of their efforts to streamline their business practices in order to stay competitive in the global marketplace. DoD must do the same if they expect to stay competitive in combat arms.

Contractor Support in the Theater of Military Operations. The use of civilian contractors for support within the U.S. military is not new. From the earliest days of the country, support from the private sector was common. The usual role of contractors was simple logistics support, such as transportation, medical services, and provisioning. As the Vietnam conflict unfolded, the role of

the contractor began to change. The increasing technical complexity of military equipment and hardware and the pressure to avoid committing large numbers of military to the combat arena drove the services to rely on contractors as technical specialists and force augmentation. They worked side by side with deployed military personnel. This expanded role for contractors has continued, driven by the following pressures:

- **Downsizing of the military following the end of the Cold War.**
- Growing reliance on contractors to support sophisticated weapons and information systems (Lifetime support is commonly required in new contracts.)
- DoD-sponsored move to outsource or privatize functions to reduce costs and shift additional funds to sustainment and modernization programs
- Increased operating tempos and shorter response times in crisis. Contractors are a world-wide force enhancer.

Today contractor logistics support is routinely imbedded in most major systems maintenance and support plans. Military operational planners need to incorporate this force support into operational planning. There is room for improvement in this core competency.

Military Outsourcing and Privatization. In the last several years there has been a “revolution” in business largely due to the increased impact of information and technology. Successful companies have been able to adopt new and improved processes that have allowed them to maintain or achieve the competitive advantage. Core competencies were identified as critical for survival. Other areas that did not contribute to the bottom line became ideal candidates for outsourcing and privatization. Businesses today are so much more inter-related and connected [\[xl\]](#) than ever before because of information technology. The military is trying to implement some of these business-like initiatives, however, there is still some friction among the services as to what is a core competency and what is a “nice to have.” The military has traditionally been reluctant to change. As the war fighters have reduced inventories of ships, aircraft, infantries, and submarines much of our shore support installations have remained somewhat constant. In fact, the “tail” currently consumes almost 70% of all defense dollars, which amounts to almost \$160 billion per year. [\[xli\]](#) Some recent initiatives in the military include the privatization of formerly base or government housing. The Navy has ventured into the outsourcing area by hiring cooks aboard the fast combat support ship, USS SUPPLY. The use of contractors aboard operational vessels is an area of concern for some. Hiring contractors to chip and paint ships in port, however, has been well received and may be a step in the right direction. Other discussions have identified the elimination of base or post exchanges and commissaries as possible solutions for reducing infrastructure and non-core competencies essential for a world-class super power. Regardless of the task, careful study is required to determine the second or third order affects. Our bottom line in the military has never been profit, however, in recent times we’ve come to the realization that we must become more “business friendly” if we are going to survive in today’s austere fiscal environment.

CONCLUSION

With the changes that continue to shape the form and substance of the services industry, the U.S. must increasingly consider the needs and impact of services in national and foreign policy formulation. The sheer size and pervasiveness of the still-growing role of services in national output implies an economic imperative that is tightly interwoven with globalization and U.S. trade in

services. To sustain the momentum and economic vitality in the services industry, the U.S. must pursue policies that provide fair, unconstrained access to foreign markets while ensuring reciprocal, fair access practices for foreign services providers in the US. Such policies and practices ideally contribute to the effectiveness of the global economy, but they also create more interdependencies as the U.S. services industry focuses on sectors where it has a competitive advantage and relies on other nations to provide the services in which they hold the competitive advantage.

These interdependencies are further complicated by the fact that the services industry is so large that it permeates sectors of the U.S. economy that involve national security. U.S. policies concerning these sectors and activities must carefully balance national security assurance with economic vitality and growth. In addition, the size and variety of a growing services workforce suggest the need for investment in current and future workers to ensure they have the appropriate skills to stay competitive. Policies that help the services industry obtain and sustain a skilled workforce, in areas such as education, training, and immigration, will enhance the ability of the services industry to maintain its preeminent role in the U.S. economy and the world. Clearly, the prominence of the services industry as it continues to evolve defines a strong consideration in the overall U.S. economy and the subsequent ability of the U.S. to pursue its national security strategy.

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