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Strategic Benchmarking of Intellectual Capital (SBIC) An Intellectual Capital Strategic Management Methodology and Strategic Information System

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Abstract: In accordance with the resource-based view and the activity-based view, sustainable competitive advantages are mainly due to core knowledge that, together with tangible and (especially) intangible resources, develops competitive products and services through the appropriate activities and processes of the value chain. Strategic Benchmarking of Intellectual Capital (SBIC) is a knowledge-based strategic management methodology and information system framework that has been built drawing direct inspiration from both the above-mentioned perspectives and tries to refine the classic strategic SWOT analysis. This paper carefully describes IICBS, one of the two versions of SBIC, and shows the main benefits to be obtained from the systematic use of IICBS. The SBIC has been tested and successfully implemented in more than forty European enterprises.

Key words: strategic management, information system, core knowledge, core competencies, intellectual capital, benchmarking
Category: H.4.0

1 Introduction

Recent strategic management literature strongly supports the resource-based view [Barney, 1991, 1999; Grant, 1991, 1998; Teece, D. J., Pisano G. and Shuen A., 1997]. This perspective stresses that, in turbulent times and in times of rapid change in technology and in customer and industry needs, sustainable competitive advantages are mainly due to company resources and capabilities. More specifically, such advantages are related to core capabilities that, in practice, are equivalent to core competencies or to core knowledge [Prahalad & Hamel, 1990]. But the resource-based view, in isolation, does not completely explain how to deploy scarce resources to create superior value because it focuses only on what the firm *has*. The activity-based view [Porter, 1980, 1985, 1996] is therefore required as a complementary perspective because it focuses on what the firm *does*. In summary, in the knowledge economy competitive advantages are mainly due to core knowledge that, together with tangible and intangible resources (especially the latter), develops competitive products and services through appropriate activities and processes in the value chain.

The strategic benchmarking of intellectual capital (SBIC) is a knowledge-based strategic management methodology and information system framework inspired and based upon a combination of the above-mentioned perspectives, but the research methodology, that we have used in the development of the SBIC System, has been

mainly focused on empirical testing of practical propositions following a procedure called the empirical cycle [Andriessen, 2004 a].

Deploying scarce resources to create superior value when dealing with the innovation process is a very different task from that involved when dealing with the operations process. To create value the two processes require different resources and different core knowledge. For this reason, SBIC has a specific methodology and information system framework for each of the processes. The first is the innovation intellectual capital benchmarking system (IICBS) [Viedma, 2002] which is mainly focused on the value chain activities of the innovation process. The second is the operations intellectual capital benchmarking system (OICBS) [Viedma, 2001] which is mainly focused on the value chain activities of the operations process. The two systems have the same basic structure and work in similar ways. Both are theoretically based on the principles and assumptions of the resource-based view and the activity-based view. The present paper describes only the IICBS, although it indicates the way in which to move from the IICBS to the OICBS. The SBIC has been tested and successfully implemented in more than forty European enterprises.

2 Building an intellectual capital strategic management methodology and information system

In all success stories there is always a soundly formulated and effectively implemented strategy, and the framework of Strengths, Weaknesses, Opportunities, and Threats (SWOT) remains the most common approach to analysing business strategy. One of the main challenges for the knowledge and information economy of today is how to use SWOT analysis efficiently and effectively in the present context. The framework considers strategy to be a link between the firm and its industry environment, and distinguishes between two features of a firm's internal environment (its strengths and weaknesses) and two features of its external environment (opportunities and threats). However, does this correspond to current reality? A modern firm can be said to embody three sets of key characteristics (its goals and values; its resources and capabilities; and its organisational structure and systems), and the external environment can be said to be comprised of its relationships with three groups (its customers; its competitors; and its suppliers).

This paper seeks to use SWOT analysis in an efficient and effective way to achieve success in the new context in which the main features are: (i) the importance of knowledge as the main source of sustainable competitive advantage; and (ii) world-wide hyper-competition. The challenge is to move SWOT analysis away from the generalities of 'strengths', 'weaknesses', 'opportunities', and 'threats' to more concrete factors and characteristics appropriate to the new reality.

