In Search of an Intellectual Capital General Theory

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Abstract: The development of intellectual capital theory has been guided by the ideas and thoughts of a handful of influential practitioners, including Karl Erik Sveiby (1997), RS Kaplan (Kaplan and Norton, 1992) and Leif Edvinson (Edvinson and Malone, 1997). These pioneers established the basis of the "intellectual capital standard theory". In the present paper the assumptions and principles that support the standard theory (the prevailing paradigm) are discussed. The paper then introduces other models and methodologies as alternatives to the standard theory—such as the "IC Accounting System" (Mouritsen et al., 2001), the "Value Explorer" (Andriessen and Tissen, 2000) and the "Intellectual Capital Benchmarking System (ICBS)" (Viedma, 2001)—and examines the foundations and principles on which the alternative new theory (the 'new paradigm') is based. Finally, the paper attempts to synthesise both of these theoretical approaches with other new views and contributions, and tries to develop the basis for a first general theory of intellectual capital.

Keywords: intellectual capital; knowledge management; strategic management; models; paradigms; theory

1. Introduction

Intellectual capital issues have undergone extraordinary development since the beginning of the 1990s. The increasing difference between company market value and company book value has prompted academics and practitioners to consider the concept of "intellectual capital" as a key determinant of the process of value creation for shareholders, managers, and society as a whole.

The development of intellectual capital theory has primarily been guided by the ideas and thoughts of a handful of influential practitioners, including Sveiby (1997) and Edvinson (Edvinson and Malone, 1997). These pioneers established the foundations of the way in which intangible factors determine the success of companies. In the words of Andriessen (2001), the pioneers established the basis of the "intellectual capital standard theory". Their respective models—"Intangible Assets Monitor" (IAM) (Sveiby, 1997) and "Skandia Navigator" (Edvinson and Malone, 1997)—are representative of the assumptions, principles, and foundations of the intellectual capital standard theory. However, later contributions from other academics and practitioners have developed and refined the standard theory. Today, this
theory is the pre-eminent guide to the management of intangible assets, and has facilitated success through sustainable competitive advantage for leading companies and organisations.

The present paper is structured as follows. Following this Introduction, Section 2 notes the representative models and methodologies from the standard theory (or "prevailing paradigm")—the IAM, the "Balanced Scorecard", and the "Skandia Navigator". These models and methodologies are not discussed in the present paper because it is assumed that the reader is already familiar with the main features of these models. Section 2 also contains an explanation of the assumptions and principles that support the standard theory (or prevailing paradigm).

In Section 3, other models and methodologies as alternatives to the standard theory are introduced. These include the "IC Accounting System" (Mouritsen et al., 2001), the "Value Explorer" (Andriessen and Tissen, 2000), and the "Intellectual Capital Benchmarking System" (Viedma, 2001). These models and methodologies are not discussed in the present paper because it is assumed that the reader will have easy access to their main features and characteristics. The three models share similar goals and, taken together, propose some new approaches that constitute an alternative theory to the standard theory described in Section 2. Section 3 also examines, in some depth, the foundations and principles on which the new theory is based.

In Section 4, the paper attempts to synthesise both of these theoretical approaches with other new views and contributions. These new views and contributions are carefully discussed. Finally, in Section 4, the paper tries to develop the basis for a first general theory of intellectual capital.

In Section 5, some of the most relevant conclusions are presented.

2. Representative models and principles underlying the standard theory (or prevailing paradigm)

2.1 Classification of intangible assets

Although intangible assets cannot be touched, they can be identified and reasonably classified. One such simple classification is depicted in Figure 1

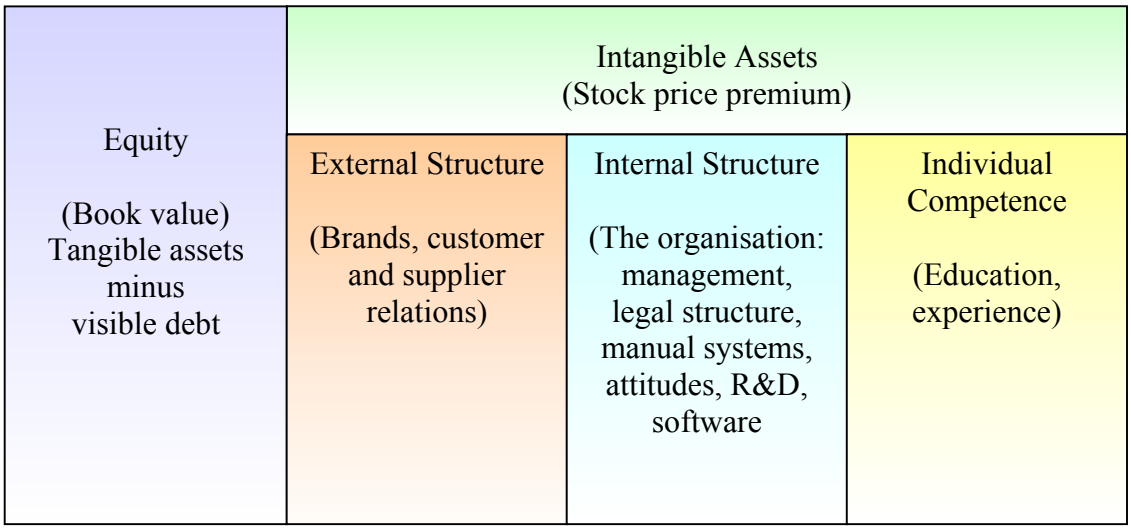

Figure 1: Intangible assets monitor(Sveiby, 1997).

