

Abstract for “Developing a Content-Based Approach for the Measurement of Investment in Intangible Assets”

Marie Le Mouel (OECD)
Mariagrazia Squicciarini (OECD)

Since the pioneering work of Corrado, Hulten and Sichel (2005 and 2009, hereafter CHS), the place of intangible assets in the picture of productivity and economic growth has come into sharp focus. The framework proposed by these authors classifies a list of twelve assets into three categories: computerised information, which covers knowledge codified in computer programs and computerised databases; innovative property, which encompasses assets that are protected through Intellectual Property Rights (IPR), such as patents, designs, copyrights and to some extent trademarks; and economic competencies, which are embedded in a firm’s human and structural resources, such as firm-specific training, organisational capital, and brand equity.

A large body of evidence exists suggesting that there are numerous and complex interactions at play between these different assets. The existence of complementarities between organisational change, adoption of ICT and technological change in general has been well documented, with respect to both investment and impact on performance (Caroli and Van Reenen, 2001; Breshnahan, Brynjolffson and Hitt, 2002). Polder *et al.* (2010) further highlight the importance of ICT adoption to enable organisational innovation. In the CHS (2005, 2009) taxonomy of intangible assets, investments in ICTs, in R&D and in training are however defined and measured in isolation. A better understanding these interactions is a key step to apprehend the role of intangible assets in economic activity, as the non-rival nature of knowledge further implies that these knowledge-based assets are likely to be the source of spillovers, between different intangible assets, between tangible and intangible assets, and also across firms.

In addition, many intangible assets are estimated using a labour cost approach, which relies on the assumption that the knowledge which defines these assets is embedded in the workers of a firm. Investing in these intangible assets is hence synonymous with investing in human capital, and the value of investment in such assets is calculated as a proportion of the compensation received by the employees in the relevant IT, design or organisational occupations. These estimates of investments can be subject to double-counting if some of these occupations contribute to more than one asset.

The present paper will seek to shed some light on these issues by extending the recent OECD work on the task-based definition and measurement of organisational capital (Squicciarini and Le Mouel, 2012). This work builds on the expenditure based approach of CHS, who estimate investment in organisational capital as 20% of managerial compensation, and on the economics and management literature that suggests that the measurement of organisational capital requires looking at a number of occupations, including but not limited to managers, who perform activities that shape a firm’s organisational capabilities. Organisational capital is thus defined from a content perspective, as the performance of a set of tasks that shape the long-term functioning of a firm. Using the Occupational Information Network (O*NET) data from the United States Department of Labor, it is possible to identify which occupations perform these tasks and have the skills and knowledge to do so effectively. Estimates of investment in organisational capital can then be obtained for the United States with data on

employment and earnings from the Current Population Survey. Results suggest that a title-based definition of organisational capital, which focuses on managers, under-estimates the amount of resources devoted to the generation and accumulation of this asset.

This research proposes to extend the content-based definition beyond organisational capital to the following three assets: computerised information, Research and Development (R&D), and design. The purpose of this exercise is to identify occupations that perform tasks directly related to these activities, and who have the relevant skills and knowledge background to do so, using the ONET database. Preliminary results suggest that the majority of occupations that are associated with one of the four intangible assets studied (organisational capital, computerised information, R&D and design) contribute to one or more additional assets. For example, the work of architects and chemical engineers contributes to the creation of all four assets considered. These results imply that a labour cost approach to the measurement of intangible assets is likely to include a large part of double counting, and misallocate values between the different types of assets.

In addition, this research proposes to use the recent OECD data from the Programme for the International Assessment of Adult Competencies (PIAAC) to propose further methodological improvements to the measurement of intangible assets. Firstly, information on the proportion of time devoted to different activities will be used to assess the capitalisation factor for these different assets. Secondly, we will make use of the international dimension of the PIAAC data to extend this methodology beyond the United States to 20 other OECD member countries. And finally, we will use the sectoral breakdown of activities to calculate such estimates specifically for the public sector.