



The contribution of Intellectual capital on Future

Research: A Review paper

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ABSTRACT

Academics and policy-makers tend to establish a causal relation between business innovation and levels of investments in R&D or the number of patents held. One of the most important issues for the strategic management of companies is the identification of value drivers. Several methods in the value-based management approach have been designed for this purpose. Most of these tools provide a factor analysis based on the assumption that only significant and manageable components should be considered as value drivers for a particular company. This paper focuses on Theoretical background of IC and its contribution on future research on the basis of studies done by various researchers.

Keywords: Intellectual Capital, Research and development, value based management

I.INTRODUCTION

One of the most important issues for the strategic management of companies is the identification of value drivers. Several methods in the value-based management approach have been designed for this purpose. Most of these tools provide a factor analysis based on the assumption that only significant and manageable components should be considered as value drivers for a particular company. However, today a growing number of studies challenge this rather simplistic approach, acknowledging the need for a broader and more balanced view that considers the key role of investing in these strategic intangible assets – e.g. skills, organisational innovations and design – considered amongst the key drivers of firms' innovation. As new transdisciplinary frameworks seek to explore innovation beyond R&D, the article suggests that there is a need for a broader and sharper approach to Intellectual Capital (IC) research. In fact, as Lev (2014) recently pointed out, IC researches are currently too narrowly focused on the question of reporting and disclosure.

Intellectual capital management is important even if countries have a lower proportion of their workforce in non-services industries. Horibe (1999) reports that in the manufacturing sector, the value of goodwill based on a company's worth had also increased from 38% in 1982 to 62% in 1992. The Malaysian situation is somewhat different in that the most recent 1999 estimates show that 37.5 % of the workforce is in the services sector which is the highest proportion in history (New Straits Times, 2000a).

II.LITERATURE REVIEW

Since there are other sources (Bontis, 1999; Roos et al, 1997) which have extensively reviewed the IC literature, the focus of this paper will efficiently turn to defining the constructs we intend to measure. Since there are other



sources (Bontis, 1999; Roos et al, 1997) which have extensively reviewed the IC literature, the focus of this paper will efficiently turn to defining the constructs we intend to measure. However, there is no evidence that innovation depends on the level of R&D expenditure or the number of patents. For instance, low levels of investment in R&D are not necessarily an issue where the economy is specialized in sectors, such as design and the cultural industry, where innovation does not rely on R&D (Mazzucato, 2013).

This is true also at the firm-level. While some studies have shown that higher investments in R&D might increase business innovation (see Geroski and Machin, 1992; Geroski, Toker, 1996), others have found no evidence (Bottolazzi *et al.*, 2001; Loof, Heshmati, 2006) or even a negative relation between the two (Freel, Robson 2004). In effect, the problem with this rather simplistic approach to innovation is that it does not take into consideration that without the right complementary resources – such as marketing and commercial capacity, organizational and human resources – R&D may become just a cost.

Much of the extant research on intellectual capital has focused on the developed world – specifically within Anglophonic and Scandinavian nations. However, this phenomenon has global appeal as evidenced in studies within Mexico (Trevinyo-Rodriguez and Bontis, 2007), Portugal (Cabrita et al., 2007; Cabrita and Bontis, 2008), Ireland (O'Regan et al., 2001; 2005), Germany (Kristandl and Bontis, 2007), Australia (Bontis and Girardi, 2000), Malaysia (Bontis et al., 2000), Egypt (Seleim et al., 2004, 2007) and others. Bontis (2004) points out that there is also great interest in intellectual capital development in the Arab region as well.

III. DEFINING INTELLECTUAL CAPITAL

As identified by Petty and Guthrie (2000b), the literature offers several definitions of intellectual capital. Some of them consider intellectual assets as synonymous to intellectual capital and most of them take a strategic view (Edvinsson & Sullivan 1996; Brooking 1997; Edvinsson 1997; Edvinsson & Malone 1998; Stewart 1997:X; Klein 1998:1; Nasser 1998; Saint-Onge 1998; Ulrich 1998; CMA 1998:3; ASCPA & CMA 1999:4; Knight 1999). In the previous intellectual capital literature the level of firm has been the focus, rather than at individual or stakeholder level (Quintas, Lefrere & Jones 1997).

In the wider literature there has been considerable debate about the interaction between individuals and the organisation. Hollis (1994:94- 113) takes the view that the firm is more than a mere sum of individuals whose behaviour can only be explained by their function in the whole. However, according to Nonaka (1991) new intellectual capital (such as knowledge) always begins with the individual. In Japan, where individualism is viewed strongly, the mechanisms to promote workers' intellectual skills are evaluated individually for their compensation (Koike 1994:273-274). Also, research indicates that personal qualities such as persistence are positively related to the learning of the firm (Argote, Beckman & Epple 1998:201). It is suggested that firms should encourage employees to discover their own strengths (Drucker 1999).

This notion is further supported by other research that demonstrates that individuals who engage in their activities and situations for its own sake, can be intrinsically rewarded by them (Csikszentmihalyi 1975) and achieve extraordinary results by entering into the neurobiology of excellence (Goleman 1995:90-91).



An important source of confusion comes from the fact that the innovation plan of a firm is often seen simply as an “invention plan” (typically, but not exclusively, an R&D plan); for example, a plan to develop a new product or process. This emphasis in the invention plan is evident in innovation policy prescriptions, generally linked to R&D activities. However, success in innovation cannot be assured if firms focus solely on inventive activities: an “appropriation plan” is also needed in order to profit from innovative activities. The simple argument that “the more knowledge the better” might be (although not necessarily) more appropriate for ICM relative to the invention plan, because an invention is more about creating applied knowledge and might be independent of the context of the firm. For example, a scientific plan for developing a new drug might be regarded as completely independent of the market structure in the pharmaceutical industry but, as we will argue, this is not clearly the case of the appropriation plan of a pharmaceutical company trying to commercialize this new drug. This paper focuses on the often overlooked, non-trivial role of ICM management in the appropriation strategy of the innovative firm.

As indicated above, Petty and Guthrie (2000b) did not undertake a review of ICR. For the following review we identify three broad categories of intellectual capital reporting: ratios and values; intellectual statements; and theoretical models. Reporting intellectual capital as ratios and values Although there is a need to include non-financial IC measures that are key value drivers of the firm (Jenkins 1998:1), indicators that should be provided in annual reports are subject to substantial challenge? Roos et al (1997:78) states that intellectual capital is by definition intangibles and therefore the only possible way to measure them is by proxy variables or indicators. Several techniques have been proposed to measure them as ratios and values (Montague Institute Review 1998). These techniques could be classified into two broader sub-categories: the firm (macro) level for inter-firm comparisons; and of measuring and reporting within-firm level (micro) for inter-divisional comparisons

Another important implication for senior managers is that there must exist a constant interplay among human, structural and customer capital in order for an organisation to leverage its complete knowledge base (Bontis, 1998). The results from this Malaysian study confirm similar results found by Bontis in other research settings. Isolated stocks of knowledge that reside in employees’ minds that are never codified into organisational knowledge will never positively effect business performance. In other words, it is not enough for an organisation to hire and promote the brightest individuals it can find. An organisation must also support and nurture bright individuals into sharing their human capital through organisational learning and externalisation into information systems.

IV.CONCLUSION

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