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Strategies of Renewal

The Transition from 'Total Quality Management' to the 'Learning Organization'

Abstract *Total Quality Management (TQM) and the Learning Organization (LO) are two management practices for dealing with the problem of organization renewal. From a more detailed study and with a transformational, dynamic and interactive perspective, the two are not only mutually non-exclusive but even that they are found to be mutually complementary in the renewal process. This article focus on the process of TQM&LO transition on the premise that certain complementarities exist between the two systems that facilitate the implementation of organization renewal, and also on the identification of key factors facilitating the transition. The review of the literature, the comparative analysis of the two systems, and the presentation of a case study (Electrical and Fuel Handling Division – VISTEON) in which two of the authors have participated; enriched by applying the perspective of 'learning history', constitute the nucleus of this article.* ***Key Words:*** *learning history; learning organization; organization renewal; total quality management; organizational learning*

'Organization renewal' (Lippitt, 1969) has been and continues to be one of the great challenges facing companies in the so-called 'learning economy' (Lundvall, 2000). In such an environment, companies are obliged to go beyond approaches of efficiency in costs and seek, in addition, flexibility, creativity, innovation, customer satisfaction and the exploitation of new technologies of information, combining their orientation towards the long-term mission of the company with rapid responses to ever more complex changes. But at the same time they must maintain their efficiency, in other words their capacity to obtain economies of scale and to attain and influence the key standards applicable in their sector.

Although in this situation renewal appears to mean 'an organization's capacity to change itself continuously as a necessary condition for its survival' (Teece et al.,

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1997), observation of the diversity of programs for change and organizational forms that companies adopt and undertake for such renewal makes it necessary to examine more deeply the concept of organization renewal.

The use of the term 'learning economy' is deliberate. Organization renewal is a process that involves and includes the need to harmonize stability and change in an organization and, from this perspective, it is logical to think that organizational learning is one of the principal means of implementing such a process (March, 1991). From this it is evident that renewal is a concept that can be defined, according to the theories of learning, in respect of two distinct variables—change and organizational learning—and because both these variables are multidimensional in nature, the existence of different strategies for renewal is clearly possible (e.g. total quality management, downsizing, business process re-engineering, reorganization, process innovation, learning organization, revitalization/transformation, time-pacing, event-pacing, patching and co-evolving).

First, from a review of some of the more representative previous research studies on organizational change (Davenport, 1993; Dunphy and Stace, 1988; Meyer et al., 1995; Monge, 1995; Pettigrew and Whipp, 1991; Stace, 1996; Strebel, 1998), we observe that it can be and has been studied under five dynamic dimensions: time scale, extent, level, mode, and frequency of change.

In respect of the second variable, organizational learning, this subject has also been analyzed from multiple perspectives, although few studies have been specifically intended to analyze the direct relationship of learning processes to those of organization renewal. A general review has identified certain notable models: the rational intervention approach, which is based on organizational learning as changes in a management team's cognition (Argyris, 1982, 1985; Schein, 1990, 1996; Senge, 1990); the behavioral framework constructed on the idea of organizational learning as incrementally developed 'routines' that guide the behavior of individuals (Levitt and March, 1988); organizational learning as a system of social knowledge processing (Currie, 1999; Dixon, 1994; Huber, 1991; Leonard-Barton, 1995; Nonaka and Takeuchi, 1995); organizational learning as a process in 'communities of practice' that often cross the formal boundaries of organizational units (Brown and Duguid, 1995); and organizational learning as a dynamic and interactive process (Crossan et al., 1999).

Therefore, although there is no doubt that organization renewal is identified with the capacity of the organization to transform itself continuously, it is no less certain that the diverse nature of change and learning programs utilized lead to the thought that with this capacity comes a concomitant risk of not knowing how to balance continuity and discontinuity. The existence of adaptation (incremental change) or metamorphosis (frame-breaking change) will be reflected in the choice made between different combinations of renewal strategies, in the sense of transformational renewal (Volberda et al., 2001), either sequentially or coincident in time, considering renewal as an ongoing journey instead of a discrete shift from one state to another, and then only to the extent permitted by structural inertia itself (exploitation of core competences, scarcity of resources, industrial regulation, etc.).

The possibility of combining various renewal strategies within the body of one single organizational system must also be considered in the light of the logical postulates of complexity theory, on the basis of the concept of the organization as

a complex adaptive system, or composed of a diversity of agents who interact with and mutually affect one another and, in so doing, generate novel behavior for the system as a whole (Marion, 1999; Prigogine, 1997; Regine and Lewin, 2000).

