

A New Insight into the Valuation of Start-ups: Bridging the Intellectual Capital Gap in Venture Capital Appraisals

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Abstract: The emergence of a New Economy has brought consensus to the idea that innovation skills and capabilities are the main drivers of a firm's wealth generation capacity. The principal role that venture capital played in boosting American economic productivity and growth during the 1990s, fuelling innovation and the creation of new firms is well known. However, the huge number of bankruptcies among high-tech companies in 2000 generated general distrust in financial markets worldwide. In particular, it caused great reluctance to invest in start-up companies and led investors and academics to question and take an in-depth look at existing valuation procedures.

Building upon the concept of competitiveness of Man et al. (2002) and the premise that a firm's success is the result of appropriate strategy formulation and implementation (Grant, 2002), the present paper develops the start-up general valuation model (SGVM) as a first step to improving the investment appraisal of start-up companies and promoting a more effective allocation of resources in the economy.

Keywords: start-ups, valuation, venture capital, business model, top management team, intellectual capital.

1. Introduction

The "technology bubble burst" of April 2000 has marked a significant change in the behaviour of world stock exchanges, causing investors to question the transparency of information regarding the risks involved and, in particular, the way in which firms are evaluated when going public. Moreover, the period of analysis and reflection that began after venture capital investments plummeted has also indicated a need for revision of traditional financial valuation methods (discounted cash flow, price to earnings, net present value, etc.). Academics and practitioners alike have yet to provide new evaluation methods and tools that allow for more systematic methods of appraising the possible success of new ventures.

The start-up general valuation model (SGVM) is an attempt to fill this gap. Because the present business environment is one in which a firm's competitiveness and capacity to create value is very much dependent on its ability to deploy and re-create its intangible knowledge assets in innovative ways (Lev, 2001; Sullivan, 2000), and because a start-up is so dependent on intangibles (a business formula and the top management team's capabilities and personalities), any such new valuation approach must be based on intellectual capital. Furthermore, the turbulence and complexity of the environment demands an approach that allows for a better understanding of the specific dynamics of a given start-up company. An improved estimation of a company's value must combine several theories and approaches, including strategy, entrepreneurship, and psychology.

The SGVM consists of two parts: (i) the start-up business model benchmark (SBMB); and (ii) the top management team scoreboard (TMTS). The SBMB builds upon Hedman and Kalling's (2001) work and Viedma's (2000) intellectual capital benchmarking system (ICBS), and aims to predict a start-up's competitive capability and value-creating capacity *vis-à-vis* the best world-class competitor. The TMTS aims to evaluate the most decisive factor in the success of any start-up – the top management team (TMT). The TMTS thus appraises the TMT's competencies, commitment, values, and attitudes – not only in terms of the abilities and experience of the members of the team, but also in terms of their personality characteristics. In doing this it relies on Cattell's 16 personality factors – commonly known as "the 16PF" (Karson et al., 2002). In addition, the work of Erikson (2002), Mayo (2001), Ulrich (1998), and Herron and Robinson (1993) is of significance.

The remainder of the paper is structured as follows. Section 2 is a short review of venture capital firms' functions and objectives and common valuation methods. Section 3 briefly outlines the new business environment and the need for more integrative approaches. Section 4 introduces the SGVM (including its theoretical framework, components, and general functioning). Section 5 notes the main limitations of the study and possible future research lines. Section 6 presents the main conclusions.

2. Venture capital value added and valuation methods

Start-ups' own characteristics (lack of history, a promising idea, a bundle of competencies, among others) make venture capital the natural refuge for new ventures in search of financial support. This being the case, there are some elements relating to the functioning, objectives and valuation methods of these firms that we must understand before aiming to improve the latter and ultimately the investment cycle and allocation of resources.

According to Triantis (2001), a venture capitalist or a venture capital firm is a financial intermediary between investors and start-up firms that are too small and too volatile, and have insufficient history to be able to secure financial resources directly from the capital markets. For early stage firms, venture capital is a source both of financing and of strategic advice. This advice and the active coaching of the firms in which they invest is probably what distinguishes venture capital financing from other, more traditional mechanisms such as capital markets or debt contracting (Gompers and Lerner, 1999). Furthermore, those who invest in start-ups (characterised by extreme volatility and operations in new or emerging market segments) aim to obtain a return on their investment around five times the capital initially invested over a period that averages 5-6 years. Such high returns in turn demand some special features at start-up including: i) potential to grow rapidly and generate gross margins of around 40%, ii) the ability to go public or merge in the mid-term at a high P/E, and iii) a strong leader and a top management team with entrepreneurial and managerial experience, perseverance, commitment, imagination, and integrity.

The aforementioned aspects, generally screened through business plans, financial statements, projected cash flows, and other financial tools (internal rate of return, net present value, economic value added, etc.) together with other informal sources (potential clients, suppliers, etc.) and insider information, guide venture capitalist investment decisions. However thorough this screening is, there is clearly a lack of systematic analysis of the whole valuation process. Therefore, if investors and analysts learned anything from the share price collapse of the year 2000 (especially that of the Nasdaq), it was the imperative of turning attention to the firm's true sources of sustainable competitive advantage and value creation (Koeller, 2001). The development of "sustainable" competitive advantage is by no

means only a matter of competencies and good strategy formulation (the content of the business plan) but also one of leadership capability, staying power, commitment, and the values and attitudes of the people in charge of bringing the business venture to fruition. A survey of sustainability carried out by the New Economic Foundation (*The Σ Project*, 2001) highlighted in section 3.5 "... shareholders concerned about risk management will increasingly demand evidence linking the quality of leadership with the creation of long-term shareholder value. They will want to know about the purpose, values and strategy of the organisation in order to form their judgement of the company's long-term potential (the so-called 'success jigsaw/recipe')" (p.30).

