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SUSTAINABILITY AND PERFORMANCE MANAGEMENT SYSTEMS

Paulo Sergio Orti – FAE, pauloorti@pauloorti.com.br, +55(14) 3103-6122

Vagner Cavenaghi - FEB-UNESP, vagnerc@feb.unesp.br, +55(14) 3103-6122

João Pedro Albino - FC-UNESP) - jpalbino@fc.unesp, +55(14) 3103-6079

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ABSTRACT

Literature reveals that the concept of sustainability has diverse foci, such as social, economic, ecological, cultural, political and environmental sustainability, among others. The objective of this paper is to develop an exploratory study of the sustainability concept using an economic approach and to assess the possibilities of using maturity models as an evaluation resource for organizational performance management systems.

The Balanced Scorecard management model was used, comparing internal results to the organizations' evolution in relation to maturity models.

The evaluation was conducted with a focus on the intangible assets of human capital and corporate education in order to observe whether the organization is able to create value through the effective management of its intangible assets. In conclusion, it presents a diagnosis proposal for maturity models in corporate education elaborated by the author and evaluated in a pilot test in final phases of evaluation and testing.

1. INTRODUCTION

The concept of sustainability has experienced several interpretations and approaches during the last years while trying to understand this complex concept of increasing importance. The approach of the concept goes from social sustainability, economic, ecological, cultural, political, and environmental, among others, according to Baroni (1992) that evaluates the evolution of the concept and its main approaches.

The approach in this article is to question the subject from the economic point of view, but specifically the aspects of the management of the companies that would make it possible for the sustainable business to occur.

There is a discussion and even a search for isolated actions in several companies to become adjusted to the new visions regarding the subject, not always consistent and constant, considering that nothing is more unsustainable than a company that is not well managed, without a clear view of its concepts and without consistent results, regardless of the nature of its operation.

In addition, there is a need to highlight that knowledge has been of huge differential for the companies and according to Kaplan (2004), the tangible assets are born from the intangible assets of the companies. Therefore, encouraging the good use of these assets is something really sustainable, because it changes the material and non-material aspects with aggregated value. With competent Performance Management Systems we can accomplish more with less.

To analyze if these Management Systems are leading the companies to positive and sustainable business models, it is recommended the adoption of market comparison, by other means, of the models of maturities, that are used as a parameter for a balanced evaluation of many actions of the company and not only isolated factors.

The Performance Management Systems of organizations and its indicators have been improved, aiming to the competitiveness and results of the companies. The Balanced Scorecard (BSC) of Kaplan and Norton (1992) and the Performance Prism of Neely (2002) are outstanding. In this article, we will use BSC as reference.

The companies search improvements in its internal performance indicators, as well as need to compare themselves to the market, in order to evaluate how the performance is in relation to each indicator and if what is being measured is what the market is also applying and if the final results are what is affecting the client decisions. Both Kaplan and Norton (1998) and Neely (2002) point out the necessity to review the key performance indicators, to discontinue or created new ones if needed, according to the need of evolution of the company controls and also of the market.

It is fundamental to understand the market forces in which the company acts upon, according to Porter (1980), so that the companies can compare themselves to its competitors, aiming to obtain competitive advantages and to be successful in obtaining the critical factors of a successful business, according to Rockart (1979).

BSC shows organizational performance indicators in four areas. In this article, our focus will be on the training and growth perspective and its comparison with the market, through the Maturity Models.

The Maturity Model has been utilized in several areas with the goal of providing companies with a market comparison in relation to the stage of maturity in a determined element of its productive, administrative or commercial system. Many models have been proposed and we will present some of them during the following literature review.

This way, the Maturity Model can be used as an important verification instrument of the organizational Performance Management System, providing an opportunity for the organizations to evaluate if its practices are effective and if they are ahead of its competitors in the various segments compared with the market, such as Information Technology (IT), quality, corporate government, among others.

One of the fastest-growing focuses of companies nowadays and its strategical importance to obtain competitive advantage is knowledge management and one of its actions, more specifically corporate education.

Therefore the proposal of this article is to present an exploratory study about the importance of the maturity model in the improvement of performance management systems, as well as in gaining competitive advantage in the market, specially during the fourth dimension of the BSC, training and improvement, and to present a maturity diagnose model in the company corporate education.

