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Knowledge Accounts



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This paper presents a method for measuring the value of individual knowledge. There has been considerable previous research, largely driven by practitioners, who desire a rigorous method for measuring intangible assets. However, no consensus has been reached. This paper uses measurement theory and measurement purpose as criteria for evaluating our method. The method is grounded in intellectual capital theory, and also draws on psychometrics and social network analysis theory. The method was tested over three annual surveys (2009–2011) as part of a large-scale longitudinal change project. The results are explained in terms of validity and reliability testing as well as how the KA model works and how it may be used for internal management, external reporting and regulatory reporting. The findings reveal practical outcomes for managers and shareholders.

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Introduction

This paper presents a method for measuring the value of individual knowledge. The method allocates individuals a score out of 100. The score measures the value to the organization of the individual's tacit knowledge. The individual scores are aggregated and presented in a set of knowledge accounts (KA) with application for managers, owners, investors and regulators. The KA represents a way to measure an organization's most valuable intangible assets, and therefore are a set of non-financial accounts which may be used in conjunction with traditional financial accounts to manage tangible and intangible resources. The paper presents a set of KA, tracking change over three annual surveys, to illustrate what the KA looks like and how it may be used.

The KA may be used by managers, stakeholders and regulators. Managers can use the KA for workforce planning, to assess the quantity and quality of their staff. It answers questions about whether the firm has enough staff and whether it has the right staff. This provides critical information regarding competency gaps. The KA can identify existing and future gaps in the workforce, at a very finite level, to ensure targeted recruitment, training and knowledge management to fill these gaps. Managers can also use the KA for strategic alignment to assess the efficiency and effectiveness of their staff. It answers questions about whether the firm has the right staff in the right jobs and what staff it will need in the future. The KA can measure system level gaps—i.e., job families, disciplines, technical versus cognitive knowledge, and organizational units—to ensure alignment between the firm's actual and desired job inputs and outputs, as well as specifying how to grow its organizational knowledge base (OKB). This leads to better workforce alignment and productivity gains; e.g., accelerated time to competence.

Stakeholders can use the KA to assess the firm's performance and its capability growth. It answers questions about how well the firm is learning, and whether it is growing strategic knowledge assets. The KA measures learning capabilities and tracks change in global and job-related competencies, to allow investors, for example, to compare how well the organization is managing workforce planning and strategic alignment. Regulators can use the KA to assess societal contract. It answers questions about whether the firm is using its non-financial resources wisely. Government and industry bodies can assess the use of the factors of production (i.e., human resources) as well as outputs (i.e., work produced).

The KA's key point of difference compared with existing methods is that it provides a value measurement, it is objective and auditable, and it has managerial application. It is not just a scorecard, it is a strategic management tool. It has two main advantages. First, it provides contextual data by allowing the KA score to be compared to a "baseline", which is the expectation of management regarding knowledge by job type, to calculate a knowledge gap; i.e., surplus or deficit. Second, it extends the traditional view of human capability—for example, skills, experience, qualifications—to include cognitive knowledge. Knowledge creates value for organizations through human action. The KA measures this value by combining technical

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knowledge (e.g., skills) with the individual's willingness to use their knowledge, share it with others, and create new knowledge. This introduces cognitive dimensions such as the individual's emotional relationship with the organization, as well as their relationships at work, as important factors in measuring their value to the organization.

The paper proceeds as follows. First, we present a brief review of relevant literature. Second, we present the measurement constructs used to derive the KA score. Third, we present the results of our validity and reliability testing of this model. Fourth, we present a set of KAs and show how these changed over three annual surveys, and what these changes mean. Finally, we draw conclusions about the usefulness of this method.