2.1.1 Assets of individual competence

This term refers to assets such as the employees' education, experience, know-how, knowledge, skills, and values and attitudes. These assets are not owned by the company, but the use of those assets is accessed by the company's hiring of employees. This type of asset is also known as "human capital".

2.1.2 Assets of internal structure

This term refers to the company's formal and informal organisational structure, work methods and procedures, software, databases, research and development (R&D) systems, management systems, and culture. These assets are owned by the company and some can be legally protected (patents, intellectual property, and so on). They are also known as "structural capital".

2.1.3 Assets of external structure

This term refers to the company's portfolio of customers (generally known as "goodwill") and its relationships with suppliers, banks, and shareholders, its cooperation agreements and alliances (strategic, technological, production, and marketing), its commercial brands, and its image. These assets are owned by the company and some can be legally protected (commercial brands, and so on). They are also known as "relational capital".

2.2 Representative models of prevailing paradigm.

Because intellectual capital is the key source of wealth creation, it is logical that firms pay close attention to the effective management of such capital. Therefore, the ability to identify, audit, measure, renew, and increase these intellectual assets is a key factor for the success of companies in the modern environment. In this regard, significant effort has gone into the search for methodologies and models to improve the management of intellectual capital—although, it must be said, with mixed success. The main reason for this is the nature of these assets and the fact that each business has its own particular knowledge mix, specific objectives, and market environment. Three authors have been of special significance in this search for useful models of intellectual capital:

- Sveiby (1997) who designed the first intellectual capital model—the "Intangible Assets Monitor" (IAM);
- Kaplan (Kaplan & Norton, 1992, 1996a, 1996b) who devised the "Balanced Scorecard" methodology (especially with respect to effective strategy implementation); and
- Edvinson (Edvinson and Malone, 1997) who was the architect of the "Skandia Navigator" (followed by Ross et al. 1997,

whose "Process Model" gave a strategic perspective to the "Skandia Navigator").

As noted above, these models and methodologies are not discussed in the present paper because it is assumed that the reader already knows their main features or has easy access to them.

2.3 Assumptions and principles of prevailing paradigm

The main assumptions and principles that support the standard theory (or the prevailing paradigm) can be summarised in seven points:

- The accounting view;
- Breakdown of intellectual capital;
- Cause-and-effect relationships;
- Relatively static approach to value-creation processes;
- Limitation of concept of intellectual capital;
- Use of the same models and methodologies to manage and produce reports; and
- Attempts to treat intangible assets as if they were tangible.

Each of these is discussed briefly below.

2.3.1 The accounting view

Basically, the models noted above try to explain the causes of the difference between the company market value and the company book value. The aim is to establish an intangible assets accounts plan that allows identification of the relevant intangible assets and their later valuation. This is an accounting approach to intellectual capital. It identifies the company's intangible assets and enters them in the books—complementing the financial balance sheets with another kind of balance sheet (of intangibles).

It should be noted in passing that the "Balanced Scorecard" does not belong to this accounting approach—as it has a strategic approach. Although the "Balanced Scorecard" has been included among the intellectual capital models in this study, it is not a standard part of the literature on this subject.

2.3.2 Breakdown of intellectual capital

This is a common denominator of all models. Despite the different terminology that they each use, the three models previously mentioned all break down intellectual capital into its distinct elements. These elements can be summarised as human capital, structural capital, and relational capital. For each of these elements, the company establishes a set of indicators that is used to take account, assess, and manage each specific type of capital. That is, each type of capital is deemed independent from the rest in the model's intrinsic processes.

The actual daily operations of firms show that this division is artificial because, in the value-creation processes, all three types of intellectual capital act together, and such a division never arises. Furthermore, physical and financial assets act together with the intangible assets in the value-creation processes.

2.3.3 Cause-and-effect relationships

The models of the prevailing paradigm examine cause-and-effect relationships between each of the three types of capital (human, structural, and relational) and each of the objectives (strategic and financial). These are extremely difficult to establish—due mainly to the artificial division of the model's intangible assets. In the value-creation processes, the human assets act together with the structural and relational assets, making it difficult for directors and managers to determine such cause-and-effect relationships.

2.3.4 Relatively static approach to value-creation processes

The artificial categorisation of intellectual capital lacked consideration of how firms actually deploy their resources through their organisational core activities. Because of this, the above-mentioned models fall short in explaining how firms effectively compete, and how they recreate the sustainable competitive advantages that give rise to value creation.

Although Sullivan (2000) deemed the IAM and the "Skandia Navigator" models to be oriented towards value creation, it should be emphasised that they lack the dynamism and flexibility required in the turbulence of the modern environment. By focusing on *existing* intangible assets (human, structural, and relational intellectual capital), these models become prisoners of a dangerous reductionism. Indeed, the most common reason for failure in firms today is deficient strategy implementation—which actually demands paying close attention to what the firm *does* (rather than what it *has*). In short, the prevailing paradigm lacks an activity-based view (ABV).