As previously noted, in today's knowledge economy the resource-based view and the activity-based view are the fundamental cornerstones that determine company competitiveness. The resource-based view [Barney, 1991, 1999; Grant 1991, 1998; Teece , D. J., Pisano G. and Shuen A. 1997] stresses that, in turbulent times and in times of rapid change in technology and in customer and industry needs, sustainable competitive advantages are mainly due to the intangible resources of a company or, more specifically, to core competencies (which are, in practice, equivalent to core

knowledge). But resources *per se* do not create value, and because the resource-based view focuses only on what the firm *has*, this view does not, in isolation, adequately explain *how* to deploy scarce resources to create superior value. To that end, the activity-based view [Porter 1980, 1985, 1996] is a necessary complementary perspective which focuses on what the firm *does*, and takes into account that value creation results from the activities to which the resources are applied. If core knowledge is the key strategic asset, improving existing core knowledge and building new core knowledge are fundamental tasks. Building and improving core knowledge require organisational learning capabilities, including the appropriate learning structures and information systems. World-wide industry hyper-competition has ensured that strategic competitive benchmarking has become an essential learning tool. This valuable knowledge can be obtained only from systematic and frequent comparison with the world-class processes and core competencies of competitors in the same business segments. In fact, companies and organisations are now competing on the basis of core knowledge and core competencies. Opportunities and threats come mainly from competitors who offer the best in the same industry segment.

As a result of the above discussion, the SWOT analysis framework moves from that shown in Figure 1 to that shown in Figure 2. In effect, there is a change from simple SWOT analysis to an extended SWOT analysis.

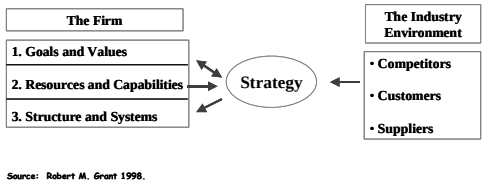

Figure 1: SWOT analysis

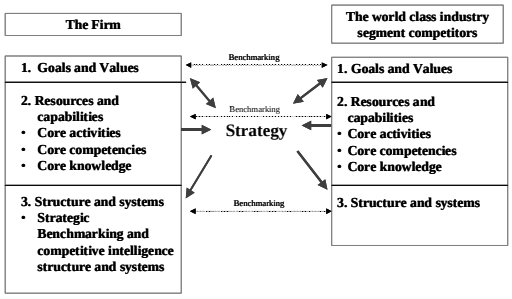

Figure 2: Extended SWOT analysis

The extended SWOT analysis gives us the main factors to consider when seeking strategies that leading to entrepreneurial excellence. The main factors of the extended SWOT analysis also determine the information system required to measure and manage those factors. In other words, the main factors produce the strategic benchmarking of intellectual capital system (SBIC) that we have defined as a knowledge-based strategic management methodology and information system framework.

Nevertheless, as previously noted, strategy formulation in dynamic environments, even those mainly based on core capabilities, has different features when dealing with the innovation process than when dealing with the operations process. Core capabilities can be very different in the two processes.

The innovation process points to new products and services through the innovation value chain in which innovation capabilities are basic and fundamental. SBIC has a specific system for the innovation process—the innovation intellectual capital benchmarking system (IICBS).

The operations process, which produces ordinary products and services through the systematic and repetitive operations value chain, also requires core competencies and core capabilities to be competitive. However, these competencies and capabilities will probably be of a different nature from the ones mentioned above in the discussion of the innovation process. SBIC also has a specific process for the operations value chain—the operations intellectual capital benchmarking system (OICBS). Figure 3 illustrates the business process broken down into its two constituent parts, and the specific methodologies and information systems that correspond to each of the constituent parts.

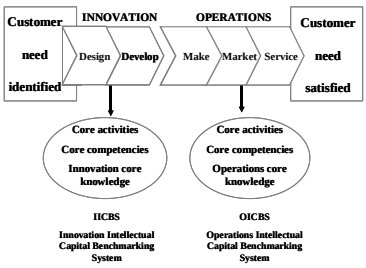

Figure 3: Business process value chain

In summary, the general model of the SBIC can be divided into two partial models. The first, the IICBS, refers to innovation core activities and core knowledge, whereas the second, the OICBS, refers to operations core activities and core knowledge.

The two models have a similar structure and they work in a similar way, but there is a fundamental difference. The IICBS model refers to the core activities and core knowledge of the different projects that make up the innovation process. In contrast, the OICBS model refers to the core activities and core knowledge of the different business units that make up the operations process.

This paper describes only the IICBS. However, the structure and function of the OICBS can be easily deduced, because the systems are very similar and work in an analogous fashion.

