Preface

THE GENESIS OF THE INTELLECTUAL CAPITAL THEORY

The consolidation of intellectual capital as a fully-fledged knowledge field is still in progress. It should be borne in mind that it was only fifty years or so ago that some pioneering thinkers foresaw the importance of intangible assets for a company, thereby laying down the initial foundations for this very recent discipline.

In 1945, Frederick Hayek presented research about the importance of knowledge in society (Hayek, 1945). Then, in a seminal work, Fritz Machlup, from Princeton University, produced an eight-volume work in 1962, under the general title Knowledge: Its Creation, Distribution, and Economic Significance (Machlup cited in Stewart, 1997, p. 11). In this work, using data gathered in 1958, it was established that 34.5% of the gross national product of the United States could be ascribed to the information sector. In 1993, Peter Drucker analyzed the new knowledge economy and its consequences (Drucker, 1993). Subsequently, academics, researchers and practitioners have increasingly highlighted the importance of the intangible assets of a corporation and even those of both countries and organizations, including non-profit entities (Dragonetti & Roos, 1998; Bontis, 2004).

A watershed was reached in July 1994, when a meeting took place in Mill Valley with a view to establishing how the knowledge of an organization could be adequately measured. Knowledge may be intangible, but that does not mean that it cannot be measured. Markets do precisely that when they value the stock of highly knowledge-intensive companies way above their book value.

In 1995, Skandia—the largest insurance and financial services company in Scandinavia—released its Intellectual Capital Annual Report, based on its Navigator framework (Edvinsson & Malone, 1997). Some other companies, such as Dow Chemical, the Canadian Imperial Bank of Commerce, Posco, and so forth, to name but a few, also entered this new era.

Several research articles have been published and timely praxis has been developed to measure the Intellectual Capital of an enterprise: Sveiby (1997); Roos et al. (1997); Bontis et al. (2000); Petty and Guthrie (2000); Low (2000); Sánchez et al. (2000); Joia (2000); Guthrie (2001); St Leon (2002); Rodov and Leliaert (2002); and Hunt (2003), among others.

THE IMPETUS BEHIND THE INTELLECTUAL CAPITAL THEORY

There is no single definition for intellectual capital (IC). Kaufmann and Schneider (2004), for instance, analyzed several definitions for this construct. Most of them are associated with the definition of intangible assets and knowledge resources, as stated by Rastogi (2003, p. 230): “IC may properly be viewed as the holistic or meta-level capability of an enterprise to co-ordinate, orchestrate, and deploy its knowledge resources towards creating value in pursuit of its future vision.” In line with this, Petty and Guthrie (2000, p. 158) define IC as “the economic value of the intangible assets of a corporation.”

According to Edvinsson and Malone (1997), Roos et al. (1997), Sveiby (1997), Stewart (1997) and Joia (2000), the impetus for the development of a theory of intellectual capital derives from the increasing value of the ratio between the market and the book (M/B) values of organizations. Indeed, some authors, such as Ordóñez
de Pablos (2003, p. 63) not only agree with this, but also support the claim that a firm’s intellectual capital is the difference between its market (M) and book (B) values.

Some might say that different depreciation policies can influence the book value (B) calculation. It is a valid point, and is the reason why Tobin (1969) suggests the use of replacement cost, defining q as (market value)/(replacement cost of the assets). The replacement cost concept was developed in order to circumvent the differing depreciation policies used by accountants world-wide. If q is greater than 1, the asset is worth more than the cost of replacing it, thus it is likely the company will seek to acquire more assets of this kind. However, this reasoning has no longer been able to explain the recent increases in M/B values.

At this point, a very important question needs to be asked, namely: why should firms value or measure their intellectual capital? According to Andriessen (2004, pp. 232-233), this should be done for six reasons:

a. What gets measured gets managed;
b. To improve the management of intangible resources;
c. To monitor effects caused by actions;
d. To translate the organization’s strategy into action;
e. To weigh up possible courses of action; and
f. To enhance the management of the organization as a whole.

In addition to this, Marr et al. (2003, p. 443) reveal five main reasons why firms value their intellectual capital, as presented below:

a. To help organizations formulate their strategy;
b. To assess strategy execution;
c. To assist in diversification and expansion decisions;
d. To use these as a basis for compensation; and finally,
e. To communicate measures to external stakeholders.