Venture capital (VC) played an important role in the economic growth, cultural change and financial "exuberance" experienced by the United States during the last decade (especially in the period 1997-2000). Although, to a lesser extent, Europe was also affected by this VC boom (i.e. early-stage investment rose to €6.7 billions in 2000, an amount 15 times greater than that of 1995), the European Venture Capital Association (EVCA, 1996 and 2001) argues that venture capital-backed companies stimulate the economy through creation of jobs, exceptional growth rates, heavy investment, and international expansion. A recent survey carried out by Hellmann and Puri (2000) across 149 recently formed companies in the Silicon Valley suggests that VC stimulates innovative activity. Thus, a start-up financed by venture capital needs less time to bring a product to market. The report of the EVCA (2001) also shows that venture-backed companies' commitment to R&D expands Europe's technical expertise and resources, and strengthens its competitive position in world markets. International competitiveness is also enhanced by significant growth in export sales.

With this brief discussion of some VC figures and their impact on innovation and economic expansion we intended to highlight the importance, not only for start-ups, but also for a nation's growth and prosperity, of investment flowing back to venture capitalists and to new ventures. We believe that improving the way in which these firms are appraised could contribute to restoring investors' trust and increasing the level of financial inflows allocated to these activities.

3. The new business environment and the need for more integrative approaches

The business environment at the beginning of the twenty-first century is characterised by an acceleration of changes already present in the preceding decade – global markets, shorter innovation cycles, knowledge-driven organisations, the leading role of end consumers, the importance of new information and communication technologies in intra-firm and inter-firm relations and so on. In such a context, the rapidity with which new knowledge must be assimilated makes it difficult for a firm to generate such knowledge internally, forcing it to create networks with suppliers, clients, and even competitors (Venkatraman and Subramaniam, 2002). The external pressures of the environment thus push organisations towards an increasing internal complexity (Lowendahl and Revang, 1998).

In the Knowledge Age, when products and firms survive or die depending on their capacity to effectively and efficiently manage their intangible assets, knowledge and innovation capability have become the main value drivers of organisations. However, the increasing importance of knowledge considerations does not simply mean that a new variable ought to be introduced when developing or analysing the firm's value chains and strategies. It also means that market and competence rules have been substantially modified making us rethink completely the firm's whole value chain. In this sense, the capacity of a firm to manage its knowledge assets has become a key factor in the firm's potential for success and survival (Bontis, 1996), as well as its wealth creation capacity, which is a sign of its people's knowledge and competencies. While this fact is particularly relevant for start-ups (because of their intangible nature), from a venture capital viewpoint, the huge gap between book values and market values recognises that the market also puts a premium on these capabilities.

This change in strategic orientation towards *knowledge assets* requires a recognition that the creation of a competitive advantage depends on the ability of a firm to create, use, transfer, and protect its intangible assets – assets that are scarce, non-tradeable, and difficult to imitate (Grant, 1996, 2002; Barney, 1991). In these changed times, the resource-based view (RBV) of assets emerged as the natural answer within management theory, and with this view came a series of models (including Skandia Navigator, Balanced

Scorecard, and Intangibles Assets Monitor) designed to manage this new form of capital.

Venture capital firms pursued this process with particular intensity. They were the great drivers and enablers of the innovative thrust of the mid-1990s (Lerner, 2001) and they produced (generated?) unprecedented growth in stock exchanges worldwide. However, when the economic "bubble" was dramatically punctured in 2000, these same firms became the scapegoats. Questions arose as to whether the information systems and methodologies in use produced realistic evaluations of the likely success of start-up companies, and this led to a recognition of the need to create sustainable business models (Aidar et al., 2001).

3.1 The need for a new strategic approach

The RBV, at least as it was conceived initially, does not offer a satisfactory answer to the creation of sustainable competitive advantage, because it is notably static (Eisenhardt and Sull, 2001; Eisenhardt and Martin, 2000) and/or because of its lack of a suitable treatment of the firm-industry duality (Foss and Knudsen, 2001). A more dynamic view therefore began to emerge (Spanos and Lioukas, 2002; Teece et al., 1997). A similar process was observed in the field of intellectual capital – giving rise to management and measurement models that were based on the concept of dynamic capabilities (Teece et al., 1997), which gave greater relative weight to the competitive business context in its evaluations. These models approached this either through benchmarking the firm's essential competencies against those of the best world-class competitor (Viedma, 2000) or through the introduction of a competitiveness factor in the valuation calculus (Andriessen and Tissen, 2000).

However, the extreme centrality of both the RBV and these early intellectual capital measurement models in the firm's resources and capabilities internally harms the concept of a firm's success in terms of good strategy formulation and implementation (Grant, 2002) as it attempts to explain the creation of sustainable competitive advantage as a cause-and-effect relationship between the "stock" of these resources and the firm's ability to generate such resources. To build a corporate strategy with the RBV as the only theoretical foundation focuses the firm unilaterally (and dangerously) on "formulation" when, in fact, what the market values is the result of the

deployment of these unique resources and capabilities through the firm's specific actions. This is essentially a problem of implementation and the activity-based view (ABV) of a firm as a main theoretical approach. Although the *present* resources and capabilities of a firm play a major role in the development of strategies for the creation of competitive advantage (Spanos and Lioukas, 2002), being able to explain *at a given point in time* a firm's superior performance and greater market value hardly orients that firm towards *sustainability* – unless there is an appropriate consideration of what the company actually *does* with those resources. Such an analysis requires other theories and approaches. The concept of competitiveness, which is inseparable from the concept of competitive advantage, demands a consideration not only of what assets are *necessary* to generate a superior performance, but also of the *process* required to carry this out (Man et al., 2002).

Finally, the fact that firms transcend their own apparent boundaries (and those of their particular industries) in searching for new opportunities means that the natural unit of strategic analysis is no longer that of "the firm". Rather, it is a more comprehensive unit that allows new configurations of value-creating factors and processes. Amit and Zott (2001), for example, have proposed the "business model" as an alternative unit, and have spoken of a new paradigm anchored in *strategy* (value chains, strategic networks, and specific resources and capabilities) and *entrepreneurship*.

