LEARNING ORGANISATIONS AND KNOWLEDGE MAPS. ANALYSIS OF A SURVEY IN PORTUGAL

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Abstract
In the current competitive climate, knowledge management has moved from a utopian state of affairs to a reality. It allows for the recognition that competitiveness is based on the experience as well as motivation of employees. In this context there is a need to identify and construct tools and instruments, Knowledge Maps, which are in alignment with managing knowledge within the organizations. Other interesting instruments in knowledge management, as is the case of employees’ motivation used in interaction and exchange of information and experiences, which are favourable in intra-organisational cooperation, training, accessing information and different knowledge, namely at the technical level. The methodology of this research consists of the analysis of primary data obtained from questionnaires and interviews, during the last semester of 2006, carried out in companies in the transformation sector, based in the North of Portugal. Our aim is to characterise their attitude and behaviour in the light of the construction as well as the usage of knowledge maps, as an instrument which leads the organisation to excellence. We also endeavour to measure the importance of tacit knowledge in company governance, in contrast to the traditional knowledge paradigm which was essentially only concerned with explicit knowledge. It is our objective therefore to ascertain, in loco, whether Peter Senge’s systemic thinking (1990) namely the Fifth Discipline, can be in any way adequate to Portuguese companies.

Keywords: tacit knowledge, explicit knowledge, knowledge maps, knowledge management, systemic thinking and fifth discipline
JEL codes: J41; O32; O33

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1. Objectives and methodology

The methodology used in this paper is based on primary data which was gleaned through questionnaires and interviews carried out in companies of the transforming sector, based in the North of Portugal; these took place during the last semester of 2006. Our aim is to characterise the behaviour and attitude of these companies in view of constructing and utilizing knowledge maps as tools which lead to excellence. Within this context therefore, our objective is to measure the importance of tacit knowledge in corporate governance, as opposed to the traditional management paradigm which is based essentially on explicit knowledge. Our aim is to ascertain whether, systemic thinking, in loco, which Senge (1990) highlights in the Fifth Discipline, is adequate to Portuguese companies.

This research is divided in two sections; the first part, the literature review, is made up of four subsections. The second part is made up of the empirical analysis. Our aim here is to endeavour to ascertain whether the Portuguese Transforming Sector is aware of, and in any way concerned with, implementing a systemic vision.

2. Contextualization

Knowledge management is in its embryonic stage; this is so despite the fact that the current competitive environment is changing in an abrupt way. In a highly competitive, global and homogenised environment, many organisations have started to show signs of concern, despite doing this in a passive way, momentarily and with different convictions and motivation. However, the main objective of knowledge management is to improve behaviour as well as company results (see Rivero, 2006), thereby making the company more agile, efficient and humane.

Nowadays, a substantial amount of conflict is prevalent concerning the notion and instruments which are at the companies’ disposal for their governance. This is due, many times, to inadequate identification between information and knowledge as well as the asymmetry in gaining access to this product. Despite such barriers in the linguistic terminology in the administrative sciences, it is
recognised however, that whatever the business sector, competitiveness must be based on the experience of employees (Córdoba, 2006). In this context, it is common knowledge that all employees must be involved in working with the organisation, even though the latter may have difficulties in knowing “how” (see Kassoy, n/d). In a general way, managing knowledge is based on a set of practices, techniques and methodologies, which are supported by specific instruments thus allowing the organisation the following:

(i) to identify knowledge considered to be most adequate for the development of the effective and potential activities;
(ii) to have access to knowledge and ensure it is available, be it external or internal;
(iii) to protect knowledge and guarantee its availability
(iv) to use knowledge in an efficient manner so as to maximise the company’s excellence

Knowledge Maps allow knowledge in the organisation to be identified. These are valuable for organisational sustainability due to the information they carry, as well as being the vehicle for knowledge production itself (Cañas, Leake, and Wilson: 2006). They are not knowledge repositories, although they may represent various typologies, such as implicit versus explicit knowledge, formal versus informal knowledge, internal versus external knowledge, and the greater the complexity of organisational systems the greater its usage.