2. BIBLIOGRAPHIC REVIEW

2.1 The Concept of Sustainability

The concept of sustainability has gained several versions and approaches and according to Baroni (1992) they can be divided in two groups of information and analysis that are being completed: the scientists group (biology and humanities), and government technicians and politicians who work in the binomial development/environment. Another group that is referred to the speech of individuals and organs of encouragement guiding diagnoses, analysis and proposals of these institutions are The World Bank, United Nations Environment Programme - UNEP, Asian Development Bank, OCDE, among others.

The World Commission on Environment and Development in 1986 ended up defining a sustainable development as development that meets present needs without compromising the ability of future generations to meet their needs, a concept adopted by several international agencies.

Another concept that can be applied is the one by Goodland (1987) which guarantees that the sustainable development is a standard of economical and structural transformations that optimize the social and economical benefits available presently, without destroying the potential of possible benefits in the future.

2.2 Critical Success Factors - CSF

For Ghalayini and Noble (1996), after 1980, due to a change in the world market, the companies started to focus not only on profits, but also on achieving quality, flexibility, reduction of lead time and reliability in the delivery of products and by other means to develop new management technologies. New methodologies are needed and among them, the Critical Success Factors (CSF) and BSC.

Rockart (1979) introduced the concept of CSF, defining “Critical Success Factors” as being some key areas, which favorable results are essential for managers to reach their goals, considering that good performance in these areas result in competitiveness for the organizations.

For Bullen and Rockart (1981), Critical Success Factors are limited areas in which the satisfactory results assure a good performance for individuals, departments and organizations. Critical Factors are, therefore, the companies’ variables and areas that are more likely to reach the desired results.

Regarding the importance of CSF, Bullen and Rockart (1981) emphasize that, besides defining goals, it is important to determine the variables which will influence reaching the goals

or not, being that these variables are the CSF, which presents three important applications: To help managers in identifying the information needed; to assist the organization in the process of strategic planning, long term planning and annual planning; and to assist the organization in the process of planning information systems.

Therefore, CSF are fundamental keys for the achievement of the organization's success and should be translated into indicators to monitor performances.

According to Day and Wensley (1998) and Porter (1980), the price of products noticed by clients and services and the costs that have been spent to create these values are the two basic factors that define the differences in companies' performances.

Porter (1986) presented a model to evaluate the Critical Success Factors starting from the initial stage in which the product is found in a circle of life in relation not only to its competitors, but all other competitive forces, characterized by the participants of the process as a whole: suppliers, clients, competitors, substitutes, and incoming business (market attractiveness analysis).

Thus, the CSF would be relevant variables for a set of strategic guidelines and that without their presence the intent would be vulnerable, inclined to fail.

According to Slack et al. (1997), FCS can also be called competitive factors, since the degree to which the organization meets its competitors' requirements is determined by performance goals which influence the competitive factors, as **Table 1**.

Detecting client needs involves deciding what is more important for them such as price, delivery time, products variety, and reliability of the delivery, among others. Not all factors, and not always the same factors will define the client decision. Scenario changes can also alter these decisions.

Table 1 - Competitive factors and performance goals.

Competitive Factors If consumers give importance on...	→	Performance Goal Then the operation will need to be excellent in...
Low Prices		Costs
High Quality		Quality
Fast Delivery		Speed
Reliability on shipping		Reliability
Innovative products and services		Flexibility (in terms of product/service)
Amplitude of products and services		Flexibility (mix or products set)
Ability to change quantity or shipping time of products and services		Flexibility (number and/or delivery)

Source: Adapted from Slack et al. (1997)

Hill (1993) defined a way to classify the competitive factors calling it order winning and qualifiers factors.

Slack et al. (1997) points out that the order winning factors are the ones which have a direct impact in closing a deal, leading to achieve the client's order. These are key factors, the most important aspects in the decision-making process. However, the qualifiers are important, because they define the tolerable client satisfaction levels and if the company will be considered or not as a supplier. We also have the least important factors, which would be factors that do not have a significant impact to the consumer and the decision.

Based on these criteria, enterprises need to structure their metric and management systems to obtain these competitive advantages. BSC, with its strategic plans and maps, can be the instrument to establish management compatible with the market need and the goals established by the strategic administration.

According to Kaplan and Norton (20004), from the intangible assets you can reach the tangible assets, through work processes and aggregation of value for the clients. The appropriate importance and focus has not always been given to intangible assets, especially to the human factor. This article focuses on this dimension.