4. The SGVM: theoretical framework, main components, and functioning

The start-up general valuation model (SGVM) is applied to a start-up firm without history, and to its bundle of intangibles. The SGVM seeks to systematise a process whereby an estimation of the probable success of such a start-up can be made with greater confidence.

Any consideration of a firm's performance and its potential to obtain rents and create greater value must take into account the presence of sustainable competitive advantage and the concepts of *competitiveness* and *competency*. *Competitiveness* is usually taken to mean superior performance vis-à-vis competitors, evaluated in the long term. *Competency* is usually taken to mean the TMT's individual and collective competencies to lever the existing resources and competencies, and to develop

new ones, in a process of continuous learning. Although the term "competitive advantage" has a relative and external nature, its construction has mainly an internal focus – either on the firm's stock of resources and capabilities and/or on the actions it decides to carry out. In a global knowledge economy, it is less easy to explain the differences among the performances of firms only by differences in the possession of resources (tangible or intangible). It is not only what the firm *has* (RBV), but what the firm *does* (ABV) (Haanes and Fjestaedt, 2000) that will have an impact on the value perceptions of consumers and other stakeholders, and ultimately on the firm's value.

In the case of start-ups, the high failure rate observed during the early years means that these considerations acquire an even greater importance. Because a start-up does not have a history, and because it has not yet developed ties with the environment, the deployment of resources and capabilities that it effects today will more than any other factor determine its potential to attain success. Therefore, any evaluation model used to capture the potential of a given start-up to generate market opportunities, and to take advantage of those opportunities, must necessarily involve both an RBV approach and an ABV approach.

The SGVM takes into account these different streams of thought and systematically improves the start-up valuation process by considering its value-creation mechanisms. The general scheme of the SGVM was developed as follows:

- The premise that a firm's success results from good strategy formulation and implementation (Grant, 2002);
- For the purposes of the model, strategy was defined, in its formulation and implementation aspects, as the "leading wire" around which resources, capabilities, and activities are aligned in a dynamic exchange of information and knowledge with the environment for the attainment of sustainable competitive advantage that contributes to superior performance (Spanos and Lioukas, 2002; Amit and Shoemaker, 1993); and
- These elements were deployed in two constructs that represent the SGVM's basic instruments of evaluation and analysis: (i) the SBMB, which evaluates the start-up's business model *vis-à-vis* the best world-class competitor (Viedma, 2000; Hedman and Kalling, 2001); and (ii)

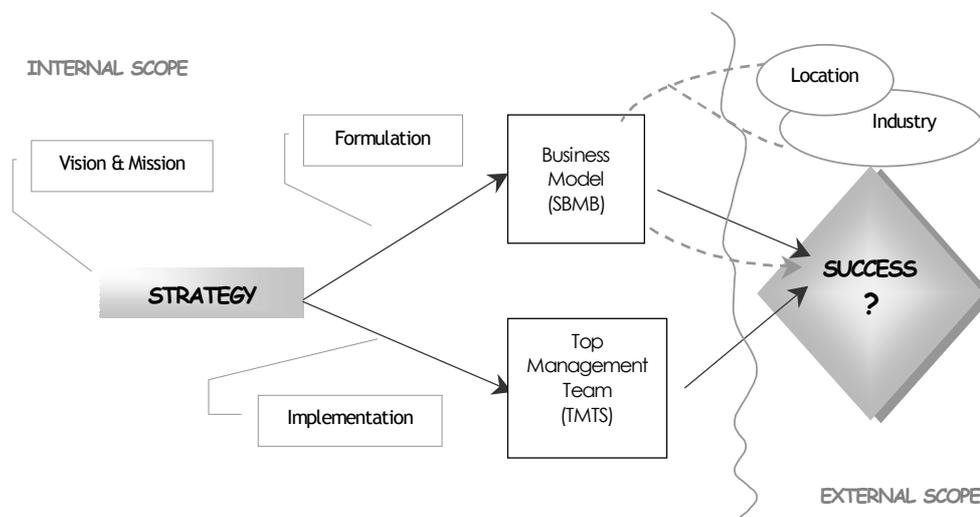
the TMTS, which aims to determine the TMT's potential to make the proposed business formula work effectively and be correctly implemented, thus taking the start-up to fruition and profitable growth (Erikson, 2002; Mayo, 2001; Ulrich, 1998; Herron and Robinson, 1993).

In broad terms, SGVM's content and objectives do not differ much from those deemed to be significant by venture capitalists or investment banks. For the latter, the focus in the due diligence stage is on the firm's corporate strategy execution, followed by management

quality and credibility, strategy quality, innovation capability, and finally the firm's ability to attract and retain a competitive and talented workforce (Andriessen and Tissen, 2000). All these elements are at the very core of both SBMB and TMTS. Thus, SGVM's main contribution is to identify, deploy, and measure a bundle of intangibles that might account for the start-up's possible success, in a way that allows a systematic and competitive assessment.

Figure 1 illustrates this scheme.

Fig. 1 - Strategy and a start-up's success

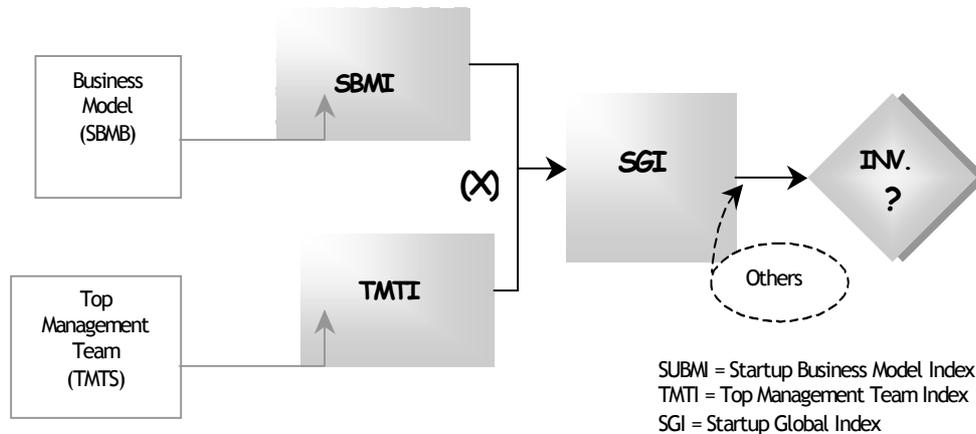


Why do we value separately the start-up's business model and the top management team? After all, the founding team is a part (albeit an essential one) of the organisational resources and capabilities and therefore figures among the SBMB's objects of analysis. However, there exists a powerful reason that is directly linked to the role the TMT plays in a start-up. The success of a start-up is totally dependent on the competencies and commitment of the TMT, and this capacity conditions the potential value created in the first instance by the firm's business formula. The TMT has the capacity to lever or destroy the possible value embedded in the start-up's business formula; it does not matter how good the start-up's strategy formulation is if the