From this perspective, the natural thing is learning to coexist in environments that are dynamic, uncertain, unpredictable and stable only in complex ways; such environments must be confronted with renewal strategies whose effectiveness will depend on the capacity of the managers to learn to take advantage of the existing *dynamic of interaction* within and between the so-called 'organizational ensembles', or sets of individuals such as departments or other work groups, who maintain a direct interconnectivity (Marion, 2001). This dynamic of interaction is persistent, conditions the renewal strategies and over time can provide sufficient equilibrium between stability and change. Nevertheless, such equilibrium is a meta-objective, since in dynamic and complex environments, the 'threat' is the source of the required mutation and experimentation, or the 'edge of chaos' (Pascale et al., 2000).

The focus of attention of this article will be two of the renewal strategies mentioned, total quality management (TQM) and the learning organization (LO), and the synergistic transition from one to the other, thanks to the existence of certain complementarities that we identify. The objective of our research is to describe, in general terms and by way of 'learning history', this process of strategic renewal, and to identify some of the key factors of such a transition.

This article is structured in four further sections: The first consists of a comparative study of the systems of management in TQM and the LO. The second section analyzes the theoretical framework used, and the 'learning history' research. The third section is a case study of the Electrical and Fuel Handling Division (EFHD) of the Ford Motor Company, one of their smallest divisions; the case explains how this company evolved from a TQM system towards one of LO, to become integrated into Visteon Automotive Systems (VISTEON). Finally, the discussion and further research of the study are presented, with their conclusions, limitations, and implications for future research and management practice.

Comparative Study of TQM and the LO

Whereas TQM continuously appears, more or less, as a predominantly adaptive response to the problems of the company—because it focuses on incremental change, and the managers are relegated to a lesser role since organizational changes are viewed as responses dictated by external dependencies—the LO concept arose in the second half of the 1990s as a proactive and radical response to the problems of renewal of the sources of competitive advantage.

A comparative analysis of the two systems reveals similarities, differences and complementarities; these are concisely discussed in this section and are summarized in Table 1. To structure the analysis the model of Kast and Rosenzweig (1974) is used; the systems focus of this model provides a valuable guide by considering the various applicable subsystems—governance, goals and values, psychosocial, structural and operational—that are commented on next.

Governance

Both systems of management are clearly oriented towards the longer term. However, the LO provides greater scope for continuous change, and has a stronger orientation towards effectiveness (flexibility) rather than efficiency.

Unlike TQM, in which group and organizational levels of problems and processes are predominant, the LO presents a more complete analysis, working on the levels of the individual, group, organization and community, but particularly

Table 1 Comparative analysis of features: TQM versus LO

Subsystems	Basic variables	TQM features	LO features
	Time perspective	Medium/long term	Long term
	Level of analysis	Group and organization	Individual, group, organization and community
Governance	Empowerment	Oriented to improvement of customer service	Oriented to stimulation of learning at all levels
	Decision-making focus	Tending towards perfect rationality	Limited rationality
	Innovation	Continuous and incremental changes	Continuous and radical changes Experimentation
	Objectives	Priority given to efficiency	Priority given to effectiveness
	Orientation of the culture	People/employees as a resource	People/employees as individuals
	Content of the culture	Professional development	Personal and professional development
Goals and values	Origin of the shared vision	Provided by a leader	Not necessarily provided by a leader
	Content of the shared vision	Specific, and oriented towards quality in a general sense (multiple dimensions of quality). Achievement of excellence	Wide vision, and focused on learning aimed at developing the potential of individuals, of the organization, and of the community
	Styles of learning	Implicit and adaptive (single-loop learning)	Explicit and generative (double-loop/deutero learning)
	Transfer of knowledge	Exploitation of professional knowledge	Combines exploitation with exploration
Psychosocial	Processes associated with learning	Intuition (expert) Interpretation (specialist) Integration (formal) Institutionalization	Intuition (enterprising) Interpretation (generalist) Integration (formal & informal) Institutionalization
	Consideration of mental models	Implicit	Explicit, at the individual and group levels

Table 1 Continued

Subsystems	Basic variables	TQM features	LO features
	Type of structure	Organic	Organic
	Linking mechanisms	Expert coordination	Loose coordination: mutual trust
Structural	Team working	Improvement teams and Quality circles	Learning circles
	Cause–effect analysis	Static and more effective at the operational level	Dynamic and more effective at the strategic and tactical levels
	Focus of anticipation of customer needs	Explicit	Implicit
Operational	Critical techniques	Quantitative, analytical, positive	Ethnographic, 'story telling', paradigms, dialogue
	Analysis and diagnosis	Emphasis on retrospective approach (measurement, self-monitoring, benchmarking)	Combines retrospective and prospective approaches (images, metaphors, vision). Emphasis on prospective aspects

on the individual level, given the importance of individual experimentation as the engine driving the learning process (Cohen, 1995; Garvin, 2000).