Besides internal actions, it is also fundamental to keep up with the market adjusting internal procedures. For that reason, the maturity model can be very useful.

2.3. Balanced Scorecard - BSC

Balanced Scorecard or BSC was developed by Kaplan and Norton (1992), creating a new model of strategic management, based on financial and non-financial indicators linked to organizational strategy.

According to Miranda (2000), BSC is a performance measurement system which combines financial and non-financial factors, and focused on controls to provide relevance to the company strategy. Maximiano (2000) says that BSC is a technique that focuses on four dimensions (called perspectives) important to the company performance, and which one unfolds into specific measurements that can be divided in indicators.

As stated by Kaplan and Norton (1997), BSC translates the mission and strategy into goals and measurements, which are organized according to four different perspectives: financial, clients, internal process, and learning and development.

2.3.1. Learning and Development Perspective

According to Kaplan and Norton (1997), one of the most extreme changes in the management mentality in the recent years was the transformation of employees' roles, which have been switched from providing physical force into providing analysis of data increasingly abstract, often captured in automated environments.

This point of view is corroborated by: Druker (1994) apud Averson (1999), when referred to knowledge workers; Sveiby (1998), when exposing the industrial and knowledge paradigm, and Stewart (1998), when describing knowledge workers. Edvinsson and Malone (1998) and Sveiby (1998) designate that people are the company's most important assets. All the assets and

structures, either tangible or intangible, are the results of human actions; ultimately they rely on people to exist.

Nonaka and Takeuchi (1997) state that knowledge is related to actions which means that knowledge aims at a result. Knowledge management should focus on promoting knowledge applicable in the strategic activities identified in the BSC indicators and vectors, which are distributed along the perspectives. For this reason, Kaplan and Norton (1997), agree that the perspective of learning and growth is a vector of excellent results in the first three perspectives, setting the base of improvement for the company's management, because this is the base that will promote the achievement of ambitious goals established in the other perspectives. Its effect is to increase the level of knowledge in the other perspectives, which aim, ultimately, at better financial results.

An adequate policy of knowledge management should aim to align the needs and growth of human capital given by the identification of core competences Prahalad and Hammel (1998), based on those required for the implementation of the value chains of the critical business processes. Business sustainability comes fundamentally from this theory.

Therefore, it promotes the communication of the mission statement and of the strategy, as well as performance indicators to inform all the company's employees about the present and future vectors.

2.3.2. Base of Success BSC

As stated by Hernandez et al. (2000), the primary cause for success is related to the people of the organization, highlighted by BSC in the perspective of learning and growth. The right people must be selected, trained, motivated and guided correctly, as well as have continuing education. When the organizational culture focuses on learning and growth, it encourages people

to make suggestions and to question the status quo, creating a continuous flow of suggestions and ideas that will promote the improvement of internal processes.

The improvement of internal processes, in turn, leads to the improvement of products and services and makes it possible to increase client's satisfaction. Finally, the improvement in the client's satisfaction makes them become loyal customers and market share of the company increases, affecting financial results directly, such as profits and the return invested capital, according to Arverson (1999).

According to Kaplan and Norton (2004) the intangible assets are the base of the process and through them, the dimension of learning and growth cause the base of the process for the process improvement and, consequently, improvement of products and services, client's satisfaction and investment return, becoming tangible what otherwise was intangible.

The authors present the question of the need to obtain promptness and alignment of intangible assets, and more specifically of human labor and organizational capital. The intangible assets must be aligned with the internal process that creates value and so on until the final financial result. This generates business sustainability.

Porter (1980) states that the essence of the strategy is to execute certain activities in a different way or to execute activities differently from the competitors, making it harder for a competitor to face a set of activities tangled together than simply imitate a specific method.

The activities must be linked together to create value and must be absorbed by the suppliers, by the company, and by the clients. The stronger you can make your organization, according to the five forces of Porter (1980), the stronger the company's power.

Thus, if the company does not organize their actions timely, but based on a management model that includes all the organization processes, this will contaminate the entire company and will become more difficult to be copied by other markets.

According to the Restriction Theory, Goldratt (1998), a process weak link becomes the restriction. When implementing an integrated management model it is possible to minimize the effects of one of its phases in disagreements with all the links that are low in terms of capacity in relation to other parts.