This is proof of the pressing need impinging upon organizations to evaluate their intellectual capital in order to improve their managerial praxis, as well as to achieve better outcomes.

In line with this, the intellectual capital theory purports to enable firms to understand their hidden assets better (Rastogi, 2003, p. 230). In this regard, it is important to understand the components of an organization’s intellectual capital, namely human, organizational, and relationship, as well as innovation, renewal and social, capital.

**LINKING INFORMATION TECHNOLOGY AND INTELLECTUAL CAPITAL**

On the other hand, a movement was fomented by academics and executives since the early 1980s to use information technology (IT) not only as a tool for processing data more rapidly, but also as a powerful strategic weapon. The need to use IT as an enabler to reformulate old processes, rather than simply automate existing practices was perceived by these academics and executives (see, for instance, Davenport & Short, 1990, and Venkatraman, 1994).

As Internet technology became more readily available, the reformulation of productive processes in the business arena became a reality, leading most companies to strive for greater efficiency, efficacy and accountability in their relationship with their stakeholders.

Hence, this book draws on the fusion of these two former mainstreams, namely information technology and the strategic role of intellectual capital in firms.

In line with this, the main scope of this book is to show how information technology (IT) is linked to the intellectual capital of a firm, that is, to establish what the role of IT really represents in the human, organizational,
relationship, innovation, renewal and social capital of a company, namely the components of its intellectual
capital. In other words, the purpose of this book is to analyze how IT has created a new mandate for management
in a knowledge economy, in order to develop new business models and frameworks. Thus, a specific chapter
will show the role and impact of IT on a firm’s human capital, as well as new models to be used, while another
will do the same for the company’s relationship capital, and so forth. In this way, we can grasp the massive
transformation IT has wrought on the way corporations need to be managed and propose new models based on
the pervasive role IT plays in the current business arena.

THE STRUCTURE OF THE BOOK

This book contains 15 chapters, gathered under two section headings. Section I, Intellectual Capital: Origins
and Future Prospects, analyzes the main facets of intellectual capital theory per se, in order to make it easier for
the reader to grasp the potential of this new knowledge field.

Section II, Intellectual Capital and Information Technology, goes on to link the intellectual capital theory
with information technology, revealing how the latter can impact the former in the business realm.

In Section I, there are seven chapters, as summarized below.

Chapter I outlines how intellectual capital as a theme has evolved in different academic disciplines and dis-
cusses inter-disciplinary views on intellectual capital. The author also outlines some of the major issues to be
addressed as well as some possible avenues on how to take this important field forward.

Chapter II analyzes the concept of intellectual capital in strategic management research. The authors offer a
comprehensive view of the key pillars and concepts formulated over the past twenty years in strategic manage-
ment literature, thereby laying down the grounds for intellectual capital constructs and related components.

Chapter III establishes what the main components or building blocks of an intellectual capital balance sheet are,
taking the three most common components of intellectual capital (human capital, structural capital, and relational
capital) and testing empirically if this grouping of intangible assets is supported by the evidence obtained from
a sample of knowledge-intensive firms from Boston’s Route 128. According to the authors, the findings suggest
a classification of intellectual capital according to four categories: human capital, structural capital, relational
business capital, and strategic alliances.

Chapter IV provides an alternative method for measuring and reporting human capital items in financial
statements. The authors explain the need for disclosing human capital information adequately in financial state-
ments. They show the results from an empirical study they performed to test the validity of the human capital
architecture and its relationship with a firm’s performance.

Chapter V presents a comparative evaluation of some of the most commonly used intellectual capital (IC) mea-
surement models. These models include Skandia’s IC Navigator, the Intellectual Capital Services’ ICIndex™, the
Technology Broker’s IC Audit, Sveiby’s intangible asset monitor (IAM), citation-weighted patents, and real option
theory. According to the author, each model is classified using dimensions of temporal orientation, system dy-
namics and causal direction.

Chapter VI proposes a method for the financial valuation of intangibles based on specific taxonomy that
distinguishes between intangible assets and core competencies, while classifying the latter into (tangible or in-
tangible) asset-driven core competencies and non asset-driven core competencies. According to the authors, this
method is suitable for valuing the intangibles of large companies and smaller businesses where large databases
are not available.

Chapter VII examines how firms measure and report their knowledge-based resources. Based on the analysis
of intellectual capital statements published by 28 pioneering firms from Europe and India, the authors explore
key issues on drafting this innovative report. At the end of the chapter, the authors present major conclusions
and implications for management.
In Section II, there are eight chapters, as summarized below.