2.3.5 Limitation of concept of intellectual capital

Existing models limit discussion of intellectual capital to ideas of means of production, and do not take proper account of other non-intellectual intangibles—such as values, organisational culture, and so on. The models described above consider intangible assets as being mainly intellectual assets or knowledge assets—that is, those that psychologists ascribe to the left side of the brain. However, other intangible assets (such as values, organisational culture, talent, motivation, and employee commitment) also exist. Even if these other affective assets cannot be labelled as "intellectual", they are of great importance to the success of companies and organisations. However, because the emphasis is on *intellectual* assets, other relevant intangible assets are neglected.

2.3.6 Use of the same models and methodologies to manage and produce reports

The above-mentioned models are too often identified with the reports of intangible assets that they generate—reports that supplement the balance sheets of the company's tangible assets. Usually, the same models and methodologies that are used to prepare such reports of intangible assets are also used to *manage* the same intangibles—even though the requirements of management are quite different from those of preparing a report. One exception is the "Balanced Scorecard", which *was* especially conceived as a management tool. Moreover, the end users of intangibles reports are shareholders, suppliers, financial institutions, and so on—that is, external stakeholders in general. In contrast, the end users of management models and methodologies are the organisation's internal managers.

2.3.7 Attempts to treat intangible assets as if they were tangible

The use of the term "intangible *assets*" is dangerous—in that it induces people to think of "intangibles" as assets that can be entered in the books as if they were tangibles, using the extended accounting system of double entry.

Several efforts have been made to assimilate intangible assets with tangible assets. For example, there have been attempts to establish a sort of general accounting plan in line with traditional accounting methods—including the utilisation of universal indicators that might serve to approach almost any situation. The most comprehensive list of such indicators corresponds to the "Universal Intellectual Capital Report" of Edvinson and Malone (1997). They attempted to apply to intangible assets similar procedures to those that have been universally applied to tangible assets—with the aim of generating balance sheets and earnings statements that could be used to make comparisons among any type of company, no matter its nature. Caddy (2000) followed a similar approach in his attempt to discover and assess not only intangible *assets* but also intangible *liabilities*.

3. Representative models and principles underlying the new theory (or new paradigm)

3.1 Representative models of new paradigm

In the late 1990s the problems encountered (particularly by small and medium enterprises) when trying to put into practice the prevailing intellectual capital models and methodologies led to the development of new methodologies and an alternative theoretical paradigm. Among these new methodologies, those that stand out because of the relevance of their empirical applications (especially successful among small and medium enterprises) are the "IC Accounting System" (Mouritsen et al., 2001), the "Value Explorer" (Andriessen, 2001), and the "Intellectual Capital Benchmarking System" (Viedma, 2001, 2003a, 2003b). These models and methodologies are not discussed in the present paper because it is assumed that the reader has easy access to their main features. However, the "Intellectual Capital Benchmarking System" is explored in a little detail because it represents an introductory methodology to the new theory of intellectual capital.

3.1.1 "Intellectual Capital Benchmarking System" (ICBS)

The "Intellectual Capital Benchmarking System" (ICBS) has a strategic view—as does the "Value Explorer". The starting point for the ICBS is the firm's mission, strategy, and objectives—but, in this case, "the best in class" global competitor is also considered, thus allowing benchmarking to be undertaken in a systematic and permanent way.

ICBS is also a management tool that allows companies to compare their core competencies or intellectual capital with those of the best world competitors from the same activity segment.

ICBS is grounded in certain factors and criteria that determine competitiveness in the global market environment. Those principal factors are:

- *Competitive environment:* This refers to the specific business unit environment. It includes Porter's competitive forces (customers, competitors, suppliers, entry barriers, and substitutive products), as well as demand evolution (past behaviour and foreseeable future), and the extent to which the activity in question is internationalised.
- *Outcomes:* Expected economic and financial outcomes of the specific business unit.
- *Customer needs:* Customer segment needs that the company expects to cover through the business unit activities.
- *Products and services:* Products and services with their attributes, characteristics, functions, and embedded knowledge and technologies.
- *Processes:* Value chain activities, primary as well as secondary, that are necessary to produce current products and services. These activities are made up of core business activities, outsourcing activities, and strategic alliances and cooperation agreement activities.
- *Competitive advantages:* Competitive advantages are generated mainly in the different value-chain core business activities.
- *Company core competencies:* Essential knowledge or core competencies that will produce competitive advantages.
- *Personal competencies:* Professionals, managers, and support staff competencies and capabilities that will generate core competencies.

This eight-factor framework is a flexible framework that allows identification and evaluation of the core competencies or essential knowledge within each particular factor. The framework explains how sustainable competitive advantages are achieved in final products and services. Companies, if they want to be successful, need to produce competitive products and services. That is, they must focus on their core business activities, and outsource others. They must also work through carefully chosen cooperation agreements and strategic alliances with suppliers and other companies.

Nevertheless, competitive products and services are not easily achieved. A lot of work is needed to be able to establish competitive advantages in each core business activity of the value chain. Core competencies in the value chain's core business activities produce products and services with competitive advantages and high knowledge or intellectual capital content. Innovation and research and development play fundamental roles in those core business activities. They allow acquisition of new knowledge and new core competencies which, in turn, generates new products and services, intelligent products, new processes, new technologies, and so on—simultaneously improving both the present products and the processes and technologies that follow.

Finally, the acquisition of core competencies and the accomplishment of all these competitive advantages are possible only by means of the actions of the different persons deemed to be crucial to the company in its technological and managerial scope. The personal competencies of these key people are responsible for the generation of core competencies, which in turn produce competitive advantages.

The general model that has been described above is depicted in Figures 2 and 3.

