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A strategic management framework of tangible and intangible assets

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Summary This article is aimed at supporting the management in the strategic planning of investments on critical value drivers, taking into consideration their impact on competitive advantage and the cumulative investments made on them. We describe a framework through a step-by-step procedure. No previous strategic management framework has adopted a holistic approach to the strategic analysis of value drivers. In fact, unlike many other strategic management models, our framework adopts a competitive advantage perspective considering both the wholeness of organizational value drivers and the interdependencies among the value drivers. Managers are asked to make pairwise comparisons that are synthesized through the analytic network process. The outputs of the synthesis are analyzed both qualitatively (synoptic analysis) and quantitatively (Spearman's and Kendall's non-parametric rank correlation coefficients). The analysis of the resulting values turns in useful strategic suggestions for the top management in order to enhance the organizational strategic coherence.

Introduction

Organizations try to achieve competitive advantage (CA) in order to make more profits, gain market shares and increase their success in a long period perspective. Thus an organization should try to understand which of its tangible assets (TA) and intangible assets (IA) influence the sustainability of CA the most.

This article helps the management of an organization to make a ranking of its assets according to their capability to sustain CA, and to compare such capability with a holistic assessment of the cumulative investments made on the organizational assets.

In the first part of the article we conduct an in depth analysis of the literature about CA, decision support systems for the assessment and enhancement of an organization, and valuation of TA and IA. We identify critical groups of both TA and IA, classifying them according to a theoretical model. Critical asset groups are hereafter called ''value drivers'' (VDs) in order to emphasize their attitude to enhance the total value created by an organization and to sustain CA. We will also show that several authors recurred to VDs in order to perform organizational analysis and provide suggestions to the management.

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In the second part of the article we present a step-by-step procedure for the implementation of the strategic management framework, which includes an assessment of the VDs' relative impact on CA through the analytic network process (ANP), an assessment of the relative weights of the organization's past investments on VDs through pairwise comparisons, and a strategic analysis of the results through synoptic and statistical approaches.

The third part of the article shows the results deriving from an implementation of the framework on a public agency.

Finally, in the fourth part, relevant conclusions and future developments of our research are discussed.

Theoretical background

Michael Porter is considered the father of CA theory, while several articles and books had dealt with the argument before his ''Competitive Advantage: Creating and Sustaining Superior Performance'' (1985). However, he succeeded in merging previous literature from different disciplines and organizing it in a holistic and innovative way. He defined the sustainable CA as ''*the fundamental basis of above-average performance in the long run*'' (Porter, 1985, p. 11) and suggested three generic strategies (cost leadership, differentiation and focus) as sources of CA (1985). Resource based view, on the other hand, argued that in order to achieve CA, firms need to search for valuable, rare, inimitable, and non-substitutable assets (Barney, 1991). Assets are ''valuable'' if they can exploit opportunities and/or neutralize threats, ''rare'' if the organization's current and potential competitors can hardly have them, ''inimitable'' if they are imperfectly imitable by other resources, and ''non substitutable'' if they cannot be substituted with other resources that are valuable but neither rare or imperfectly imitable. Others identified different critical groups of properties, such as durability, transparency, transferability and replicability (Grant, 1991); inimitability, durability, appropriability, substitutability and competitive superiority (Collis & Montgomery, 1995); complementarity, scarcity, low tradability, inimitability, limited substitutability, appropriability, durability, and overlap with strategic industry factors (Amit & Schoemaker, 1993). Amit and Schoemaker (1993) also distinguished resources from capabilities, the formers being non-specific of the firm and therefore tradable, the latters pertaining exclusively to the firm. Developments in the resource based view brought some scholars to appraise prevalently resources and capabilities pertaining knowledge (Barney, Ketchen, & Wright, 2011), giving birth to the knowledge based view. Teece (2007), Teece (2009) carried forward such theory adopting a dynamic approach focused on the organizational dynamic capabilities, as organizations create, integrate, and reset continuously the most critical resources to achieve CA.

Although CA is traditionally referred to for-profit or business sector, also non-profit organizations have to compete with each other in order to obtain community support and achieve government grants (Fletcher, Guthrie, Steane, Roos, & Pike, 2003).

The scholars supporting the resource based view, as well as those supporting the knowledge based view or the dynamic capabilities view, made special efforts to categorize the components of their theoretical models, arranging them into coherent groups. Frequently, ''assets'' or ''unique skills'' have been grouped in VDs (e.g., Carlucci & Schiuma, 2009; Green & Ryan, 2005; Low, 2000), whose balanced and inspired management can enhance value creation and CA (Matthyssens & Vandenbempt, 1998). Managers may find difficult to comprehend the specific impact of each VD on CA, because most VDs (especially intangible ones) create value through interactions with the others (Carmeli & Tishler, 2004). Thus, an assessment based on the contribution of a VD by itself would be probably inaccurate.

Both TA and IA (knowledge and relational based) have been considered as potential sources of CA (Argote & Ingram, 2000; Boisot, 1998; Dyer & Singh, 1998; Flamholtz & Hua, 2003). As discussed by Andriessen (2004), TA and IA may be evaluated (defining their value in monetary terms), measured (defining their value using non-monetary criterions translated into observable phenomena such as the number of an organization's patents), or assessed (their value is not calculated on the basis of observable phenomena, but instead on the personal judgment of an evaluator). While investments on TA can be easily monetized, and many financial and economical ratios have been defined, the valuation of investments on IA has represented a challenge (Capece, Cricelli, Di Pillo, & Levialdi, 2010; Edvinsson and Malone, 1997; Grimaldi & Rippa, 2011; Lev, 2001; Sveiby, 1997; Teece, 2000). Lately, authors defined methods to monetize IA by integrating the strategic viewpoint of an organization in the form of mutual influence among assets, interrelation between IA and TA performance and strategic developments (Jhunjhunwala, 2009; Moeller, 2009). However, TA and IA monetization may not reflect the internal dynamics of value creation, and the economic value of the formers may not be compared with that of the latters (Bontis, 1998; Cricelli & Grimaldi, 2008; Marr, 2008).

Decision support systems emerged in order to facilitate managers in making the best decisions to achieve CA (Eom & Kim, 2005). The early systems were close to Porter's vision of a CA enhanced by the organizational strategies. For example, Tavana and Banerjee (1995) defined an analytic hierarchy process (AHP)-based methodology for the evaluation of strategic alternatives (such as centralization of a department versus the implementation of certain organizational changes). More recently, several decision support systems embraced the resource based view, focusing on the determination of critical strategic assets for the CA. Low (2000) developed a ''value creation index'' focused on nine VDs in order to support the management in their evaluation. He identified indicators for each VD, standardized them to a common scale, and traduced them into one overall score. Carmeli (2004) introduced the ''strategic analysis technique'': a framework for the assessment of IA in which participants were asked to choose up to seven VDs possessed by their firm and to distribute a total of 525 points among them according to Barney's four properties. However, the approach proposed by Carmeli does not allow the evaluation of interdependencies among VDs. Green and Ryan (2005) assessed intangible VDs weights through the AHP in order to find those more critical to the value creation process. In their work, Carlucci and Schiuma (2009) considered also the interdependencies among assets