Thus, it is given prominence to an area companies are turning their attention to gain competitive advantage: corporate education and its maturity stages.

2.4. Maturity Model and CSF

The concept of maturity model comes from the need to understand in which stage of evolution a specific process is found in relation to arrangement, synergy between the parts involved and its efficiency.

Kerzner (2001) defined maturity management as being the development of systems and processes that are by nature repetitive and that ensure a high success probability. Reinforcing these processes and repetitive systems are not a warranty of success, but only increases the productivity.

According to Moore (2003), a maturity model is a structure that characterizes the evolution of the system from a less organized and less effective state to a more organized and extremely effective state, which strengthens the notion of a leap in quality as well as changes in the operation standard, characterizing a new phase of categorization of the system.

Rocha (2004) finds a reference about a recent innovative proposal that came from the work of Khandenwal and Ferguson (1999). They suggest the combination of the CSF method with the last maturity model of Nolan (1995), apud Mutsaers et al. (1997).

The CSF are the few critical aspects that need to go well so that the business is successful. If the management does not give enough attention to these aspects, the organizational performance can suffer, causing the management to be at risk of focusing on the CSF until they are reached.

Because organizations are so dynamic, management priorities can change from time to time, making a critical issue to become something more basic in the future. The set of critical key factors for success can be different with time.

The CSF can, therefore, be used as a technique of gauging for the maturity of an organization, industry, or region and by the harmonization or correspondence of the CSF of a organization with characteristics of the maturity model, such as the last model of Nolan (1995) apud Mutsaers et al. (1997), it will be able to establish the information management maturity for the organization Khandelwal and Ferguson (1999).

Through this attempt it can be observed the potential of the maturity model in the process of BSC management matureness, through the use of CSF.

The maturity model is, therefore, an instrument of evaluation of the stage of development of an organization in relation to a determined interest, and that works as a parameter for the comparison of the organization in relation to standards of excellence in the market and the comparisons with competitors, aiming to obtain competitive advantages.

This way, a comparison with the market is very useful and it means a difference between the success and failure of a company. Through the implementation of these models, the

companies can evaluate themselves and establish comparisons. This has been done with Information Technology, Corporate government, quality, among others.

A maturity model evaluating the level of maturity of the corporate education of an organization can be advantageous in times where knowledge the management and talents development in organizations are so critical, as pointed by Kaplan (1997), in the perspective of learning and growth of BSC.

Following, it is presented a proposal for the use of a maturity model in corporate education for evaluating the stage of development in Corporate education.

3. MATURITY MODEL IN CORPORATE EDUCATION

In terms of maturity of process in Corporate Education (CE), it can be stated that it refers to the ability of companies to conduct the training process of its competitive forces for the organizational, economical, and environmental changes. This is the force that can generate the innovations and the transformation of intangible assets to tangible assets, producing wealth, minimizing waste and improving the sustainability of business and the world.

The challenge was to find an application of these maturity models for the areas of Corporate Education and to identify the factors to be evaluated.

The proposal is to create maturity measurements models in Corporate Education that is applicable to reality and distinct moments of the companies and the maturity model was found very adaptable to the context of Corporate Education in the work of Moore (2003), which is as follow:

Stage 1: *Informal*: The actions of department and individuals training;

Stage 2: *Learning Management*: Best control of educational activities with the use of automated systems and processes which are better defined and structured;

Stage 3: *Competence-drive:* teaching-learning focused in the development of competent collaborators;

Stage 4: *Integrated performance:* Comprehensive goals and alignment with the strategic planning of the organization supported by technological solutions.

Stage 5: *Optimized work force:* Flexible work force and structure for the support of a process of constant learning, focused in the goals of the organization.

Another study shown in the site of the business strategies for learning, Harward (2004), presents a suggestion for the evaluation in the area of corporate education through means of analysis of its dimensions, administration, content, delivery services and technology and of various operational processes, totaling 22 processes, presented in **Table 2**.

With these resources, an integrated solution was developed, a conceptual matrix that analyzes the maturity of the business in terms of Corporate Education, relating the activities of the process to its stage of maturity.

This matrix offers an understanding of the characteristics of the organization in each point of the matrix, allowing a detailed evaluation of the company's evolution and the consistency of its actions.