ICBS identifies the relevant factors and criteria for a specific activity segment.

The systematic and continuous use of ICBS allows firms to generate intellectual capital balance sheets that complement the financial statements, and to improve their intellectual capital.

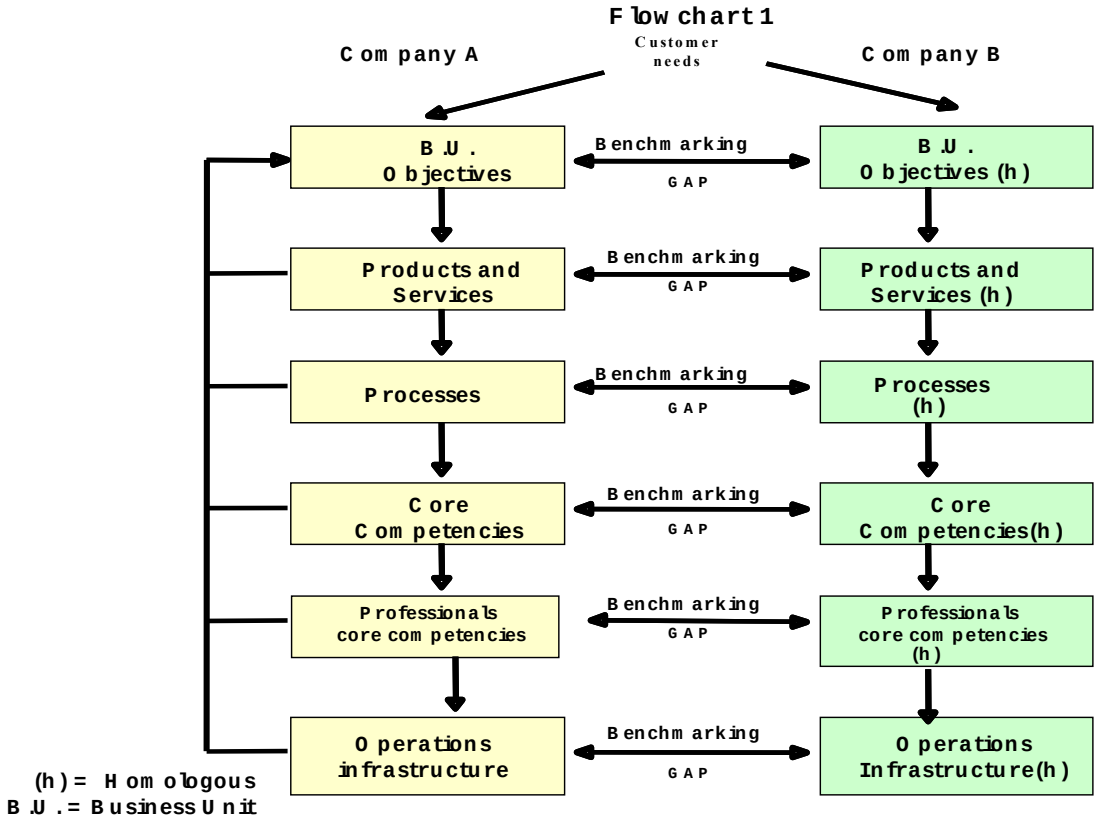

Figure 2: ICBS

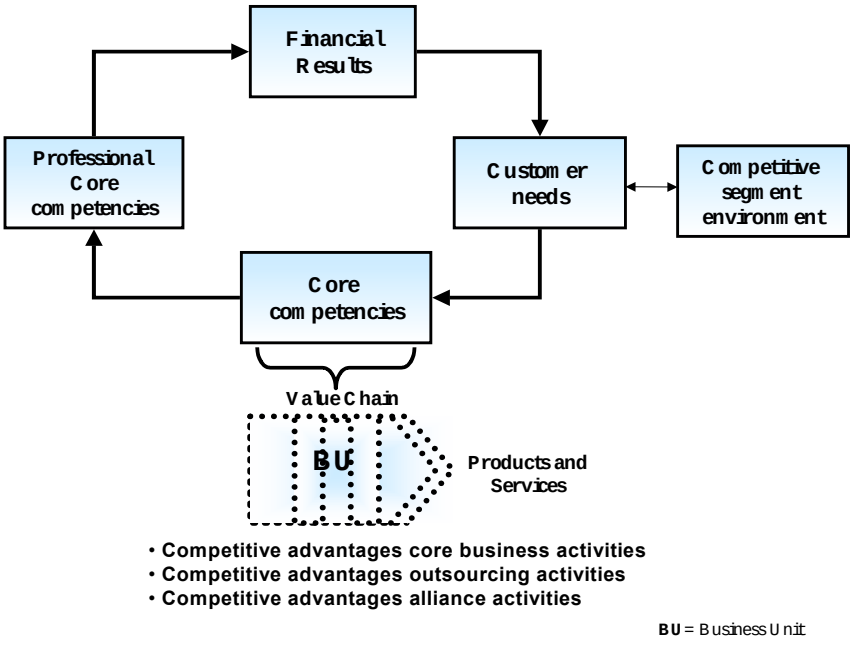

Figure 3: ICBS II

3.2 Assumptions and principles of the new paradigm

The main assumptions and principles that support the new intellectual capital theory (or the new paradigm) can be summarised in seven points:

- The strategic view;
- Not breaking down intellectual capital into its constituent parts;

- Core competencies as the only intangible assets to manage;
- Reality and dynamism in the value-creation processes;
- Breaking down core competencies into their constituent intangible assets;
- Core competencies linked with core capabilities of professionals who work independently or in teams; and
- Evaluation and assessment of the value-creation potential of future core competencies.