However, there are other interesting instruments within the realm of knowledge management, such as employee motivation steered towards the interaction and exchange of information and experiences, for intra-cooperation, for gathering information as well as for training needs, especially at the level of techniques. In this context, Ausubel, Novak and Hanesian (1978), resort to the notion of collective learning where the teacher/trainer and the students/workers learn collectively and together construct a coherent model for knowledge.

Experiences, according to Wenger (1998, cited in Tolsby, 2005), are more than a learning process. We participate in a community of practice based on a shared activity and mutual engagement. Tolsby
(ibid.) corroborates that knowledge is transformed as learning is adapted. This leads to holistic learning in organisations as people are brought together with both their minds and hearts. Jamali et al. (2006:340) further highlights that “increased commitment is another differentiating characteristic of post-bureaucratic organisations (Guest, 1998, cited ibid, op. cit.) [and focuses] towards a more holistic, all encompassing understanding of the notion, capitalizing on affective commitment” (Singh and Vinnicombe, 2000, cited ibid. op. cit.). Indeed, the individual chooses to stay in the organisation because there is a tuning in with the organisational culture, its values and its path – hence the presence of affective commitment and its link with the psychological contract between the individual and the organisation.

Learning organisations discover what is influential by restructuring their own experiences and learning from that process. Learning organisations are self-aware, introspective organisations that constantly scan the environment. A learning organisation is one which does not only want to survive or adapt but is sustaining. In so being it “seeks to contribute as well as to gain advantage from its contexts, aiming for mutual, sustainable relationship with its environments” (Mumford, 1997: 100). Charles Handy advocates a more reflective spiritual approach to business. Altruism is a fundamentally human quality. Roger Harrison spoke of “mysterious operations of love in organisations” (ibid.: 105).

In accordance with the spirit of a learning organisation, the latter must be founded on three fundamentals:

(i) a culture based on transcendent human values of love, wonder, humility and compassion;
(ii) practices based on generative conversation and co-ordinated action;
(iii) to face life as a system and have the capability of seeing life and work as such.

The underlying belief of the learning organisation is to inform the customer and be informed by the customer. A learning organisation is committed to continuous improvement and is, therefore,
continuously experimenting and is continuously undergoing changes. Change is not viewed as a universal remedy. Change leads to learning. The core behaviours of the learning organisation are openness, systemic thinking, creativity, and empathy. A learning organisation does not only believe that learning is important, rather it conscientiously and resolutely implements management practices that encourage learning. This is due to the organisation culture, strategy, structure, information technology, reward systems and leadership.

Jamali et. al. (2006:337) emphasize that “rapidly changing technology, globalization, uncertainty, unpredictability, volatility, surprise, turbulence, and discontinuity are indeed commonly popularized in the literature as some of the major environmental challenges facing organisations in the new century (Brodbeck, 2002; Saban et al., 2000; Wang and Ahmed, 2003, cited ibid. op. cit.).” Indeed, within this volatile and highly competitive environment, organisations need to shift from their traditional and bureaucratic paradigm and tune in to their environment and thus sustain competitive advantage. The learning organisation is considered to be the most distinguished paradigm. Senge (1990, cited in Jamali et. al, op. cit.), “a learning organisation is one ‘where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, and where collective aspiration is set free’. Indeed, the learning organisation fosters continual growth and that promotes continual organisational revitalization which encourages change - hence learning and adaptation.