people in charge of executing this do not have the competencies, personality characteristics, and values required to bring the firm to fruition.

Both the SBMB and the TMTS are established by extensive questionnaires that give rise to two indices: the Start-up's Business Model Index (SBMI) and the Top Management Team's Index (TMTI). These are later combined into a single measure, the Start-up's General Index (SGI). The evaluation is thus a two-stage eliminatory process whereby the non-approval of the start-up's business formula (as determined by the SBMB) stops the whole process, thus precluding TMT evaluation. (See Figure 2.)

Fig. 2 - Valuation indexes obtention and the investment's decision



Note: The "others" in the circle refers to other elements, apart from the start-up's potential, that could be taken into account in the investor's final decision (i.e. risk profile, a particular investment portfolio structure, etc.).

4.1 Start-up business model benchmark (SBMB)

The SBMB aims to evaluate the business model in terms of its consistency with the firm's internal and external strategy. In doing so, it departs from the start-up's mission and strategic vision and develops an evaluation process in two stages:

- It identifies the start-up's potential core competencies from the resources, capabilities, and activities that the TMT intends to develop; it then evaluates them against the present core competencies of the best world-class competitor's business formula (internal view); and
- It evaluates a series of factors, most of them common to those of the industry competitive analysis of Porter (1985), with a special emphasis on the networks that the firm develops (external view).

Identification and evaluation of the start-up's *potential* core competencies thus constitute the main body of the analysis. This assesses the consistency or "fit" between the start-up's intangible assets and the business model it has proposed; in brief, identification and evaluation of the start-up's *potential* core competencies give credibility to the proposal. Nevertheless, the unit of analysis and comparison is the business model. The index that is obtained at the end of the process of benchmarking refers to this unit of analysis, and the other components of the system of which the competencies are an essential part, and has a largely explanatory value.

The SBMB's main components are shown in Figure 3. The present discussion considers only those elements that represent a change from existing models, or those that assume special relevance in the case of start-ups. For the remaining elements, readers are referred to the two basic models that served as a source for the development of certain aspects of the SBMB (Hedman and Kalling, 2002; Viedma, 2000).

The factors that deserve some special attention are:

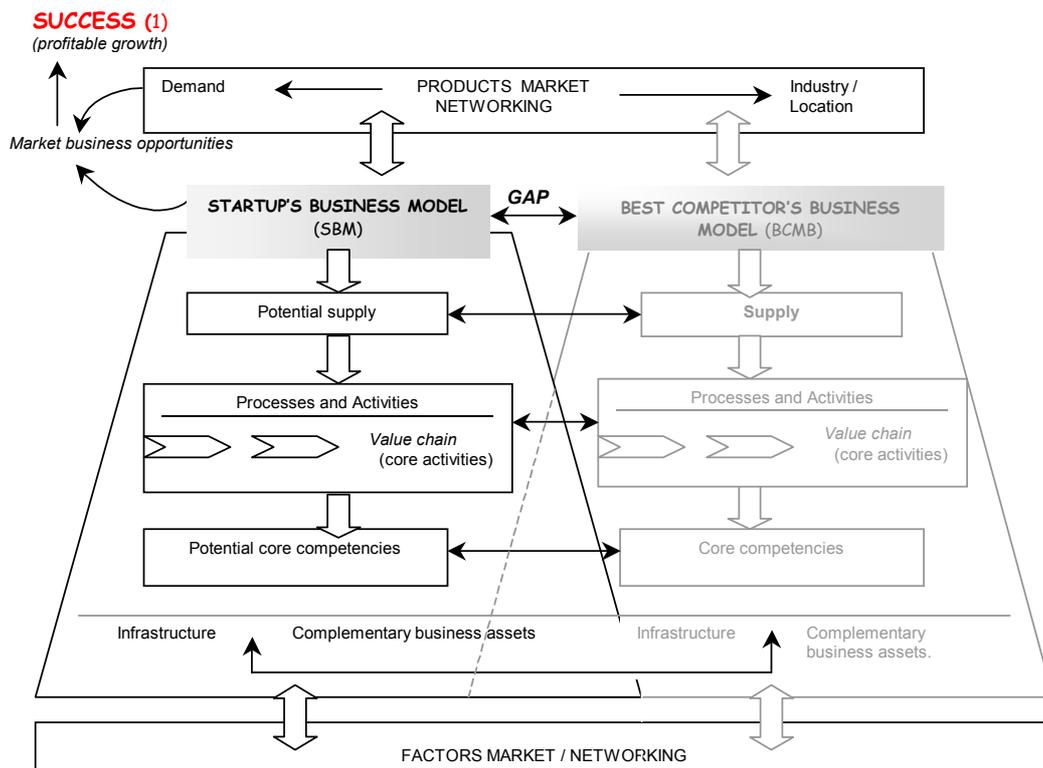
- *Industry.* Of special importance are considerations of the stage of the industry life cycle and the environment's relative stability or dynamism.
- *Location.* This evaluates the proximity to the market, whether the firm belongs to a cluster, and so on. The social structure of the location's surroundings plays a key role in the opportunities perceived by the firm, and in the strategic actions that it ultimately takes (Gulati, 1999). These matters are even more significant in the case of start-ups – given their recent creation.
- *Complementary business assets* (Sullivan, 2000). The embryonic nature of a start-up, without an established product and with an image under construction, makes commercialisation an especially delicate process and a matter of great importance for its future performance.
- *Networking.* This refers to the framework of relations that the firm weaves with its environment in determining the scope of

its products and in evaluating market factors. "Network resources" (Gulati, 1999) have the capacity to lever the total value created by the firm, in addition to being a permanent flow of knowledge acquisition and source of learning, allowing it to share risks and thus reach its objectives (Gulati et al., 2000).