The two partial models that constitute the SBIC general model have been tested and successfully implemented in more than forty European enterprises. The SBIC system compares favourable with other well known equivalent systems such as the Balanced Scorecard and the Intangible Assets Monitor (Andriessen, 2004 b)

2.1 (IICBS) Innovation Intellectual Capital Benchmarking System general framework

Using the metaphor of a tree, we can consider the company that performs innovation activities as a new tree in which the visible part (that is to say, the trunk, the branches, and the fruits) corresponds to the tangible assets of the innovative company (see Figure 4). The invisible part of the tree (that is to say, the roots of the tree below ground) corresponds to the intangible assets of the innovative company. The two parts—tangible and intangible—are inseparable. The roots of the tree send the sap through the trunk and the branches to the fruits. In a similar way, knowledge and its aggregates—competencies, capabilities, and intellectual capital—make up the innovation sap that flows from the roots to the new processes, and thus to the new products and services.

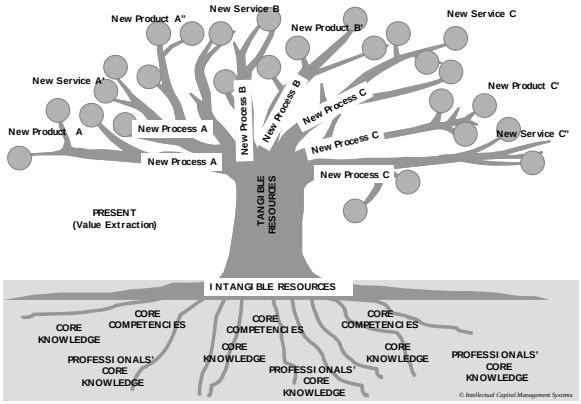

Figure 4: Innovation tree

Continuing with the tree metaphor, each company project unit can be assimilated to a specific tree, and the whole company has as many trees as it has project units. Each of these trees is fed with the knowledge of its roots. Furthermore the company has at its disposal a common intangible innovation infrastructure that is shared by all the project units. This infrastructure corresponds to the fertile soil in which all the company trees are planted. This fertile soil nourishes the roots (core knowledge) of each individual innovation company tree. See Figure 5.

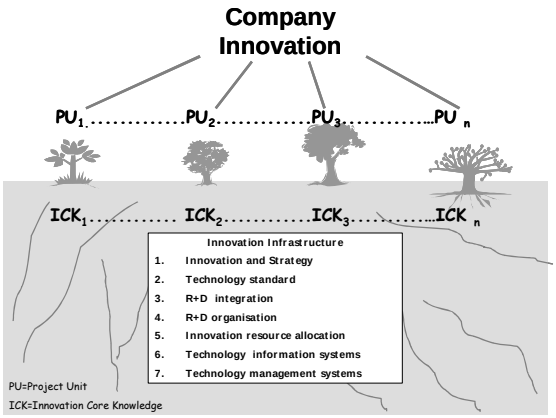

Figure 5: Company Innovation Infrastructure

The IICBS methodology draws inspiration from the tree metaphor. The flowchart of Figure 6 is a summary representation of the IICBS working scheme. The flowchart shows that, within each company innovation tree (project unit), an analysis can be made, successively, on the fruits (new products and services), the branches (new processes), and the roots (new core competencies and professional core competencies). For this purpose, *ad hoc* personalised questionnaires can be used. In addition, the overall soil fertility (innovation infrastructure) can be analysed.

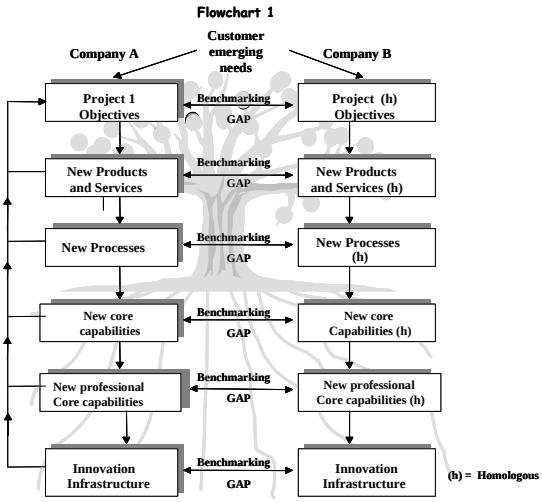

Figure 6: Innovation Intellectual Capital Benchmarking System

In analysing each particular tree (that is, each individual project unit), we use the innovation value chain as an analysis tool.

All of the above-mentioned analyses have the ultimate purpose of discovering, in each of the flowchart steps or phases, the new core knowledge and new core technologies that are the prime reason for sustainable competitive advantages.

In the same way the methodology makes it possible to compare each specific tree (project unit) with the homologous tree of the best of the competition, thus facilitating the benchmarking of fruits (new products and services), branches (new processes), roots (new core competencies and professional core competencies), and soil fertility (innovation infrastructure). The benchmarking process is also shown in Figure 6, were the benchmarking gap gives the necessary information for taking appropriate corrective action and for learning from past errors.