It can be assumed that the term learning organisation is a relatively recent one. Even though its origin dates back to the 20th century, it was only in the 1980s that the term became widespread with Peter Senge’s work The Fifth Discipline. This concept is a revolutionary one as it attempts to redefine competitive advantages. Senge therefore, stresses the intellectual capital of the organisations as therein resides the difference. However, this philosophy requires the learning organisations which are based on the notion of learning as a way of being, where learning is a collective and continuous act. Although learning companies are based on a knowledge economy, they nevertheless, stress effective learning, one that is not mortgaged
merely by the acquisition of further information. Here, learning means acquiring, using, transforming, and producing knowledge in a conscious, deliberate, intentional and adequate manner. In this way a learning organisation leads to behaviour which tries to improve the usage of its intellectual wealth, with a wide ranging vision to include, in the most satisfactory way possible, all those interested in the organisation, including shareholders, employers, clients, suppliers, creditors and the society at large, which in the economic literature are known as stakeholders.

This idea set out by Senge revolutionised the concept and the vision which the organisations holds of its people. Here the person is placed within the organisation and is treated as a precious and rare diamond. Consequently both the structural as well as the intellectual components are valued. Due to the emergence of a new paradigm with the dorsal structure based on intellectuality of the organisation, the learning organisation feeds on learning and on the very effort of learning to learn. In this realm Pedler et. al. (1991:3) defines a learning organisation as “an organisation that facilitates the learning of all its members and consciously transforms itself and its context.”

Learning develops the potential of individuals and the self-development of organisation as an organism. Dixon (cited Pedler and Aspinwall, 1998:16), maintains that the learning organisation makes “intentional use of learning processes at the individual, group and system level to consciously transform the organisation in a direction that is increasingly satisfying to stakeholders”. Furthermore, Senge (cited Pedler and Aspinwall, ibid.:14), describes a learning organisation as a place “where people continually expand their capacity to create results they truly desire, people are continually learning how to learn together”. De Geus (1997) adds that all longlived organisations have undergone fundamental transformation or “historical organisational learning” (ibid.:12), highlighting the importance of learning for the success in organisations.

However, a learning organisation is continually investigating its own values and mission. The main drive of thinking is “transformational learning” (Mumford, 1997:247). Mumford defines a learning organisation as “creating an environment where behaviours and practices involved in continuous development are actively
encouraged” (ibid.:248). He postulates a Learning Pyramid Model wherein the learning organisation is the summit of achievement. The learning pyramid “focus(es) attention on particular situations in which managers ought to take action to generate learning” (ibid.:251). Inherent to the learning organisation is the description of the working situations in which managers and individuals develop. Within an atmosphere which allows for self-development, which is the main characteristic of learning organisations, Pedler et al. (1991:59) define a learning company as “an organisation that facilitates the learning of all its members and consciously transforms itself and its context”. Pedler and Aspinwall (1998) corroborate that a learning organisation seeks sustainable performance and development through being flexible, adaptive and responsive to change. Managing change and learning is the number one task. Learning develops the potential of individuals and self-development of organisation as an organism. A learning organisation is a journey. A learning organisation is always moving from a point to somewhere else, looking for new directions and purposes. The learning organisation approach is integrative, affecting all aspects of the whole and likely to provide the basis for self-sustaining, long-term transformation.

Although Mumford (1997) corroborates the view of interaction and harmonious collective development he nevertheless chooses to define a learning organisation as continually investigating its own values and mission. Mumford and Honey define a learning organisation as “creating an environment where behaviours and practices involved in continuous development are actively encouraged” (ibid.: 248). Furthermore, Knowledge Management is related to the technological evolution as well as to the need for new competencies necessary to operate the material technology available in the market. Within this context Crawford (1994) relates human history to knowledge and links economic structure to social structure. Society has gone through four phases, namely: (i) primitive society, (ii) agricultural society, (iii) industrial society and (iv) knowledge society. According to Crawford, the first type of society is based on gathering crops, fishing and hunting; the second type is based on the production of foodstuff, where “land” as a factor emerges as the productive resource per excellence; the third is the production
society of standardised physical goods. In this type of society the essential resource is physical capital and no longer land. Lastly, the fourth type, all knowledge based services based on knowledge emerge as the essence of this society. Here human capital outweighs the importance of physical goods and emerges as the productive resource per excellence.