- *Business model.* This has a somewhat different nature from those noted above,

in that it is a derived component. Its value could therefore be different from that which results from the sum of its components – that is, it can increase as its configuration becomes more difficult to imitate, to transfer, and to substitute, (Zott and Amit, 2002). It is a key indicator of the TMT's strategic capacity.

Fig. 3 – SBMB main components



(1) This "success" refers exclusively to the start-up's business formula superiority. The model is completed with TMT's appraisal.

4.2 Top management team scoreboard (TMTS)

When venture capitalists speculate on a start-up, they are, in fact, speculating on the TMT and its ability to formulate and execute the business strategy. The TMTS is therefore an instrument that is intended to contribute to venture capitalists' investment decisions by providing the information required to determine whether the TMT has the competencies, values, and attitudes necessary to succeed in the implementation of the business formula (that has already "proved" to be effective) – such that the investor stays within his or her "return for risk" parameters.

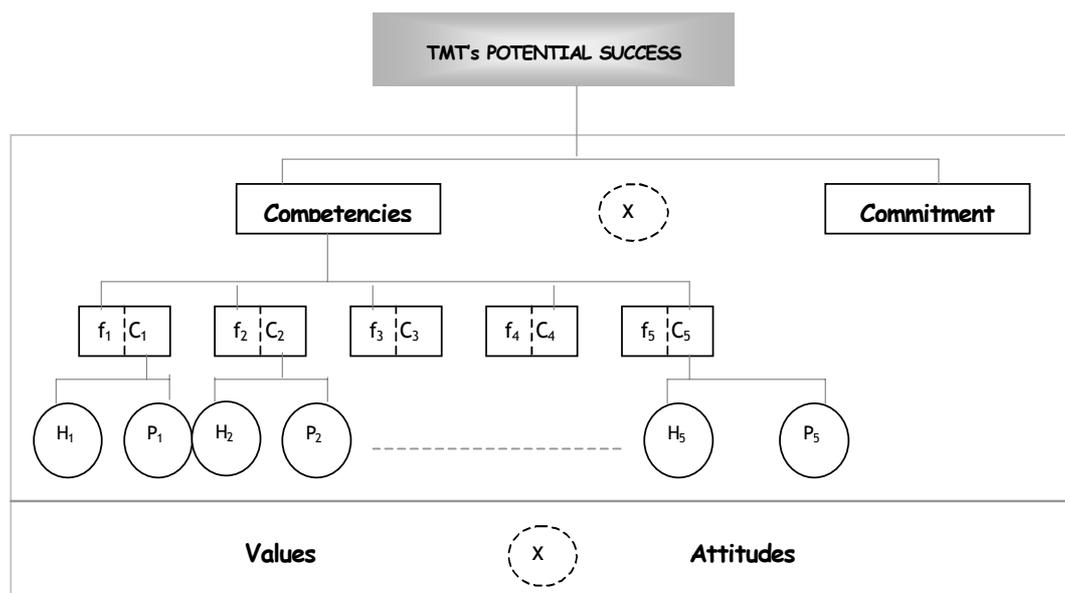
Traditionally, the evaluation of the potential of a start-up's TMT includes an assessment of such aspects as: (i) proven antecedents of its experience; (ii) capacity to execute the business plan; (iii) known background; (iv) areas of expertise; (v) leadership capability; (vi) industry knowledge and contacts; (vii) integrity; and (viii) passion and dedication to the job. All of these elements are easily transferable to the duality of competencies and commitment as reflected in more structured theoretical approaches – under the concepts of intellectual capital (Ulrich, 1998), talent (Jericó, 2001), or entrepreneurial capital (Erikson, 2002). Any attempt to evaluate the potential of

the TMT to take the start-up to fruition must incorporate an assessment of two elements: (i) the successful implementation of the business model; and (ii) the presence of the necessary vision and enthusiasm for establishing and maintaining the firm's competitiveness. In turn, the set of competencies and commitment that the TMT brings to the start-up depends upon the values and attitudes of each of its members. This constitutes the third and last component valued by the TMTS. (See Figure 4.)

The TMTS is organised around the axis of "competencies x commitment" of Ulrich (1998), and the content of each factor is fundamentally an adaptation of the competency areas of Man et al. (2002). The main difference from the approach of Man et al. (2002) is that the TMTS, because it takes Ulrich's definition of intellectual capital as a proxy of the TMT's

potential success, considers "commitment" to be a different factor from that of "competencies", and analyses it within the separate factor "commitment". In relation to the measurement of the influence of the TMT in the start-up's performance, we consider Ulrich's (1998) creation of a multiplicative function of competencies and commitment to be more accurate – for example, when compared with that of the sum of both elements as stated in Mayo's "Human Capital Monitor" (HCM) (2001). The achievement of a superior performance requires the simultaneous presence of both elements. The TMT's competencies are the starting point of the firm's success but its commitment is the component that determines whether those competencies will be effectively channelled to produce the expected results.

Fig. 4 - TMTS global functioning



f_i : competency adjustment factor; ($f_i = 0, \dots, 1$)
 C_i : competency areas in which TMT's members have to be competent
 H_i : skills, knowledge and experience
 P_i : TMT's personality characteristics necessary for the development of C_i

4.2.1 Competencies and commitment

The great majority of attempts to measure the influence of the TMT on a firm's performance fall into one of two groups: (i) those that are exclusively based on the behaviour of the TMT's demographic variables (sex, age, experience, education); and (ii) those that analyse the characteristics of personality in an attempt to establish a cause-and-effect relationship between both types of variables

(those relating to demography and personality and those of performance). However, the lack of conclusive results within both the first group (van Olfen and Boone, 1997) and the second (Herron and Robinson, 1993) makes it difficult to justify a model that evaluates the TMT's probable success only on the basis of the predictive capacity of these variables considered in isolation.