Each of these is discussed below.

3.2.1 The strategic view

According to this view, a firm's mission, strategy, and objectives are the principal points of reference for intellectual capital management. According to this approach, it is not important to determine and appraise every intangible asset—because only a few are relevant to a firm's strategy formulation and implementation. These few relevant intangible assets are usually grouped according to the firm's core competencies or core capabilities—which are the true intellectual capital and are therefore the key variables to manage.

The theoretical background to the significance of core competencies is grounded in resources and capabilities theory (Barney, 1991, 1999; Grant, 1991, 1998; Teece, Pisano and Shuen 1997). In short, this view focuses on the fact that, in turbulent and changing environments, competitive sustainable advantages are due mainly to resources and capabilities—in particular, the core competencies or capabilities that Andriessen (2001) describes in terms of a "coordinated bundle" of intangible assets that constitute the roots of the firm's competitive sustainable advantage.

3.2.2 Not breaking down intellectual capital into its constituent parts

The new theory—freed from production of annual reports and statements, and accounting principles and rules conditionings—focuses on a strategic view in achieving the firm's mission and objectives and in surpassing its "best in class" competitors. Thus, the artificial division of intellectual capital into human, structural, and relational capital is of little use because the products and services that result from a specific strategy have no relationship at all with these three types of capital considered independently. Rather, these products and services are associated with an integrated bundle of such assets as reflected in core competencies and capabilities.

3.2.3 Core competencies as the only intangible assets to manage

From the above discussion, it can be concluded that, for each business unit in the operations value chain, and for each project in the innovation value chain, the only assets to manage are those grouped in the core competencies. A firm's specific core competencies are not usually very numerous. Moreover, because a relationship between products and services and the core competencies that enable them is easily established, an appraisal of core competencies can be made by estimating the expected returns from the products in which they participate.

3.2.4 Reality and dynamism in the value-creation processes

One of the main questions that has always been at the core of the strategy theory is how firms compete in their industries or, more broadly, in the global markets. This leads to another question: 'How do firms create and exploit value?'. This leads to an examination of what is deemed to be the essence of the entrepreneurial success—good strategy formulation and implementation. Seeking answers to these sorts of questions leads back to both the resource-based view and the activity-based view (because implementation is mainly about activities) to try to explain how firms deploy resources in order to create sustainable competitive advantages and to achieve superior performance.

From a knowledge perspective, this is possible only if the models pertain to the new emerging paradigm of intellectual capital—the ICBS and the Value Explorer. The focus of these new models on a firm's core competencies allows considerations not only of which intangible resources are crucial to achieving success, but also which core activities must be acted upon (if it is accepted that value creation and exploitation are both intrinsically resource-oriented and activity-oriented). As Haanes and Fjeldstad (2000) have stated, it is not only what the firm *has*, but what the firm *does*, that matters in value creation.

The concept of sustainable competitive advantages that underlies the processes of value creation and exploitation presupposes a certain dynamism that is extremely difficult to capture if attention is paid only to resources, and if an assessment tool based on a false

division of intellectual capital into three artificial categories is used in the analysis. As Man et al. (2002, p. 128) have stated, "… the dynamic nature [of the concept of competitiveness] involves the dynamic transformation of competitive potentials through the competitive process into outcomes". Both resources (tangible and intangible) and activities exist in *competitive* and *non-competitive* processes, and this makes it impossible to appraise the firm's intangible forces if only a resource-based view is taken—a view that requires the creation of *competitive* advantages for attaining superior performance and market value, but fails to take adequate consideration of the *non-competitive* processes.

3.2.5 Breaking down core competencies into their constituent intangible assets

Once the principle that core competencies constitute the firm's authentic intellectual capital has been accepted, the improvement, strengthening, and enrichment of the intangibles "bundle" is enhanced if they are broken down into their constituent parts. This should be undertaken in a broader sense, including not only intangibles that are intellectually based but also intangibles that are affective in origin. To analyse and manage those intangible components the core competencies classification included in the "Value Explorer" is of assistance.

3.2.6 Core competencies linked with core capabilities of professionals who work independently or in teams.

Core competencies are the result of aggregating intangible assets of different types. But each asset is made up of knowledge and skills, and skills are always generated by human beings—working either independently or in teams. Thus, core competencies management is essentially dependent upon the effective management of the core competencies of professionals who work either individually or in coordinated teams.

3.2.7 Evaluation and assessment of the value-creation potential of future core competencies

Finally, the strong relationship between future products and services and the competencies that support them allows an assessment of the future potential of each core competency or core capability. The "Value Explorer" appraises the strength of each core competency by means of the following four criteria: (i) value-added to customers; (ii) future potential; (iii) sustainability; and (iv) robustness.

4. A General Theory of Intellectual Capital

4.1 Other new views and contributions

Following the above discussion, the present paper attempts to synthesise both of these theoretical approaches with other new views and contributions. The new views and contributions considered in this context are:

- The essential role of commitment and action;
- Intellectual capital as the difference between intangible assets and intangible liabilities;
- Intellectual capital as a dynamic concept;
- Intellectual capital identified with the concept of a 'business recipe' in action;
- Benchmarking as a strategic tool.

