

Research note: Intellectual property in the services sector: Innovation and technology management implications[☆]

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Abstract

Corporate innovation is the subject of several recent articles in the business press and of discussion in academic circles and international conferences. Recently, Business Week reported a study that identified “The World’s Most Innovative Companies.” Ocean Tomo, an investment banking firm, developed a list of 300 companies that had major value in their patent portfolios, a surrogate for innovation. Using a technique called “Data Surface Mining” (DSM), these previously published data were further analyzed to characterize the similarities and differences between the Goods and Services Sectors; the results of these analyses are presented here. In addition, the issues of technology management especially relevant to the Services Sector are presented. These issues are of critical importance in light of the fact that the Services Sector represents 80% (Gross Domestic Product and/or employment) of the United States economy and is of increasing importance in the global economy. It is also important to note that technology management in the Services Sector has not been given proportionate attention in the academic literature.

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1. Introduction

After an extended period of neglect because of its focus on the Goods Sector of the economy, the attention of the academic community is making a recognizable shift to analysis of the Services Sector, which has unique and definable characteristics. Fitzsimmons and Fitzsimmons (2008) and Tien and Berg (2003) have communicated that the Services Sector is the largest segment of the United States economy, representing more than 80% of both Gross Domestic Product and employment. For other industrialized nations, the percentages are somewhat lower, but they are also approaching 80%. In the same paper,

Tien and Berg stated that Services is also the fastest growing sector. Until recently, the Services Sector has also been characterized by low productivity compared to the Goods Sector, as Baumol (1967) observed. The narrow focus of this paper is on a relatively simple and direct, albeit important, question: Are there meaningful differences in the significance of intellectual property in the two sectors? If the answer is in the affirmative, are there implications for the management of technology (MOT)?

2. Literature review

Although the literature contains a variety of definitions for the term “services,” the findings of the current work are insensitive to the relatively small variations that exist among these definitions. The following discussion of definitions of services is taken from Fitzsimmons and Fitzsimmons (2008):

Services are deeds, processes, and performances. (Zeithaml and Bitner, 1996, p. 5)

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A service is an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems. (Gronroos, 1990, p. 27)

Most authorities consider the services sector to include all economic activities whose output is not a physical product or construction, is generally consumed at the time it is produced, and provides added value in forms (such as convenience, amusement, timeliness, comfort, or health) that are essentially intangible concerns of its first purchaser. (Quinn et al., 1987, p. 50)

Services are economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or other assets for which purchasers have responsibility. In exchange for their money, time, and effort, service customers expect to obtain value from access to goods, labor, professional skills, facilities, networks and systems; but they do not normally take ownership of any of the physical elements involved. (Lovelock and Wright, 2007, p. 6)

A service is a time-perishable, intangible experience performed for a customer acting in the role of co-producer. (James Fitzsimmons)

The working definitions used herein are those utilized by classical economists: the Goods Sector comprises manufacturing, extraction, agriculture and construction; each of these segments produces goods that can be inventoried, unlike services, in which the concept of shelf-life is not meaningful. The acronym **CHIPS** is useful in characterizing the Services Sector. **C** represents co-production (the receiver of the economic service and the producer of the service are both simultaneously involved at the instant of production). **H** represents heterogeneity (services are not identical in each instant, i.e., no two physical examinations are the same in detail). **I** represents the intangibility of the service even though a good may be involved (the preparation and serving of a restaurant meal). **P** represents perishability since the provider and recipient both participate in the generation and delivery of the service, which cannot be stored in inventory (e.g., the cutting of hair by a barber). **S** stands for simultaneity, indicating that the production and utilization of the service occur at the same time. The **CHIPS** acronym follows the discussion of the characteristics of the Services Sector presented by Fitzsimmons and Fitzsimmons (2008). High-speed information technology, which leads to increased involvement of the final receiver in the design and production of the generated goods, further draws together the two economic sectors. This drawing together has lowered the level of inventories required in the Goods Sector. As indicated earlier, the specific focus of the present work is on the differences in the significance of intellectual property in the two sectors

and the concomitant impact on the MOT in the two sectors; the arguments presented are in themselves independent of the various definitions of service.

To paraphrase Gallouj (2002) in his focus on innovation in the Services Sector: the increasing convergence of manufacturing and service activities makes it desirable to adopt an integrated approach to innovation. According to Gallouj, one should not underestimate the importance of technologies or the role of non-technological forms of innovation. If one relates technology to intellectual property and manufacturing with the Goods Sector, there is a parallel to his statement with the present work with regard to the MOT.

Ganz, in *Advances in Services Innovations* edited by Spath and Fahrnich (2007), has pointed out that:

Innovation in services is generally the result of a collective effort of management, sales, IT specialists and other staff within a company to respond to new market needs. It is diffused throughout a company, rather than concentrated in an R&D function, as is usually the case in companies that manufacture products.

Delaunay and Gadrey (1992) make the following relevant points:

The introduction of new technologies in most services (retailing, banking, insurance, producer services) is very rapid and, to some extent, looks like classical industrialization. But all these studies converge to show that it is generally achieved not by the disappearance of the service dimension (i.e., relations, adaptation to individual demand, consultancy, assistance) but in such a way that, whereas the simplest (sic!) part of the service is partly automatised, there is at the same time an expansion of the most relational and most complex part of the service.

These three references all point to the role of technology in Services Sector innovation, an area neglected by the segment of the academic community concerned with MOT.

Tien and Berg (1995, 2003) have focused on the growing importance and complexity of services and, in particular, on the systems within which services operate. They have indicated that the availability of information technology aids its growth, access, speed and declining costs, thereby enabling real-time decision making through the application of a systems engineering approach. It is only recently that productivity in the Services Sector, which has historically lagged that of the Goods Sector, has increased significantly. Economists are still trying to understand what is causing this increase; without doubt, the contributors include low-cost information technology and telecommunications technology. These had tremendous impacts on new services, employment levels and shifts due to outsourcing. The nature of global competition has been redefined.

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