In contrast, the TMTS adopts a process approach and defines the competencies as the basic unit of evaluation – an approach similar to that of Man et al. (2002) who analysed the influence of the entrepreneur on the competitiveness of small to medium enterprises (SMEs). This approach means that the model possesses greater conceptual clarity and explanatory potential in assessing a firm's potential because it takes into account the personality characteristics, skills, knowledge, experience, training, education, and background of individual TMT members – rather than mere demographics.

Apart from the conceptual differences noted above, and other minor ones of denomination; the areas that the TMTS evaluates are essentially those of Man et al. (2002). However, its contents (abilities, experiences, knowledge, and personality) are the result of having adapted these components to the start-up's specific reality. The TMTS begins by identifying which abilities and personal characteristics have greater influence on the start-up's performance, and then transfers them to five selected competency areas. Finally, the personality characteristics that sustain that set of abilities are translated to Cattell's 16PF to allow measurement. Because the model focuses on anticipating the start-up's performance, and because the degree to which a certain behaviour (competency *in action*) leads to a better performance depends, in part, on whether the firm's specific environment demands that type of behaviour (Herron and Robinson, 1993; Cooper et al., 1994), the TMTS introduces the concept of a "competency adjustment factor" – a factor that weighs the relative importance of each competency according to the objectives of the SBM and the start-up's environment. In favour of this "adjustment factor" we could cite Baron and Markman's (2003) recent findings on entrepreneurs' social competency and their relevance to financial success. Interestingly, the authors conclude not only that social competency does matter to the entrepreneurs' financial success but also that the type of abilities that are significant for that competency varies according to the industry to which the firm belongs (i.e. social adaptability was relevant for the cosmetics industry but it was not significant for high-tech industry).

The TMTS reflects the fact that the TMT, to be successful in translating the business formula to a business recipe, must show competency in the following areas:

- *Opportunity*. The promptness of the TMT to commit themselves to a new objective and to take concrete action rapidly whenever a better opportunity emerges (Brown et al., 2001).
- *Innovation*. Man et al. (2002) include this within the broad category of "conceptual competencies". Innovation evaluates the TMT's knowledge and abilities with respect to new products and technologies, and its capacity to create an appropriate environment for innovation.
- *Networking*. This evaluates the TMT's capacity to develop the start-up's social capital, as much as its own social capital. The importance of this competency is greater the higher the level of networking in the start-up industry, which reflects the factors assessed by the SBMB.
- *Management*. This is similar to the organisational competencies of Man et al. (2002). In the case of a start-up, the TMT's competencies in the financial, technical, market development, and managerial areas are of great importance.
- *Strategic*. This refers mainly to the capacity of the TMT to establish, evaluate, and implement the start-up's strategy, and also its ability to introduce the necessary strategic changes to maintain success. Its evaluation includes the final score obtained by the SBMB.

Commitment is the other key variable in the evaluation of the TMT's likelihood of success. By analogy with the SBMB (above) in which it was asserted that resources and capabilities, in themselves, do not have the capacity to generate sustainable competitive advantage (but that these result from the application of strategic activities to the start-up's core resources and competencies), it can be said that the TMT's level of *commitment* as applied to its set of competencies determines the potential success of this group of people and, ultimately, of the start-up.

This second factor of commitment poses greater difficulties from an evaluation point of view. Ulrich (1998) did not explore the measurement of this factor in any detail. Commitment, *per se*, is not measurable, and it can be assessed only through behaviour. It is a reflection of the abilities and the personality of an individual faced with a specific objective or situation. Thus, the TMTS's method of approaching this assessment was to identify possible means of estimating commitment in the theory and to relate these to Cattell's 16PF

to allow measurement. Two factors are assessed in the model: (i) the professional and personal strategic priorities of each of the TMT's members at the moment of start-up; and (ii) the sustained effort of which each individual is capable. The first allows a determination of the extent to which the start-up project is perceived to be capable of satisfying the person's priorities. Individual motivation is thus taken to be an approximation of individual commitment. As Herron and Robinson (1993: 289) observed, "motivations determine what abilities are exerted, when each one is exerted, and in what amount it is exerted". With respect to the second factor, the estimation of the TMT's sustained effort provides a measure of the capacity of individuals to implement the start-up's business model successfully, even in the face of adversity.

The evaluation of both elements gives rise to a commitment index that is later incorporated in the TMTS final index.

4.2.2 Values and attitudes

The incorporation of values and attitudes creates a sort of "supporting platform" that adds consistency to the evaluation of competencies and commitment. In this, the TMTS follows the HCM of Mayo (2001: 90) who stated that "The way in which the core (personal behaviours, business and professional know-how and networks of contacts) is demonstrated is then conditioned by the *attitudes and values* that the person holds – these these being the most difficult to change."

The values and attitudes of the managers of a start-up have a direct influence on the strategic decisions they make, and hence on the future of the organisation. The inclusion of these two components (values and attitudes) into the general scheme allows venture capitalists to determine whether the instrumental values that underlie the TMT are consistent with the development of an organisational culture that fits the business formula and the demands of the start-up's new competitive environment, and whether the values of the TMT are consistent with those of the venture capitalist who is contemplating investment. The latter is not a minor consideration, because an investment decision marks the beginning of a long relationship – and the key to such a relationship is a shared set of values to sustain this union. With regard to the TMT members' personal values, we gave special attention to "integrity" as it plays an essential role in

shaping the organisation's proceedings and culture, and contributes to its smooth functioning and strengthening of stakeholders' confidence in the organisation (Shaw, 1997), which is particularly relevant for a start-up, whose image and reputation are just beginning to develop. On this particular point, Kaptein's (2003) "Diamond of managerial integrity", through its conceptualisation of "the manager as a person of integrity", as someone authentic, reliable, and constructive, was of great help in the process of identifying and depicting the "right" personality characteristics that might contribute to measure this key element.