Each of these is discussed below.

4.1.1 The essential role of commitment and action

Commitment and action have an essential role in the process of wealth or intellectual capital creation. Firm competencies are the ultimate creators of intellectual wealth or intellectual capital. As such, they are a necessary but not sufficient condition for wealth creation. However, firm competencies must be established with the incorporation of certain personality characteristics and attitudes that reflect a strong commitment to convert competencies into competitive and profitable products and services. This positive emotionality embedded in the concept of commitment, together with an appropriate bundle of competencies, is what ultimately accounts for differences in human and organisational behaviour. Commitment is the 'copper wire' that leads human competencies through to superior organisational performance. It is the element that enables these competencies, purposefully aligned with the firm's strategy and objectives, to find their way to market considerations.

Furthermore, commitment accounts for the sustainability of the firm's competitive advantages. The challenge of consistently delivering superior performance requires extraordinary effort and sustained commitment on the part of the key people in an organisation. The demands for innovation that the knowledge economy has exerted on firms

has, in turn, emphasised *talent* as the main value-driver of capital creation (both wealth and intellectual capital). Given that talent is acknowledged as a key source of competitive advantage, the ability of a firm to manage this intangible also becomes a core competence that adds to the firm's value. In such an environment, *commitment* needs to be managed as well as *competencies* (Mayo, 2001; Gubman, 1998).

This view of commitment and action draws upon Jericó's (2001) conceptualisation of talent as being the result of:

competencies X commitment X action

It also draws upon Ulrich's (1998) definition of intellectual capital as being:

competencies X commitment

This view is also in accordance with the work of Man et al. (2002) and Mayo (2002) whose contributions emphasise that competencies alone cannot deliver superior performance in isolation from a more complex bundle of human capabilities (including personal values and attitudes).

It is therefore apparent that intellectual capital theory needs to develop new ways of systematically including *commitment* in its appraisals. It has long been recognised by theorists in organisational behaviour that commitment is a basic driver of a firm's performance, and its explicative power has been clearly demonstrated in entrepreneurship research (Beattie, 1999; Hood and Young, 1993). In particular, the concept of 'utility', as adopted in the economic views of entrepreneurship theory (Douglas and Shepherd, 2000), is important in this. Perhaps what is missing, as Hitt et al. (2001) called for, is an integration of entrepreneurial and strategic thinking.

4.1.2 Intellectual capital as the difference between intangible assets and intangible liabilities

Practically all models (both those of the prevailing theory and those of the new paradigm) make reference only to intangible *assets*. Caddy (2000), in his article "Intellectual Capital: recognizing both assets and liabilities", was the first to consider the existence of both intangible assets *and* liabilities in organisations. Whereas intangible assets are oriented towards wealth creation, intangible liabilities are oriented towards its destruction.

The systematic application of the available intellectual capital measurement tools should provide hints as to what is going wrong in a given organisation, and should thus point to the presence of certain flaws (or intellectual liabilities) that are undermining the firm's potential for intellectual value creation. According to Powell (2001), any assessment of a sustainable competitive advantage should consider competitive advantages and competitive disadvantages simultaneously.

It is apparent that intellectual capital should be defined as the difference between intangible assets and intangible liabilities, such that positive and negative drivers of value creation are both considered—thus allowing effective intellectual capital management. Given that managing intangible assets is a difficult task, identifying and measuring intangible liabilities would appear to be an even more difficult task. However, intellectual capital theory is mature enough undertake this exercise.

4.1.3 Intellectual capital as a dynamic concept

Most models approach intellectual capital only in terms of a static concept, without reference as to how intangible categories create and destroy wealth. They fail to consider wealth creation and destruction as taking place through virtuous circles (Knight, 1999) and vicious circles.

A virtuous circle can be said to be in place when there is a good alignment of the personal and professional objectives of key people with those of the organisation, thus leading to an environment of creativity and positivity. In contrast, vicious circles reflect a malalignment of the objectives of employees and those of the organisation. It is possible to identify and manage these circles only through a *dynamic* approach to intellectual capital assets and liabilities. This identification of virtuous circles and vicious circles must be combined with the identification of intellectual assets and liabilities (as noted above).

Vicious circles and virtuous ones can take a long time to become apparent and, once they are identified, it can take time for an organisation to reverse their effects. This is significant in a competitive global environment. Once the market starts giving signals of a misfit between its value parameters and the firm's value offer, time for adjustment can be very short. The presence of strong competition, together with the time required to adjust internal vicious circles and intellectual

liabilities, can mean that firms are simply unable to adjust in a timely fashion.

All of this emphasises the need to include activity-based views (ABVs) within the new general theory of intellectual capital.

4.1.4 Intellectual capital identified with the concept of 'business recipe' in action

Core knowledge and core competencies are brought to bear in creating value through a successful 'business recipe' (BR). The difference between a successful business *formula* and a successful business *recipe* is the same as that between a successful *formulated* strategy and a successful *implemented* strategy. Superior performance that ends in value creation is a natural consequence of a firm's success in bringing a superior business formula *into the market*.

This emphasis on *implementation* is thus significant for any new general theory of intellectual capital—especially in view of the comments already made (above) about the importance of activity-based views in identifying intellectual liabilities and vicious circles.