Literature review

What Is Knowledge? Knowledge is defined as the capacity of an individual to find interpretation and meaning, leading to action that creates value for the organization. This definition is grounded in the idea that knowledge is essentially related to human action (Nonaka & Takeuchi, 1995, 59), and that knowledge creates organizational value via its application (Kogut & Zander, 1996; Grant, 1996). Knowledge management research tends to privilege the individual over the group, based on the argument that organizational learning is really about the individual. The focus on the individual is often traced back to Polanyi, who felt that all knowledge is personal (Polanyi & Prosch, 1975, 44). For Polanyi, the idea that there is such a thing as "objective" knowledge, self-contained, detached, and independent of human action, was wrong. This paper adopts an empiricist view based on the logic that the value of knowledge is influenced by the organizational context, and is generated by individuals who have the capacity to take action; i.e., use their knowledge to create value for the organization.

The Need to Measure the Value of Knowledge. The knowledge-based economy places the importance for creating economic value with knowledge (Boisot, 2002). In the industrial age, greater value was placed on the ownership of tangible assets. In the knowledge economy, the value of intangible assets has become increasingly important. However, financial statements still focus on tangible assets, and there is no consensus about how to measure intangible assets, such as knowledge (Housel & Bell, 2001). In broad terms, the economic value of knowledge may be defined as the value a customer or potential buyer places on a firm over and above its book value (Marsick & Watkins, 2003). Financial valuation of knowledge has been limited to estimates of intellectual property; for example, patents, copyrights. However, researchers have found that there is little depth to the reporting of knowledge (e.g., intellectual capital) in company annual reports (Guthrie et al., 2006). These methods do not help managers make decisions about knowledge resources, nor do they help investors estimate the future value of a firm's present knowledge and knowledge-generating capacity (Housel & Bell, 2001).

The Knowledge Accounts' Theoretical Basis. The KA is grounded in intellectual capital theory and also draws on psychometrics and social network analysis theory. IC theory is most commonly used as the starting point in measuring knowledge value (Brooking, 1997; Bontis, 1998). IC is typically defined as the sum of an organization's resources encompassing knowledge, information, intellectual property, experience and any intellectual resource that can contribute to value creation for the organization (Bontis, 2002). IC encompasses three primary interrelated components: human capital (HC), structural capital (SC) and relational capital (RC) (Sveiby, 1997).

While the KA method uses IC theory as the basis of its measurement constructs, it does not measure IC. There are two reasons for this: a) scope of the theories; and b) scope of the methodology. In terms of theoretical scope, the paper's focus is on individual knowledge and, more specifically, tacit individual knowledge. IC involves a wider range of knowledge; for example, organizational knowledge such as intellectual property and information. In terms of methodological scope, the focus is on individuals; i.e., it asks people questions about their knowledge only, and does not ask them to evaluate other aspects of IC.

The method's focus on individual tacit knowledge was due to economies of effort. To identify and evaluate every knowledge resource within an organization would create a management overhead so high that the costs would outweigh the benefits. If we had included individual codified knowledge (e.g., reports, policies and other work outputs), it would require individuals to evaluate a vast volume of material, also generating a high overhead. By focusing on individual tacit knowledge, the method follows the principle that the real value in knowledge is in its application. If we can measure tacit knowledge, we capture most value from the exercise by focusing effort on that part of knowledge which is most important to the organization.

This approach is supported by IC theory. IC theory explains that Human Capital (HC) represents the human factor in the organization: the combined intelligence, skills, and expertise that give the organization its distinctive character (Bontis, 1998). Researchers argue that HC is the firm's most important asset because it is the source of creativity and, therefore, innovation, change, and improvement (Carson et al., 2004). Research has found that increases in employee capabilities are seen to directly influence financial results, leading to a direct relationship between human capital and organization performance (Bozburu, 2004). Therefore, the focus on the individual is justified.

Evaluation Criteria. The criterion to evaluate methods for measuring individual knowledge value lies in addressing two contexts: a) measurement theory, and b) the measurement purpose. From a measurement theory perspective, Pike et al. (2002, 660) suggest that a suitable criterion to assess methods for measuring human capital value are that, 1) it is auditable and reliable; 2) does not impose a large measurement overhead; 3) facilitates strategic and tactical management; 4)

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