The main instruments used to evaluate these factors are: (i) a questionnaire on values; and (ii) a composition of personality factors (16PF-based) intended to assess the presence of a positive attitude in the TMT's members.

5. Limitations and future research

One of the main limitations of this work is the almost total absence of empirical research in the field of start-ups. This means that many of the variables included in the present analysis of start-ups (core competencies of TMTs and organisations, commitment, attitudes) had to be deduced. Further research could therefore be oriented towards in-depth studies of the development of start-ups from conception to initial public offering or sale. Empirical evidence from such studies would enable improvements to be made in the SGVM methodology. Some of the issues to be addressed include: (i) the relevant competencies of a TMT for this stage of the firm's life; (ii) the relative weight to be accorded to *commitment* in an estimation of the TMT's success; (iii) the most appropriate elements in a TMT's profile; (iv) the adequacy and predictive capability of the chosen personality characteristics to deduce TMT's competencies in each competency area; and (v) whether the overall approach of the SBMB (especially the emphasis put on the identification of core potential competencies) is the most appropriate approach to take for accurate prediction of a start-up's likely performance. Moreover, these points should be addressed *if possible* in relation to both successes and failures.

More in-depth research and analysis of the dynamics and specificities of start-ups is necessary if the goal is to improve venture capitalists' assessment processes and valuation methods. The benefits are two-fold:

- *At a macro-economic level*, it could be said that the relevance of the subject is established by the research scope itself (venture capital and start-ups). Venture capital investment (especially at an early stage) is a particularly dynamic subset of financial markets and of great strategic significance given its positive impact on a region's innovation capabilities, economic growth, employment and quality of life.
- *At the micro level of the venture capital firm*, we could simply say that improving knowledge in this area responds to a specific requirement of financial markets – to be able to rely on better assessment and valuation methods.

6. Conclusion

The huge number of bankruptcies among high-tech companies in 2000 turned the spotlight on start-ups and the ways in which venture capitalists were making their investment decisions. The weaknesses of the evaluation process included the lack of a systematic approach, absence of rigour in gathering basic information and excessive use of intuition. The SGVM, through its two instruments (SBMB and TMTS), is an attempt to address the problem of evaluation by assessing the same sources that are used in a start-up's value-creation process – the business formula and the TMT's competencies and commitment. In addition, because one of the main contributions of venture capitalists to the healthy development of a start-up is the provision of professional know-how and support to strategic decision making, the systematic application of the SGVM could be a helpful tool which contributes to a reduction in the financial risks associated with new ventures.

Special emphasis has been placed on the TMT as a set of competencies and a source of commitment that has the power to lever or to destroy the potential value created by the start-up's business model. The major improvement of the TMTS compared with extant models is its incorporation of the measurement of personality factors within the top management team, in addition to traditional estimation of members' skills and abilities.

The rapidity with which globalisation and new technologies have changed the basis of competition has confronted organisations with complex problems. The tackling of these problems demands a combination of different approaches and theories. In such a setting, a framework that brings together different

streams of thought (RBV, AVB, social capital, entrepreneurship, psychology, and so on) is likely to have a better chance of correctly predicting the success or failure of a start-up. The multidisciplinary nature of the SGVM is thus likely to improve the risk-management capabilities of investors, and, ultimately, to improve the allocation of economic resources for the well being of the global society in which we live.

Finally, the collapse of share prices in the second half of 2000, which still persists, makes us believe that we could reasonably expect a higher level of commitment and effort from academics, investors and entrepreneurs in order better to understand firms' value creation processes in the Knowledge Economy.

References

- Aidar, F., Gallagher, R., Grieve, A., Willer, B. and Cho, M. (2001) "Lessons for venture capitalists. A new disciplined approach". *Kellogg Tech Venture 2001 Anthology*, [online] Kellogg Institute, Northwestern University, <http://www.ranjaygulati.com/new/research/LESSONS.pdf>
- Amit, R. and Schoemaker, P. (1993) "Strategic assets and organizational rent". *Strategic Management Journal*. Vol. 14, pp. 33–46.
- Amit, R. and Zott, C. (2001) "Value creation in e-business". *Strategic Management Journal*. Vol. 22, pp. 493–520.
- Andriessen, D. and Tissen, R. (2000) *Weightless Wealth*. London, Prentice Hall.
- Barney, J. (1991) "Firm resources and sustained competitive advantage". *Journal of Management*, Vol. 17, pp. 99–120.
- Baron, R.A. and Markman, G.D. (2003), "Beyond social capital: The role of entrepreneurs' social competence in their financial success". *Journal of Business Venturing*. Vol. 18, pp. 41–60.
- Bontis, Nick. (1996) "There's a price on your head: Managing intellectual capital strategically". *Business Quarterly*. Summer, pp. 41–47
- Brown, T. E., Davidsson, P. Y. and Wiklund, J. (2001), "An operationalization of Stevenson's conceptualisation of entrepreneurship as opportunity-based behavior". *Strategic Management Journal*. Vol. 22, pp. 953–968.
- Cooper, A.C., Gimeno-Gascon F.J. and Woo, C.Y. (1994) "Initial human and financial capital as predictors of new venture performance". *Journal of Business Venturing*. Vol. 9, pp. 371–395.