With this evaluation it is possible to create a numerical profile that indicates the stage of maturity of the company in each of the steps and also make it possible for a more practical comparison with the market and with the branch of activity in which the company is situated.

With resources like this proposed model, it is possible to verify the level of maturity of the companies in the most important processes of corporate education and in a future comparison with the segments of competitors to focus in the most important CSF and BSC practices to obtain competitive advantages provided by the same.

Table 2. - Functional processes/ level of organizational maturity

Functional processes/ level of organizational maturity	
Administration	Strategic planning - Alignment of the educational processes to the business strategies.
	Registration - Gain and maintenance of data of the performed activities that have occurred.
	Scheduling - Coordination and logistics of the training activities
	Finances and costs - Control of expenses and receipts (external inputs of budget) of activities
	Tests and evaluations - Evaluations related to training and trainees
	Client relationship - Controls the flow and occurrence of activities
Content	Instructional project - Structure of the course or activity in accordance with strategic planning
	Development of content - Transformation of a project into an applicable program
	Graphic Design - Creation of a visual standard seeking better learning
	Conclusion of Material - Process of finalizing and homologation of the material or instructional program
	Management of Training Program - Maintenance of effective programs for users
	Content Update - Continued revision of training programs
Delivery	Instructions - Process of teaching-learning between teachers and apprentices
	Class Tutor - Infrastructure support for the process of teaching-learning
	Teachers Recruitment - Identification process of internal or external professional
	Teacher Recycling - Customization and training of trainers
	Classroom customization - Adaptation of the learning environment to real needs and conditions
	Feedback - Process where the program results are evaluated seeking improvement and update
Technology	Management /Lms/Lcms- Management system of learning and content.
	Management of delivery platform - Control of content and services availability.
	Management system of authorship - Management of tools and authorship procedures
	Technology Integration - Interface with other planning, management and control systems.

Source: Based on Harward (2004)

4. FINAL CONSIDERATION

Both Neely (2002), and Kaplan and Norton (2004) point out the need of revising the internal indicators of performance due to various factors; among them, the need to adjust to the market and inadequacy of the indicators in generating elements which add values to products and services.

Often companies can enhance what the market no longer wants, or when the management is focusing on one thing while the needs of the market in another. Products that are no longer needed generate unnecessary spending and waste, which is not justifiable in the perspective of sustainability.

Without being repetitive, what is proposed is that companies evaluate the use of the maturity model as a possibility to compare with the market both for verification of their degree of internal development in a given performance indicator, as its comparison with the trends of the market related to these factors and their corresponding in order to obtain competitive advantage in a sustainable way.

When the practices of the context in the maturity model are analyzed, it is not seen only isolated actions, but also a set of actions that must go together with a proposal and a management model. Implemented practices are based on models that are more complex and tend to become more consistent, and according to Porter (1980) represent a differential that is harder to be copied by the competitor companies.

According to Drucker (1994) apud Arverson (1999), the only competitive advantage is innovation. Innovation is one result of the systematic application of knowledge management, however, the permanent advantages are derived from the strategies that are related to knowledge management and to the sustainability of the companies.

Stewart (1998) states that the key performance indicators in Knowledge Management tend to be measured to verify the potential of the company in meeting the market expectations, other than just financially. This way, the knowledge management completes the Balanced Scorecard, Kaplan (2004) in encouraging the perspective of learning and growth integrated to others.

The Diagnoses of Maturity Model in Corporate Education proposed in this article aims to provide an opportunity to evaluate the potential of evolution of these assets, according to Kaplan and Norton (2004) as a base, resource and condition of other tangible assets, final subjects of the organizations.

The model in question is being researched for proof of results obtained in this pilot, by Orti (2007), where the tool was evaluated as adequate to know the stage of maturity of the company in terms of corporate education. New studies must be completed on the subject so that a new tool to measure the diagnostics of maturity model in Corporate Education can be achieved, contributing to the improvement of performance of the training and growth of BSC and in obtaining the CSF that will take the companies to be sustainable in a social, cultural, environmental, and economical perspective.

Companies can contribute to a higher sustainability of its business making better controls, avoiding material waste and improving true and consistent practices of learning and growth so people will not waste an asset so valuable, which is the intangible, essential condition for the creation of value and source of profits, therefore, sustainability.

More knowledge and innovation and less incompetence, destruction and waste. Therefore, more sustainability.

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