Crawford’s (1994) perspective is an interesting one as it distinguishes the tribal, agricultural, industrial and knowledge economies. Even though we have have already progressed beyond the information society phase, and now currently living in a society of knowledge, we believe that the evolution of knowledge may be viewed from a different perspective. In this way, we hold the opinion that society has evolved in the following phases:

(i) primitive society
(ii) agricultural society
(iii) industrial society
(iv) information society
(v) knowledge society
(vi) Know-how society

Our perspective is based upon re-energising the industrial society, with the different industrial revolutions, with special emphasis on the British case where the need arose for new data and information. Although there was an imperfect market insofar as information was concerned, society nevertheless continued to produce and make more information available. This, together with the need to manage the evolutionary information process, led to the knowledge society. Nevertheless mutations occurred at several levels, namely at the social, economic, cultural as well as technological levels; these were rapid and abrupt, making the technological cycles shorter and in some cases perfectly ephemeral. In this context, the economic agent’s role gains new contours and contributes towards raising the complexity and demands of the knowledge society, towards a new approach of viewing knowledge – that is, to know. By highlighting intellectual capital, one is emphasizing the concern regarding the issue of both emotional and mental capital, considered to be sources of generating wealth. This issue is redesigning the economy of
knowing, which is in opposition to the previously designated knowledge economy.

Russo (2006: 22) sets out a line of thought which converges towards the need for specific treatment of knowledge within the organisations, thus emphasizing a view which places management needs in tune with different economic and time contexts. Here, the author makes a clear distinction between the industrial era and the knowledge era. In the former era, he focuses upon the management of tangible assets and emphasises management control according to a traditional perspective. In the second perspective, the essence of the issue lies in the intangible assets. He highlights the need to use strategic management, based on supporting instruments, such as the Balanced Scorecard. However, we are of the opinion that this instrument of strategic management, which takes into account financial and non financial indicators, is more concerned with the performance of the organisation as such. In opposition, the Maps and repositories of knowledge are instruments which sustain organisational performance.

3. Knowledge Maps

3.1. Conceptualization. A Knowledge map is a diagnostic tool used in management, which allows to identify the existence, or lack of knowledge within the organisations. It supplies an easy and accessible representation of knowledge within one of the domains (Cañas, Leake, and Wilson, 2006).

Knowledge Maps, according to economic literature, are a virtual representation of knowledge, and make up the base of sustainability for organisational change. According to Novak (1977) who views these as a first language as they describe and communicate concepts, whereas, Cañas et al (1995) views them as a tool to connect different areas in a simple way. These can also be viewed as a facilitating learning instrument, which allows for the understanding of new issues, new realities and new problems (see Brinkmann, 2007), which can be depicted via diagrammatical representations, graphs, as well as through communication of symbols. These allow for viewing the way knowledge should be used within the production process and its respective sources (Cañas et al, 1995). Furthermore, these also
show when there is lack of knowledge and therefore, allow the company to reorganise and adapt strategies which fit that weakness. Therefore, knowledge maps enable to identify (i) knowledge which exists within the organisation and (ii) knowledge that does not exist within the organisation. However, there are no standard or prototype maps. The quantity of knowledge maps varies with the uniqueness of each organisation and its awareness towards non-conventional, strategic organisational values, as is the case of intangible investments. The need for knowledge maps is more urgent in more complex organisations, as these demand that knowledge be viewed and maintained according to a perspective which converges towards the Just-in-Time model. In this way there are many types of knowledge maps, ranging from the more rudimentary to the more complex ones, the former are mainly used for information gathering and creating data bases to be used within the organisation. Moreover, other maps can limit themselves to the knowing upon whom to apply knowledge “x” and knowledge “y”, whilst others may concentrate on people, by mentioning who these people are – indeed these are considered the holders of the so called knowledge, whether they are internal or external to the organisation.