4.1.5 Benchmarking as a strategic tool

Recognising the importance of *benchmarking* as a strategic tool allows early identification of virtuous and vicious circles, and facilitates the management of intellectual capital in accordance with the new views and contributions outlined thus far. The only intellectual capital measurement tools that introduce benchmarking techniques in their appraisals are those of the Innovation Intellectual Capital Benchmarking System (IICBS) (Viedma 2003a) and the Operations Intellectual Capital Benchmarking System (OICBS) (Viedma 2003b). The objective of both the IICBS and the OICBS is to determine whether the firm possesses superior core competencies in relation to the world's best competitor. This can be used to account for sustainable competitive advantages that might lead to superior performance and wealth creation.

In terms of assessing world competitiveness, IICBS and OICBS benchmark a firm's *business recipe* against that of its world's best competitor. A firm will be able to create value in the long run as long as its BR has proven to be superior to the world's best. A detailed and thorough process of benchmarking will enable the identification of superiority (or inferiority)—signalling the presence of virtuous (or vicious) circles that will have to be subsequently managed.

Markets are changing with increasing rapidity, making it very difficult for firms to keep track of the innovations and performance of competitors. In this context, strategic benchmarking, if applied systematically, becomes an *effective* and *efficient* tool to track the firm's value-creation processes in creating sustainable competitive advantages. Benchmarking is *effective* because it focuses on what is strictly relevant to value creation: a superior BR and core competencies. It is *efficient* because it fosters a better assignment of organisational resources as long as the unit of analysis is essentially the firm's BR. Benchmarking the firm's BR with the best competitor's BR informs its key people about how well they have been doing and whether an in-depth analysis is required.

However, a firm's intellectual assets and liabilities, together with its virtuous and vicious circles, remain a matter for the firm's internal management. The effectiveness of management will obviously influence performance—either transforming the firm's BR to reach the point of being a superior BR that creates value, or never reaching that point and failing to create extra value.

4.2 The formulation of a general theory of intellectual capital

As a result of the above discussion, the main ideas of a general theory of intellectual capital can be depicted in simplified form (see Figure 4).

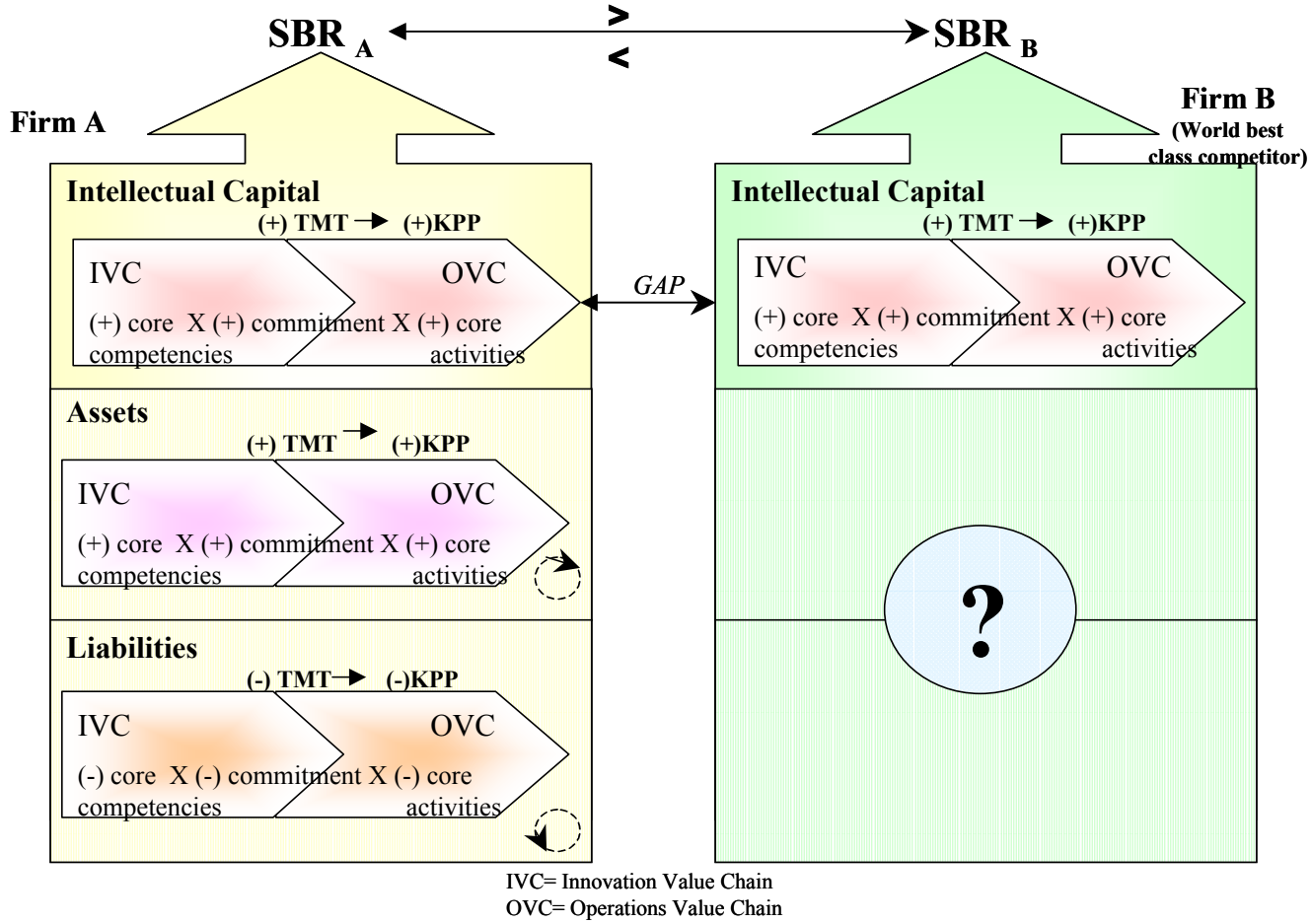

Figure 4: General theory of intellectual capital (main concepts)

The principles on which this new theory rests are as follows.