Although, in both TQM and LO, motivation and techniques of *empowerment* are used, differences in emphasis can be appreciated. Whereas in TQM it is stressed that the employees should serve the customer, in the LO this end is achieved indirectly by strengthening learning and creativity, or in the words of Crossan et al. (1999), by stimulating intuition and interpretation, which will enable employees to anticipate changing needs and thus to surprise the customer.

Regarding the general model of decision-making, in TQM there is greater predominance of rational approaches (statistical techniques, mathematical models of quasi-perfect rationality, etc.) than in LO, although these (systems archetypes, process re-engineering, etc.) are used in both. In LO there is particular emphasis on the use of techniques more associated with limited rationality (Simon, 1957), for example dialogue as a means of achieving trust and mutual respect.

Lastly, and in relation to innovation, although both systems drive change there are significant differences between them (Crossan et al., 1999). Whereas TQM promotes continuous and incremental changes, LO pursues more radical changes based on continuous learning by the entire organization, and on innovation, which is the consequence of individual intuition and experimentation (Winter, 1996).

Goals and Values

The two systems complement each other in the ways by which objectives are established. The LO is more anticipatory and aimed at questions of effectiveness

than TQM, which is a system more characterized by its solutions of adaptation and efficiency (Hodgetts et al., 1994). Between the two they achieve an interesting balance of effectiveness and efficiency in seeking organization renewal.

Both TQM and the LO need a culture oriented towards people as individuals. However, there is a considerable difference in the content of this culture (Dervitsiotis, 1998). The LO approach is biased towards human development, in the sense that, by means of 'personal mastery', fostered by the organization, personal fulfillment is achieved both at work and outside the company. Under TQM, however, the development of human resources outside the organization is not proposed, although one of its objectives is that individuals will give the best of themselves through internal participation (Gartner and Naughton, 1988).

There also exist differences with respect to the vision of the organization from the point of view of TQM and the LO, respectively. Their point in common is that both systems seek to reach a 'shared vision', but the process of achieving this and the actual content of the two visions are different. In TQM the vision is more specific and usually gets its initial impetus from a leader who communicates it to the lower levels of the organization in a 'top-down' way (Anderson et al., 1994).

In contrast, the shared vision typical of the LO is wide in scope, formed more pragmatically, whereby each member develops an understanding of where the organization is going. This is a more 'democratic' process of development of the shared vision derived principally from shared creation and a common creative attitude (Senge et al., 1999).

Psychosocial Aspects

The LO requires a climate of learning in which the employees can find new and creative ways of carrying out the work, so that changes are effectively anticipated (Hult, 1998). This same climate of learning arises spontaneously through team-working activity under TQM and with a similar objective (Mukherjee et al., 1998). The difference lies in the more adaptive nature of learning under TQM (Love et al., 2000), when what has been learned is put into practice according to priorities, as the main process of knowledge transfer (through training, self-monitoring and *benchmarking*), in contrast to the more generative character of LO, in which the exploration of new fields, methods, and so on is emphasized (Garvin, 1993).

The complementarity of the two systems comes from the 'exploitation–exploration' dynamic, or in the words of Crossan et al. (1999), by means of a *feedback* process of a more professional and specialized character, typical of TQM, and another of *feed-forward* directed towards the future, more generalist in nature and closer to the LO.

Structural Point of View

In both TQM and LO systems, and as a response to dynamic environments, organizational structures are sought that are less hierarchical, less bureaucratic, and less centralized, more organic in character (Mintzberg, 1979). There exists, nevertheless, a certain difference in orientation and purpose between the improvement teams and quality circles of TQM, and the learning circles of the LO. In the first case, the teamwork is directly related to the commitment to quality and

customer service: in the second, the teamwork is more free-ranging and more specifically related to learning as the source of competitive advantage, with the organization even being thought of as 'communities of practice' in the terminology of Brown and Duguid (1995).

Operational Aspects

One of the principal differences between TQM and the LO is the use each makes of situation analysis by cause–effect diagrams. In TQM, cause–effect analysis is normally static, that is, not essentially dynamic (Dervitsiotis, 1998) and is carried out by interdisciplinary techniques such as quality control tools, flow-charts and Pareto analysis, statistical process control, value analysis, control charts, and so on; also widely used are quality management tools and product planning tools.