Drawing up knowledge maps is a dynamic process as there is a great deal of data to be collected, analysed and stored, and in addition this process is based on the constructivist models of the human cognitive process (Cañas et al, 1995). This cognitive structure is apparent when new information is acquired and related to existing concepts, information as well as relevant propositions (Ausubel et al, 1978). In this way a knowledge map is a process instrument and not a situational instrument. However, in certain situations a knowledge map may be deemed as static, as it mentions, refers and relates to knowledge in a given situation.

However, according to this perspective the objectives and scope thereof are limited to mere managerial instruments. At the same time, knowledge maps are only valuable if these are updated regularly, thereby avoiding obsolescence. This state of obsolescence is directly related to a number of factors which originate in the competitive context; amongst which we can highlight is change which is a
consequence of the need for knowledge on the one hand, and on the other, the floating capacity of knowledge.

Irrespective of the static or dynamic nature of knowledge maps, they do take into account highly relevant issues which according to Rivero (2006: 363) are the following:

(i) where, why and what is knowledge used for;
(ii) who uses knowledge;
(iii) the existence, or not, of knowledge transfer.

Within this abovementioned viewpoint, a knowledge map is a tool that absorbs information. At times, it is known as knowledge inventory which is available and specifies where, by whom and how it is used. In this context and according to Davenport and Prusak (1998), knowledge maps can be compared to a telephone directory, such as the yellow pages as these identify and show where knowledge is, despite the fact that they do not however hold knowledge. Thus, a knowledge map is a guide to knowledge and not repository of knowledge, and it simply directs one to knowledge to it but does not make it available. Therefore, according to Davenport and Prusak (1998), knowledge maps lead the way to people, to databases and to documents.

An organisation does not however, restrict itself simply either to identify and use knowledge; it is essentially the producer of knowledge and herein lies the source of international competitiveness (see Nonaka and Takeuchi, 1997). For this reason, the intellectual maturity of organisations does not coincide with its physical maturity, and thus it imposes a rhythm of knowledge construction which, according to Senge (cited in Pedler and Aspinwall, 1991) points to learning organisations and sees these as a place where people learn and continuously expand their capacities. The main aim of these organisations is to learn and collectively too, albeit, according to Revans (1998), organisations learn at a different pace to those which are in the same competitive environment.

The construction of knowledge maps entails the fusion of both explicit as well as tacit knowledge. In this way, in order for the final product to be relevant, it is vital that the organisation takes into
account the following factors, namely: (i) work climate and environment, (ii) objective communication which should also flow naturally, (iii) professionals who are responsible for information transmission and (iv) the company’s culture, mission and objectives. Therefore, constructing knowledge maps allows the organisation to retain the rank upon the trilogy of organisational capital, namely, (a) intellectual capital, (b) structural capital and (c) relational capital. The implementation of organisational culture is based on learning views change as way of being. Furthermore, teams facilitate the organisation’s adaptability and foster change. Jamali et.al. (2006:339) corroborates that the six characteristics of post-bureaucratic organisations “include empowerment, teams, trust, communication, commitment, and flexibility.” These produce synergies and a correlation can be established between the gradual shift towards the five disciplines of the learning organisation as facilitated by these abovementioned characteristics. The learning organisation stresses worker participation, empowerment, and management of the company’s economic dimension. Management is now through inner control instead of external control of job descriptions, objectives and appraisal characteristic as was done in the past. Now the emphasis is “mission - vision - empowerment” (Pedler et. al.1991:65). Kanter (1983) postulates that vision is an endeavour to express what the preferred future for the company will be. The purpose of vision is to make the most of the creative tension between actuality and potentiality by creating foreknowledge both for the members of the organisation and the customers. People need a vision, a sense of meaning and purpose at work. It is through communication that vision is developed. In order to mobilize support it is vital to have an inspiring vision which is the essence of leadership. “Cross-disciplinary, multifunctional, multiorganisational-level teams empower people to understand and support vision” (Belasco, 1990:13). The vision is strengthened by the organisational systems. Cultural vision with its heroes and symbols reinforces new vision. Vision is a statement of what the organisation must be. It must exist at all levels of the organisation. Three criteria have to be met in order to have an
empowering vision: (i) focus on strategic advantages, (ii) have the inspiration to deliver those advantages consistently, (iii) clarity must be a decision-making criterion.