- A firm's success is always the result of both *well-formulated* and *well-implemented* strategies (Grant, 1998).
- Successful strategy formulation and execution crystallises in a successful business recipe (SBR) that offers customers competitive and good-quality products and services. Ultimately, an SBR is the market's validation of the firm's competitive quality offer.
- Strategy formulation and execution is always a human task. It is in the hands of the top management team (TMT) and the firm's most important technicians and managers—its key professional people (KPP).
- The TMT and the KPP start from a business formula (that is, a formulated strategy), work through the innovations and operations value chains, and finally accomplish an SBR (as an implemented strategy). Those activities can be performed in a superior way due to the core knowledge and core competencies of the KPP.
- Apart from the core knowledge and competencies of the TMT and KPP, the process also requires commitment from the TMT and KPP to convert the business formula into an SBR, and thus carry the firm to success. Such a commitment fosters a climate of positivity and trust that is essential for knowledge sharing, organisational learning, and value creation. In short, this is an extended version of one of the most relevant principles of leadership effectiveness—that of "engaging people" (Ulrich et al., 1999).
- A firm's BR can only be judged as being successful (that is, an SBR) when it has been proven to be clearly superior to those of the best international competitors as a consequence of a complete and detailed process of benchmarking.

- For analytical purposes, core knowledge and core competencies can be broken down into their constituent parts of human assets, structural assets, and relational assets.
- The engine of the process leading to an SBR are the core knowledge, core competencies, and strong commitment of the TMT and KPP who strategically manage value-chain activities in a motivating and knowledge-sharing environment. This is dynamics of intellectual capital creation through virtuous circles. An effective SBR must constantly transform itself to fit the demands of an ever-changing environment.
- It should not be assumed that the TMT always develops certain activities and actions that are perfectly aligned with the firm's strategy and objectives. Frequently these top managers coexist with others whose professional and personal strategies are not aligned with those of the organisation—thus producing vicious circles.
- The engine of the process leading to wealth destruction (BR deterioration) starts in the TMT—in those managers whose personal objectives prevail against the organisation's strategic objectives. These managers put their core knowledge, core competencies, and commitment into effect in a way that does not produce value creation. Rather, they foster internal fights for power, intrigues, and a culture that is negative in its effects in terms of the firm's requirements for innovation and competitiveness.
- The above description of virtuous and vicious circles represents two extremes in a continuum of typologies. For a given firm, it is to be expected that several circles of both types might coexist, each of them more or less important, thus placing the firm in an intermediary position between the two extremes of 'virtuous' and 'vicious'. These configurations evolve through time. They change, expand, and contract—depending on the firm's abilities to manage them effectively. It is worth noting that the negative effects of vicious circle are generally more pervasive than the positive effects of virtuous circles—causing a given firm's performance to shift to the left (thus invading the virtuous positive zone). Figure 5 depicts these ideas.

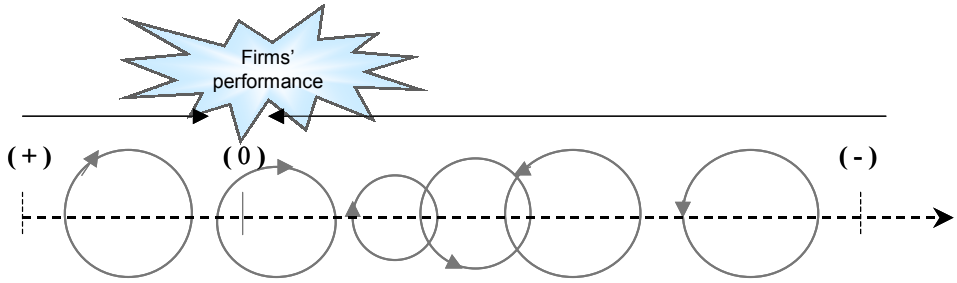

Figure 5: The coexistence of virtuous and vicious circles

5. Conclusions

An analysis of representative models of the prevailing theory, together with those of the alternative new theory, followed by a synthesis of the two and the integration of new views and contributions, has enabled the present paper to advance a first general theory of intellectual capital. By conceptualising intellectual capital as the difference of intellectual assets and liabilities, this new general theory attempts to unravel and tackle the fundamentals of the value-creation process in firms. At the inner core of such an analysis is the concept of the management of virtuous and vicious circles, and the importance of personal objectives of top management and key personnel being aligned with objectives of the organisation in a spirit of strong commitment.

The general theory of intellectual capital introduces a new concept of superior business recipe (SBR) to emphasise the importance of successful *implementation* in a context of a *dynamic* understanding of intellectual capital.

Finally, in the search for new methodologies to manage intellectual capital in accordance with the principles of the new general theory, the OICBS and IICBS methodologies have been emphasised in the belief that strategic benchmarking is the best available tool to keep track of the innovations and value-creation processes of competitors.

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