Against this, the cause–effect analysis in the LO, also interdisciplinary, is strongly based on the use of simulation techniques using heuristic programs, which makes them much more dynamic (Dervitsiotis, 1998). The most critical techniques used are those involving ethnographic studies, 'story-telling', paradigms and dialogue (Levitt and March, 1988).

Learning History Research

Focus of Study and Theoretical Framework

One of the alternative strategies for long-term strategic renewal for those companies that apply TQM management principles is to advance in the construction of an LO. The potential of this route and the way it can be traveled have not to date been subjected to sufficiently rigorous research. The objective of our research is to describe, in general terms and by way of 'learning history', this process of strategic renewal, and to identify some of the key factors of such a transition. This objective is descriptive and not deterministic, since we agree with Huber (1991) in his conclusion that there is no single 'correct' model for increasing the effectiveness of organizational learning.

The general theoretical framework selected is that of strategic change by means of the interactive process of the four Is (Bontis et al., 2000; Crossan et al., 1999); this dynamic model makes clear connections between learning and organization renewal, by supporting the proposition that a necessary condition for renewal is the existence of an 'equilibrium in tension' between two processes of organizational learning: the exploitation of what has been learned (a factor generating stability in relationships within the organization), and the exploration of what is new (which leads to change). This concept of 'equilibrium in tension' conveys more the sense of tension (Shrivastava, 1983) present in the processes of prospective and retrospective analysis (*feed-forward* and *feedback*, respectively), than the idea of equilibrium (March, 1991).

Each of these processes may lead to a particular 'learning style' (Argyris and Schön, 1978) or 'learning prototype' (Wijnhoven, 2001). Hence, while the process of exploitation is usually carried out by means of 'single-loop' or 'first-order' style of learning, or routine, incremental, conservative and adaptive responses when the events have already happened, the process of exploration requires a 'double-loop'

Figure 1 The process of the 4I model

Associated processes	*Levels of learning*	*Types of knowledge transfer*	
		Prospective *(feed-forward)* Exploration	Retrospective *(feedback)* Exploitation
Intuition	Individuals	From the individuals and groups towards the organization (New learning: renovative)	
Interpretation Integration	Groups		From the organization towards groups and individuals (Old learning: efficient)
Institutionalization	Organization		

or 'second-order' style of learning, or proactive response, and takes place because the individuals' mental models are brought to convergence via different means which enable the individuals to form shared mental models and, in turn, feed back to the individual mental models.

In this dynamic model, the individual, group and organizational levels of learning are related to each other by means of an interactive process termed 'the four Is' (4Is), which are: (1) the Intuition of individuals; (2) the Interpretation that individuals and groups make of this intuition; (3) Integration, or how the results of that interpretation are inserted into the organization; and (4) Institutionalization, or how the changes that the preceding phases generate are consolidated (see Figure 1).

We believe that such an 'equilibrium in tension' can be facilitated because of the complementarities existing between TQM and LO. However, there is no doubt that the main dimensions of change (time scale, extent, level, mode, and frequency) and the basic learning that takes place, are factors that moderate the result.

Case Study Methodology and Learning History Research

The empirical study has been undertaken by means of an exploratory and descriptive research design utilizing case study methodology. We have considered the company to be the most appropriate unit of analysis to achieve the research objective proposed.

However, when a company passes through a process of change it is not easy to demonstrate the link between the strategic renewal that is taking place through processes of learning, on the one hand, and the business performance on the other. In order to clarify better this relationship, the case study may be enriched by applying the perspective of 'learning history' (Kleiner and Roth, 1997; Roth and Kleiner, 1995) or 'learning from history' (March et al., 1996); this is a type of

historiographic method that has its origins in the belief that 'we can arrive at the truth of the historical past from reliable testimony' (Lucey, 1958: 19). This method should guarantee the authenticity and external integrity of the sources and the credibility and internal consistency of the contents of their testimony.

Further, it is well known that the study of cases demands a research design that provides field information that often is not available when the cases have been selected; for this reason it is usual to conduct the prior study of a pilot case that may provide greater elements of judgment, more refined procedures, and better structuring of the rest of the cases comprising the sample selected. We believe that the 'learning history' method can help to obtain and analyze the evidence from a pilot case study.