Chapter VIII examines the contribution of IT systems and tools to the emergence and use of different types of knowledge in a firm. The authors conclude that the bulk of IT applications assist in the dissemination, storage and acquisition of explicit knowledge. However, there are also some tools that serve to elicit tacit and potential knowledge and facilitate the conversion from tacit to explicit knowledge. At the end of the chapter, the authors evaluate the potential provided by IT in more general terms.

Chapter IX examines how different types of virtual communities function as platforms for the formation of social capital, which in turn foster the production of new intellectual capital. The authors propose information technology-enabled social capital as a framework for understanding how organizations generate intellectual wealth. Specifically, the authors claim that social capital in physically-based virtual communities improves the incremental continuous development of existing intellectual capital, while in Internet-based communities it facilitates the generation of new intellectual capital through radical innovations and paradigmatic change.

Chapter X discusses and introduces a quantitative method for aligning information technology resources with the knowledge management of an organization, the purpose of which is to quantify the intensity of the available software functions, so as to maximize the benefits and minimize the costs of the knowledge management process. According to the authors, the most important thing to emphasize about the method proposed here is its capacity for aligning investments in information technology resources with the organization’s knowledge management process. Other advantages include the capacity for defining priorities for investments in software functions and the creation of adequate algorithms for knowledge management.

Chapter XI describes which information and communication technologies (ICT) can help in the process of managing knowledge and intellectual capital in organizations. The authors classify all of them according to their utility in assisting in knowledge management and intellectual capital management, and in which of the processes needed in organizations for managing knowledge and intellectual capital they can be used.

Chapter XII analyzes the influence of knowledge-sharing in the context of IT project management. The research made it possible to establish that the factors that influenced knowledge-sharing and consequently the project itself can be related to the context and dynamics of the institution in which the system was implemented, to the way in which the project was planned and conducted, and also to the individual characteristics of the participants.

Chapter XIII seeks answers to two questions, namely what types of intellectual capital are affected by IT and how IT can affect these types of intellectual capital? An analysis of intellectual capital indicators of the banking industry using an input-process-output model reveals that the process mediator variables, namely management capabilities, are highly affected by information technology. According to the author, information technology plays a key role in supporting decision-making, making business innovations possible and tightening controls of various processes through its tracking, information, dissemination, analytical, simulative, and detection capabilities.

Chapter XIV analyzes the impacts of Intranet quality on organizational capital practices. The authors describe a research model empirically tested in 98 large Brazilian organizations. The variables proposed by the TAM (technology acceptance model) and the TTF (task technology fit) were converted into portal context, emphasizing the importance of leveraging classic information science and information system studies to understand the portal phenomenon better. Furthermore, the knowing organization model was applied in order to offer a theoretical backing for the intellectual capital-based variables. According to the authors, the results revealed evidence that portal quality has more influence on knowledge creation than on “sense-making” and decision-making.

Chapter XV analyzes the potential of RFID technology with respect to the relationship between retailers and their clients, in order to understand how this technology is capable of increasing a firm’s customer capital, in line with intellectual capital taxonomy. Prospective scenarios are elaborated by the author concerning the use of this technology to enhance the relationship between retailers and their customers in order to increase a firm’s customer capital—which is an intangible asset.
FINAL REMARKS

This book sets out to straddle two very important, albeit still separate knowledge fields, namely information technology (IT) and intellectual capital (IC). In a knowledge and network economy, such as the business environment is becoming today, it is of paramount importance to understand how information technology can enable the creation and leveraging of valuable intangible assets within a firm. Most resources that are considered sources of sustained competitive advantage are nowadays intangibles, accruing from the human, relationship, organizational, as well as renewal, development and social capital of a firm, namely the components of the intellectual capital of a company. Moreover, these capitals can also be strategically fostered through the use of information technology and the processes enabled by it, in order to lead the firm to a position of superior performance.

By the same token, information technology projects can also be assessed through the use of the intellectual capital theory, as most of the outcomes accrued from them are intangibles.

In conclusion, this book seeks to analyze this former virtuous circle, namely intellectual capital and information technology. By doing so, it sets out to enable the readers—academics, graduate students and practitioners alike—to understand more clearly how information technology can place the market value of a firm far above its book value, which is a phenomenon that industrial management praxis is as yet unable to explain.

REFERENCES


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