Empowerment is only possible when there is understanding, which may be greater when there is participation, and in turn participation produces empowerment. It is important to constantly communicate the vision and to empower managers through training to use the vision. Empowerment is also used to bring about significant and necessary change in the personnel system. Furthermore, empowerment leads to a better performance system, and a participative vision so that change can be carried out with across-the-board participation. The traditional functional structure should be reorganised by one which is customer-based, knowledge of customer needs. The process considerations should include customer service, quality, employee growth and development, communication and on-time delivery.

Jamali et. al.(2006:431) further emphasized that: “empowerment is founded on trust” (Mayer et al., 1995, cited Ibid.). Trust enhances commitment, collaboration and healthy team dynamics (Holton, 2001; Webber, 2002, cited ibid.). Teamwork further deepens trust and breaks down barriers to effective communication (Dwivedi, 1988; Drew and Coulson-Thomas, 1996, cited ibid.). Communication enhances meaningful interaction and collaboration (Holton, 2001, cited ibid.). Flexibility thrives in the context of teams and empowerment (Englehardt and Simmons, 2002, cited ibid.). Indeed, as was reinforced above, the learning organisations five disciplines can be further linked to the characteristics. The personal mastery discipline is sustained through communication, empowerment and commitment. Therefore, the personal efficacy discipline of the learning organisations emphasizes a loyalty to learning Empowerment – with its associated sense of self-efficacy – encourages individuals to pursue their growth process, to seek development opportunities (Jamali et. al., 2006). The principle of ‘creative tension’ is the central principle of ‘personal mastery’ according to Senge (1993). Intrinsic to creative tension is the concept of vision. Vision can be understood in conjunction with purpose. It does not, however, have the same meaning. Vision
refers to a concrete, intrinsic, specific destination; purpose refers to a general abstract direction. Creative tension is the gap between vision and current reality. This gap may sometimes lead to negative emotions or emotional tension, but this gap generates energy for change. The interaction between creative and emotional tension is shifting the burden dynamic of compromise and of mediocrity. Once creative tension is mastered, failure is seen as being the gap between vision and current reality. Failure is therefore viewed as an opportunity for learning.

Teamwork and effective communication support the mental models discipline. Tacit knowledge forms part of the Communication through conversation and hence “experimentation, trial and implementation” (Mai, 1998; Beeby and Booth, 2000; Hurley, 2002, cited Ibid.:344). Communication acts as the vehicle for changes in mental models, such as “brainstorming, dialogue, inquiry facilitating the exchange of ideas/the sharing of understanding” (Bennet and Bennet, 2004, cited in Ibid. op. cit.).

Commitment, communication and trust further strengthen the shared vision discipline. Effective communication and teamwork support the team learning discipline. “The valuable and hard-to-decode tacit knowledge of individuals can thus be shared collectively, and the new skills can be practiced and taught to other members of the team” (Goh, 2003; Wang and Ahmed, 2003, cited Ibid: op. cit).

Commitment to the truth is important for developing personal mastery, as Senge (1993) corroborates. The systems perspective highlights the aspects of personal mastery and these are: integrating reason and intuition, seeing our connectedness to the world, compassion and commitment to the whole. People with high personal mastery achieve reason and intuition naturally. One of the major contributions of the systems thinking is the uniting of reason and intuition. One of the major aspects of personal mastery is the increased connectedness. This high level of awareness leads to greater compassion and empathy and thus to a broader vision. The systemic thinking discipline emphasizes the holistic capability of analyzing the organisation and its competitive environment. This discipline is nurtured in flexible environments wherein open
organisational communication and dialogue is encouraged (cited ibid.:345).