- Eisenhardt, K.M. and Martin, J. A. (2000) "Dynamic capabilities: What are they?" *Strategic Management Journal*. Vol. 21, pp. 1105-1121.
- Eisenhardt, K.M., and Sull, D.N. (2001), "Strategy as simple rules". *Harvard Business Review*. Jan., pp. 107-116.
- Erikson, T. (2002), "Entrepreneurial capital: The emerging venture's most important asset and competitive advantage". *Journal of Business Venturing*. Vol. 17, pp. 275-290.
- EVCA. (1996), "The economic impact of venture capital in Europe, in collaboration with Coopers & Lybrand Corporate Finance", *mimeo*.
- EVCA. (2001), "Policy priorities for private equity: Fostering long-term economic growth", *EVCA White Paper, mimeo*.
- Foss, N., and Knudsen, T. (2001), "The resource-based tangle: Towards a sustainable explanation of competitive advantage", [online] Department of Industrial Economics and Strategy, Copenhagen Business School, http://www.cbs.dk/staff/nicolai-foss/Foss_Knudsen_nyeste.doc
- Gompers, J. and Lerner, P. (1999), *The Venture Capital Cycle*. MIT Press.
- Grant, R.M. (1996), "Prospering in dynamically-competitive environments: Organizational capability as knowledge integration". *Organization Science*. Vol. 7, No. 4, pp. 375-387.
- Grant, R.M. (2002), *Contemporary Strategy Analysis: Concepts, Techniques, Applications*. 4th ed. Main, MASS., Blackwell Publishing Ltd.
- Gulati, R. (1999), "Network location and learning: The influence of network resources and firm capabilities on alliance formation". *Strategic Management Journal*. Vol. 20, pp. 397-420.
- Gulati, R., Nohria, N. and Zaheer, A. (2000), "Strategic Networks". *Strategic Management Journal*. Vol. 21, pp. 203-215.
- Haanes, K. and Fjestaedt, Ø. (2000) "Linking intangible resources and competition". *European Management Journal*. Vol. 18, No. 1, pp. 52-62.
- Hedman, J. and Kalling, T. (2001), "The Business Model: A means to understand the business context of information and communication technology", [online] Institute of Economic Research. Lund University, http://swoba.hhs.se/lufewp/abs/lufewp2001_009.htm
- Hellmann, T. and Puri, M. (2000), "The interaction between product market and financing strategy: The role of venture capital". *Review of Financial Studies*, Vol. 13, pp. 959-984.
- Herron, L. and Robinson, R. (1993), "A structural model of the effects of entrepreneurial characteristics on venture performance". *Journal of Business Venturing*. Vol. 8, pp. 281-294.
- Hunt, J.M. (1998) "Toward the development of a competency model of family firm leadership", [online] Babson College, <http://www.usasbe.org/knowledge/proceedings/1998/07-hunt.pdf>
- Jericó, P. (2001), *Gestión del Talento: Del Profesional con Talento al Talento Organizativo*. Madrid, Prentice Hall.
- Kaptein, M. (2003), "The diamond of managerial integrity", *European Management Journal*. Vol. 2 No.1, February, pp. 99-108.
- Karson, M., Karson, S. and O'Dell, J. (2002) *16PF-5. Guía Clínica*, 4th ed. Madrid, TEA Ediciones..
- Koeller, T. (2001), "Valuing dot-coms after the fall. A closing view". *The McKinsey Quarterly*, No. 2, pp.103-106.
- Lerner, J. (2001) "Risk and the New Economy". *The Milken Institute Review*. Third Quarter, pp. 25-33
- Lev, B. (2001), *Intangibles: Management, Measurement and Reporting*. The Brookings Institution.
- Lowendahl, B. and Revang, Ø. (1998), "Challenges to existing strategy theory in a postindustrial society". *Strategic Management Journal*. Vol. 19, No. 8, pp. 755-773.
- Man, T., Lau, T. and Chan, K. F. (2002), "The competitiveness of small and medium enterprises. A conceptualisation with focus on entrepreneurial competencies". *Journal of Business Venturing*. Vol. 17, pp. 123-142.
- Mayo, A. (2001), *The Human Value of the Enterprise: Valuing People as Assets – Monitoring, Measuring, Managing*. Naperville, ILL., Nicholas Brealey Publishing.
- Porter, M.E. (1985), *Competitive Advantage*. New York, Free Press.
- Shaw, R. (1997), *Trust in Balance: Building Successful Organisations on Results, Integrity, and Concern*. San Francisco, Jossey-Bass.
- Spanos, Y. and Lioukas, S. (2002), "An examination into the causal logic of rent generation: Contrasting Porter's competitive strategy framework and the

- resource-based perspective". *Strategic Management Journal*. Vol. 22, pp. 907-934.
- Sullivan, P. (2000), *Value-Driven Intellectual Capital*. NY, John Wiley and Sons.
- Teece, D., Pisano, G., and Shuen, A. (1997) "Dynamic capabilities and strategic management". *Strategic Management Journal*, Vol. 18, No. 7, pp. 509–533.
- The Σ Project. (2001), "Economic sustainability. The business of staying in business". *The New Economic Foundation*. "Economic sustainability: Systems, methods & approaches. Beyond profit, dividends and capital growth" (Section 3.5). March, [online], http://www.projectsigma.com/RnDStreams/RD_economic_sustain.pdf
- Triantis, G. (2001), "Financial contract design in the world of venture capital". *University of Chicago Law Review*, Vol. 68, Winter, p.305, [online] www.law.uchicago.edu/Publications/Working/index.html
- Ulrich, D. (1998), "Intellectual capital = competence x commitment". *Sloan Management Review*, Vol. 39, No. 4, pp. 15–27.
- Van Olfen, W., and Boone, C. (1997), "The confusing state of the art in top management composition studies: A theoretical and empirical review", [online] Netherlands Institute of Business Organization and Strategy Research, NIBOR/RM/97/11, <http://www-edocs.unimaas.nl/>
- Venkatraman, N., and Subramaniam, M.(2002), "Theorizing the future of strategy: Questions for shaping strategy research in the knowledge economy". *The Handbook of Strategy and Management*. pp. 461-474, Sage Publications, U.K .
- Viedma, J. M. (2000), "ICBS Intellectual Capital Benchmarking System". *International Journal of Technology Management*, Interscience Enterprises and UNESCO, England, Vol. 20, Nos. 5/6/7/8. pp. 799–818.
- Zott, C. and Amit, R. (2002), "Business Model design and the performance of entrepreneurial firms" [online] INSEAD, <http://knowledge.insead.edu/docs/2002-128.pdf>

