



Offshoring and Transfer of Intellectual Property

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ABSTRACT

Offshore outsourcing of work to support software development and services is seen primarily as a transfer of labor to another shore. But with every outsourced job, intellectual property is transferred as well. Such transfers have significant long term effects on the balance of intellectual property (IP) generation and consumption. The value of intangibles is based on the income that these intangibles are expected to generate in the future. This paper relates the key issues of IP found in software, an important intangible, to business models used for offshoring. The use of a quantitative model for software valuation allows formal exploration of business alternatives. The motivation for this paper is to increase the awareness of the need for software valuation when developers of software and the users of that software reside in different countries. A scenario that involves Controlled Foreign Corporations as the mechanism for IP transfer is analyzed in detail.

Keywords: Business Management, Information Systems, Intellectual Property, Jobs, Offshoring, Profit, Taxes

1. INTRODUCTION

Outsourcing of work to countries with lower wage rates, or offshoring, is increasing. The common concern when discussing offshoring is the flow of jobs out of traditional high-technology countries, a view strengthened by an ACM study, prepared by its Job Migration Task Force (Vardi, Mayadas, Aspray, 2006). While the ACM study dealt well with issues of job loss and job creation, its title: "Globalization and Offshoring of Software" implied a broader coverage. The study ignored the importance of

providing the software and other IP required for effective offshoring. Many enterprises involved in the creation and use of software are similarly unaware of the value they are exporting when they initiate offshoring. Even software used in an offshore call center, in an accounting business, or in a search engine, has a value to the importer when it is exploited in a new setting. In many cases, the destination for valuable IP is a Controlled Foreign Corporation (CFC), owned and controlled by the company that created the original IP. The CFC generates profit outside of the country of origin of the IP. If the IP is undervalued, then some excess property has flowed out of the originating country and the

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profit accruing from it is no longer available to pay the creators of the IP.

When the ACM study was released, it was widely circulated and quoted, as for instance in the lead sentence in a *New York Times* article: "A recent ACM study has found that the fears of offshore outsourcing undermining the United States' competitive advantage in computer science and technology have been overstated" (Lohr, 2006). The generation of income requires both people and capital. The professional associations of scientists, researchers, and software developers are, of course, more concerned with the immediate worries of their members, and may try to assuage them. When the effect of offshoring is analyzed, we deduce that over time the effect of providing IP, originally created by the offshoring sponsor over many years, to the host companies, especially CFCs, may exceed the effect of the job transfers (Economist, 2007).

Outsourcing of work to support software development and services to other countries requires transfer of supporting resources that have value and represent intellectual capital. While labor and tangible capital goods have long been considered to be the drivers of the economy, in today's knowledge-driven economy it is the intellectual capital that counts. A significant part of that intellectual capital is software, and is property (IP) of the outsourcer. This paper discusses the relevance of valuing software when offshoring. An actual valuation method specific for software has been presented by one of the authors (Wiederhold, 2006). The analyses that led to the development of a consistent software valuation method were motivated and supported by the need to assess software IP exports, especially in the case of CFCs.

Little specific guidance exists for software valuation. Computer scientists have worried about development costs and ignored quantifying the benefits of software (Boehm, 1981). This task was left to lawyers, economists, software vendors, or promoters. However, no consistent valuation framework has been developed (Lev, 2001). Assigning a value to software required bringing together information from domains that

rarely interact directly: software engineering, economics, business practice, and government regulations. A valuation method allows estimation of the significance of software transmitted as part of outsourcing. This assessment can be combined with a quantification of the effect of the complementary labor transfer. Although more than software alone is involved in IP transfer, this paper will focus on that aspect of IP transfer. Assigning an appropriate value is crucial when software is exported or imported during outsourcing. Widely used software may be valued in the hundreds of millions of dollars and companies can thrive or collapse based on gains or losses of the IP the software represents when outsourcing (Scholte, 1997).

1.1 Outline

The next section defines when software and related information are considered IP appropriate for valuation. Section 3 lists the business models that are used in offshoring, with an emphasis on issues that should require valuation of transferred IP. Section 4 provides a brief introduction to the principles of IP valuation, both for the creator and the user. Section 5 describes what happens to transferred IP inherent in software over time, a crucial issue in valuation. It shows that reasonable valuations for many types of offshore IP transfers can be produced. Section 6 describes the business models in terms of the valuation and its effects on choosing a transfer method. Two models, outsourced software maintenance and outsourced web services, are described in more detail. Section 7 sketches tax consequence for various offshore settings. The conclusion in Section 8 summarizes the use of software valuation when offshoring is planned or re-evaluated.

2. OUTSOURCING AND SOFTWARE

In this section, we cover the relevant fundamentals for valuation of outsourced software. We first establish when the value is an issue and

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