Moilanen, R. (2005) makes a very apt analogy between a learning organisation and a diamond, where the latter are eternal and abound with opportunities. “Diamonds and learning organisations are composed of two halves that are in reciprocal dependence in terms of each other: organisation (upper half of the diamond) and individuals (lower half)”. Learning is a continuous process and a learning organisation should be an everlasting state of an organisation, because of the continuous need for learning. (Moilanen 1999a, b, cited ibid.:74).

4. **Empirical Analysis**

4.1. **Background.** The empirical section of this study is based on a questionnaire distributed to 600 employees in 60 companies within the transforming section, based in the Town of Felgueiras, in the Porto District, Northern region of Portugal. In those companies with 50 or more employees, we had a response rate higher that 20%, whereas in the companies with less than 50 employees the response rate was extremely low. This region is essentially made up of a mono industry; therefore, the majority of the companies under analysis are mainly producers of shoes and their derivatives. Moreover, we also included some companies which produced embroidery and textile articles.

4.2. **The results.** The “Fifth Discipline” can be summarized as showing a systemic view of an organisation wherein interrelationships are identified with its capillaries. This systemic thinking is viewed by Senge (1990) as an antidote for the feelings of impotency, de-motivation and suspicion which are felt by companies in view of the interdependency resulting from economic globalization. Therefore, systemic thinking sees structure and things in a global way, in opposition to both the individuality and singularity of its subsystems (parts). Systemic thinking looks outwards towards the future and does not limit itself to the present. It is based on trust, confidence, as these are developed in cultures that support learning (Gillespie and Mann 2000, Pillai, 1999, cited in Prewitt, 2003).
In this way, we took heed of the employees’ opinions concerning the pleasure they feel in working for the company. The results are shown in Figure 1 in the Annex.

Seeing that 17.92% and 20.99% of the employees disagree or partly agree with this statement, taking into account that these employees are highly dissatisfied with their working environment, which will lead to negative externalities in so far as the organisation’s outcomes are concerned, both at the individual level as well as the level of knowledge. If we presume that, in addition to the 38.91% of employees who are unsatisfied, there may well be many others, this despite the fact that they may have answered that they “agree”, indeed they may well feel that this is not necessarily their feelings. This was gleaned from the interviews conducted. In view of these findings, we think that this may well be an alarm signal for future constraints which may occur within the organisation and which go against and in fact even violate Peter Senge’s systemic vision.

The systems thinking views people according to a dynamic perspective thus avoiding mediocrity and limitations at a cognitive behavioural level. Furthermore, people are viewed as active elements in building and modelling society, where learning is the element, per excellence. Within this atmosphere, it was our aim to find out whether the company embraces the learning spirit, and if the company is aware of the need to combat obsolete employee competencies in view of the constant lowering of technology life cycles. The results obtained in reply to these questions are summarised in Figure 2.

As figure 2 shows, there is a discrepancy among employees who hold Primary School leaving certificate (this indicator was measured in the answers such as: “disagree” and “barely agree”) where there is a tendency of the responses to reach a level of 75%, which is clearly a strangling indicator of the systemic vision. However, if we associate 79.23% of employees, as is shown in figure 3, who hold the 3rd level of Schooling, which is at the moment the minimum
schooling in Portugal, we are aware that there is almost an unanimous discrepancy amongst employees. In view of this reality, it is our opinion that there is a need to set strategies to implement the systemic views within the organisations. These should be applicable to the daily activities of employees, as the low level of schooling held by employees does not allow them to understand and apprehend the demands of such thinking.

