

Chapter 8

Intellectual Capital Measurement and Reporting Models

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ABSTRACT

This chapter extends the earlier study of Bontis (2001) by critically reviewing the existing methods to measure and report intellectual capital. Bontis's (2001) study contributed significantly to the intellectual capital measurement and reporting literature. However, despite the growth in the field of IC and development and introduction of several new approaches to measure and report intellectual capital, no recent study has synthesized the IC measurement and reporting models. The objective of this chapter is to fill this gap in the literature by providing a critical review of 28 IC measurement models. To achieve this objective, the author partially adopts Sveiby's (2007) suggested classification scheme for categorizing the existing measurement models. The classification will enable the reader to uncover the common attributes of each model and to contrast the dissimilarities.

INTRODUCTION

In today's knowledge economy, value creation is at the core of any activity leading to a sustained competitive advantage. Value creation activities have gone beyond those traditional activities that lead only to physical capital by entailing activities that develop intellectual capital. Recognition and measurement of knowledge creative activities are of increased importance in today's economy. Such recognition and measurement would enable organizations to map how various routines and

activities lead to intellectual capital. Despite the increased importance of recognizing value creation, organizations are still facing the challenge with measurement and reporting of intellectual capital (Guthrie, Ricceri, & Dumay, 2012).

Several attempts have been made to propose a common framework to measure and report intellectual capital. However, intellectual capital is very dynamic and context specific as the environmental uncertainties and complexities would have influence on organizational measurement and reporting of IC (Montemari, Nielsen, & Lund, 2013). The

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objective of this chapter is to contrast and integrate various IC measurement and reporting models in a schematic form. The critical review provided in this chapter would help us in identifying the strengths and weaknesses of each method along with understanding similarities and differences of various commonly used IC measurement and reporting methods.

Many groups and individuals from different disciplines have tried to agree on a common definition for intellectual capital (Edvinsson & Malone, 1997). In spite of the attempt by many scholars in the field of IC to reach a consensus over the definition of IC, the definitions of intellectual capital have been discordant. Different perspectives brought to the field of IC have contributed to the heterogeneous growth of the field. This heterogeneity in the definition has also affected the heterogeneity in the measurement of intellectual capital. The schematic approach adopted in the classification of commonly used IC measurement models is described below followed by the explanation of each method under this classification.

INTELLECTUAL CAPITAL MEASUREMENT MODELS

The existing measurement methods for intellectual capital can be classified into four main categories. These categories are an extension to the classifications suggested by Luthy (1998). Consistent with some of the earlier studies, Sveiby (2007) provided a schematic summary of the existing methods and organized them into four main categories. The first two categories, Return on Assets and Market Capitalization Methods, are intellectual capital measurement methods that measure intellectual capital at the aggregate organizational level; and hereafter are called *market models* since the data for calculating the value can be obtained from the market and from annual reports. With the exception of VAIC and FiMIAM IC measurement methods that overlap with the management models, the IC

is usually measured in an aggregate level and it is not usually broken down into common classifications. The next two categories, Direct IC and Scorecard methods, represent intellectual capital methods at the component level; and are hereafter called *management models*. The input data for these methods are usually obtained from within organizations. Most methods falling under Direct IC category assign dollar value to IC components, while methods classified under Scorecard do not. Figure 1 graphically summarizes IC measurement models. Methods falling under each of these four categories are discussed in the following sections.

Market Models: Market Capitalization Methods (MC)

According to Sveiby (2007), the methods under this category offer some ways to calculate the value of intellectual capital or intangible assets through the difference between the firm's market capitalization and its stockholder's equity. A common characteristic of MC methods is that they all use capital market values to estimate the aggregate value of IC. The assumption in these methods is that capital market will provide a useful estimate of the aggregate value of IC. Prominent methods falling under this category such as Tobin's q, The Invisible Balance Sheet, and Market-to-Book Value ratio are discussed in the following section.

Tobin's q

Tobin's q is a ratio that compares the market value with asset replacement value. James Tobin (1969) introduced q ratio and theorized that the capital investment in a firm would be dependent on the ratio between stock market valuation of capital assets and their current replacement cost. Since then, Tobin's q has been widely used in the literature as a measure of corporate performance and a representative indicator of intellectual capital. It is possible to use the q ratio for individual assets or the whole firm. Stewart (1997) argued

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