Companies if they want to successfully compete in the future they need to innovate in a systematic way. The way to innovate is through projects that have the clear objective of satisfying customer emerging needs. Customer needs satisfaction is accomplished through the project's new products and services. Nevertheless competitive products and services are not easily achieved; a lot of work is needed in order to gradually establish competitive advantages in the different core activities of the value chain process. Core competencies and core capabilities in the core project activities of the value chain produce new products and services with competitive advantages and high knowledge or intellectual content. In addition the company innovation infrastructure or in other words the company R+D department gives the necessary support to the whole process.

Finally the acquisitions of core capabilities and the accomplishment of all those competitive advantages is only possible by means of the actions of the different project leaders that decide on and carry out objectives and strategies, and who shape business culture with their ways and methods.

The IICBS general framework that we have described is a general framework that can be used to generate the specific IICBS framework suitable to a specific business context.

We customize the IICBS general framework to a specific business context trough criteria and questionnaires or choosing among criteria and questionnaires the ones that best suit the specifications of a given business design.

2.3 IICBS Innovation Intellectual Capital balance-sheets

The processing of questionnaires corresponding to each of the company competitiveness factors provides us with the innovation capabilities results and balance sheets. These results and balance sheets can be obtained for the project as a whole or for each competitiveness factor.

An example of balance Sheet is given below (Figure 7).

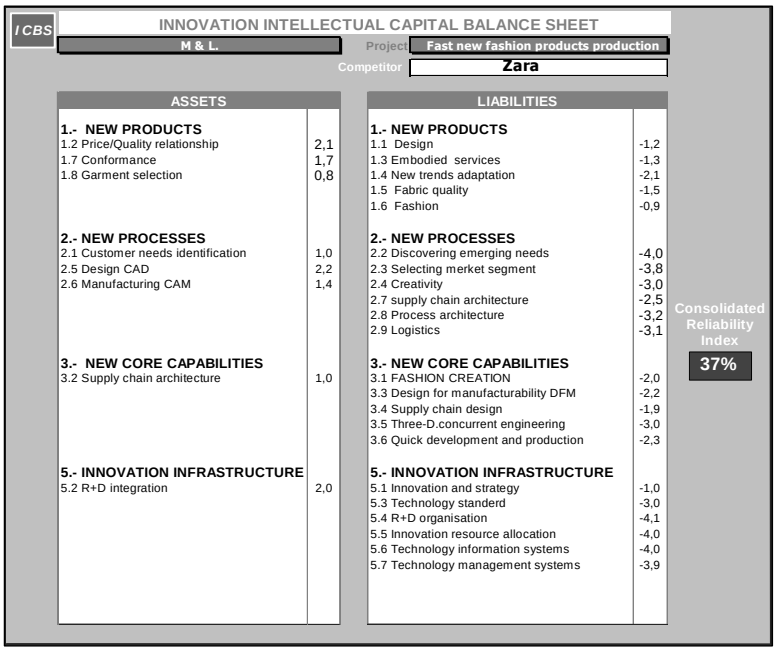

Figure 7: Innovation Intellectual Capital Balance-Sheets

2.4. Benefits from using IICBS

The main benefits from using IICBS are the following:

1. Learning from the best competitors that surpass one's own competitive innovation capabilities

2. Identifying the specific innovation capabilities factors and criteria which are relevant in a given business activity.

3. Through the IICBS factors framework, enabling the identification, audit and benchmark of the innovation core capabilities or innovation intellectual capital that are the main sources of long term sustainable competitive advantages.

4. When using IICBS in an orderly systematic and repetitive way we obtain innovation capabilities balance sheets, that are future oriented and complement and perfect finance balance sheets leading companies to leveraging innovation intellectual capital.

5. Selecting in a systematical and organised way the necessary information for evaluating relevant factors, core innovation capabilities and innovation intellectual capital.

6. Giving to the SME's managers access to innovation capabilities and innovation intellectual capital management in a systematic and organized way.

3 Conclusions

In the knowledge economy, soundly formulated and effectively implemented strategies are still the main drivers of company success, and SWOT analysis is still the most common approach for analysing business strategy. However, in the new context, classical SWOT analysis does not provide suitable guidance for building an effective strategic management methodology and information system. An extended SWOT analysis which takes into consideration the two main streams of modern strategic thought—the resource-based view and the activity-based view—is a more reliable foundation. SBIC draws inspiration from the extended SWOT analysis and builds a strategic management methodology and information system in which intellectual capital is the key issue.

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