Systems thinking, according to Senge (1993), takes into account concepts such as personal mastery, mental models, shared vision and team learning, it is a conceptual landmark as well as a body of tools and knowledge which developed during the last 14 years and aim essentially at the interrelatedness and inter-dependence of those four disciplines. In this way, the Fifth Discipline takes these former concepts into account in the knowledge that a joint outcome is above the simple sum of the partial results. Therefore, the firm’s sustainability is based on learning and shared vision. Nevertheless, mental models as well as personal mastery are important in order to maximise the gains of the effort and tensions. Indeed, team learning, which is based on dialogue and cooperation allowing for (i) improving efficiency outputs in resource allocation; (ii) long term thinking as opposed to short term. This tuning in thus facilitates short term tacit and explicit knowledge dissemination - as well as the actual creation of tacit knowledge which will make the organisations unique.

In view of the arguments set out above, and with the objective of ascertaining the employees’ awareness for issues pertaining to training, the following questions were posed: (i) whether training is important for the employee, (ii) if training makes my work easier, (iii) whether training is important in order for the company to improve. The answers to these questions are summarised in figures 4 and 5 in the Annex.

Systems thinking views change within a dynamic perspective. According to this process, an efficient diffusion of knowledge in the organisation is possible when socialisation within it is a reality. However, the results obtained do seem to indicate a certain independency between organisations and systems thinking. In this way, the knowledge maps analysed seem to be deficient and/or missing tools as well as the repositories of knowledge. The
organisations in the analysis therefore, seem to ignore tacit knowledge and instead only pay attention to material investment. They undermine the importance of tacit knowledge and seem to be ignorant of the fact that the latter has added value in the output of organisational investments.

5. Conclusion
Even though both employers and employees seem to be aware of the importance of training, nevertheless, the economic agents appear to be impotent towards the need to alter internal policies. On the one hand, the employees seem to think training is a waste of time and therefore do not ease timetables so employees are able to attend these sessions. At the same time employers do not seem to show interest to perform at the level of internal socialisation thereby motivating employees to adopt a critical and active stance within the organisation. If training activities are carried out after working hours and especially if someone else, other than the company pays for it, then employees do seem to attribute some importance to training. At the same time, employees view training as vital for their activities within the organisation. They also are aware of the importance of training for the actual gains of the company.

In view of these two opposing attitudes, it seems that neither employee nor employers are prepared to take on the onus of financing and accompanying responsibility linked to training, despite the fact all seem to be aware of its benefits. Within this situation, in relation to these two symmetric poles, one is aware of the ensuing result, that is, the two dynamic instruments of competitiveness are neutralised. The dynamic factors of productivity, namely knowledge maps and other supporting instruments to disseminate and utilise tacit knowledge are not implemented nor considered to be of importance. It seems to be a classical sign of organisational behaviour, which still persists in seeing long life cycles of technologies and still hold an anachronistic view of the obsolete process related to skills, abilities and capacities.

In this context it is extremely difficult to implement Peter Senge’s systems vision, and for this reason it is urgent to define motivational policies at a macroeconomic level so these can serve as externalities.
at the micro economic level. We propose that a concerted policy should be made amongst the different domains of social intervention so as to ensure that values, citizenship, and ethical responsibility of economic agents constitute the base of sustainable entrepreneurship and systems vision within the organisations.

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On line Annex at the journal website: http://www.usc.es/economet/ijaeqs.htm
Annex

Figure 1: Pleasure felt for working in the company

![Pie chart showing percentages of different responses.]

Source: Authors
Figure 2: Training given to employees during the last three years

Academic Qualifications

- Less than Primary Level
- Primary Level
- Post Primary School Level (7 years of school)
- "O" Levels (9 years of school)
- "A" Levels (12 years of school)
- Bachelors Degree
- Honours Degree
- Post Graduate Degree

Disagree
Partially Agree
Agree
Totally Agree

A3

Source: Authors
Figure 3: Employee’s School qualifications

Source: Authors
Figure 4: Training is important for employees

Source: Authors
Figure 5: Training is important in making the company better

![Pie chart showing responses to the statement: Training is important in making the company better.]

Source: Authors