A Transition Case Study from TQM to LO

Background

The material presented next is from the study made of the Electrical and Fuel Handling Division (EFHD) of Ford and its subsequent reconstitution as the VISTEON[1] Group. This is offered in the form of an advocacy paper based on the 'learning history' method, since the substantial length of the study itself makes it impracticable to include in this article. This case is the pilot study conducted prior to commencing the full study of cases that we are currently undertaking in the automotive electronic components industry, in respect of the processes underlying TQM to LO strategic renewal.

This company was selected for the following reasons: the proven effectiveness, in terms of business performance, of the TQM to LO process of strategic renewal; the external monitoring of the process conducted by Peter Senge and his colleagues at MIT's Center for Organizational Learning; the adequacy of the records available of the events and results of the process in VISTEON; lastly, another important reason was our active participation in the process of training for the establishment and implementation of the TQM to LO strategic renewal process (1998–2000) in 'Cádiz Electrónica', one of the constituent companies of VISTEON, which helped considerably in gaining access to relevant information.

Organization and Informants

The process of TQM to LO strategic renewal of EFHD has been studied over a time span of about 5 years (1992–96). The company became part of VISTEON in 1997 when it was re-named the 'Powertrain Systems Controls Division'. At present the company is a world supplier of engine management, fuel delivery and storage systems, electrical powertrain, speed control and starting and charging systems. Its products are manufactured at 20 plants, including three joint ventures, in 11 countries.

EFHD was one of the smallest divisions of the Ford Motor Company, employing around 5000 people, and was engaged in the manufacture and sale of automobile components such as starting systems, alternators, injectors and injection coils,

among others. In 1991 the Division lost $50 million, but by 1996 it had been transformed into a successful learning community with an annual profit of $150 million. Its process of TQM to LO renewal took place between 1992 and 1996 and demonstrates how the division achieved world leadership in the manufacture of these components (three plants in the USA and 10 in the rest of the world) with an unprecedented collegiate management style and by using the tools and methods of the LO.

EFHD was created in July 1988 with three plants manufacturing mature products related to the combustion processes of automobiles, and committed itself wholeheartedly to TQM. But in 1991 its engineering expenditures were less than 1 percent of sales revenues, its quality indicators were low, its labor costs high and its annual financial losses reached $50 million. In 1992 Bob Womac was appointed CEO and he proposed to convert EFHD into an LO; his reasons centered on the desirability of increasing the ability of his employees to think in a new way; to obtain a faster response of both his teams and suppliers to customer needs; to drive the strategic transfer of technology; and ultimately to achieve new advantages over the competitors, in a dynamic environment.

The informants who participated directly or indirectly in the conduct of the pilot case were 40 of the individuals most involved in the process of strategic renewal of EFHD, including the managing director of the division, who was responsible for the process of change, and the members of the Division Operating Committee (DOC), of the Competitive Products Learning Team (CPLT), and of the Product Launch Success Team (PLST). Informants were selected because of their leading positions in the EFHD or in the renewal process under analysis; they included those affected by the changes as well as the initiators of change.

Data Sources and Measures

All the data were gathered from EFHD and from 'Cádiz Electrónica'. In logical consistency with the anatomy of the 'learning history project', the data mainly originate from two groups of evidence: direct EFHD sources of data generated at the time of the event, and sources of retrospective data.

The direct sources utilized were secondary data extracted from the annual financial reports of EFHD (statements of operations, balance sheets, cash flow statements, and statements of stockholders' equity), and specific primary data recorded in the report of the program 'Learning for Operational Excellence (LOE) at EFHD, 1992–96'.

The report on the LOE program includes various documents indicating how the leaders acted during the process of change; the record of the historical events that took place in the sense of 'noticeable results' or events which people consider significant (see Table 2); the way in which the basic principles of the LO were applied; the building of the EFHD community; and the impact of the TQM to LO process on EFHD. The working documents contain details of the various individuals involved at each stage, transcriptions of their main comments in the meetings of committees and work groups, and in the brainstorming and dialogue sessions that were held during the entire process.

Table 2 Principal landmark events of implementing the LO in EFHD and VISTEON

Year	Landmark events
1988	EFHD was established with three manufacturing plants: Bedford (Indiana), Rawsonville (Michigan) and Ypsilanti (Michigan)
1991	New plants in Belfast (Northern Ireland) and Alba (Hungary)
1992	Bob Womac was appointed CEO The Division Operating Committee (DOC) was set up to convert EFHD into a LO A first group of people attended Peter Senge's course on 'The Fifth Discipline'. LO was applied initially to the launch of new products and substantial cost savings and quality improvements were obtained Two learning circles were created in which 32 people participated
1993	The DOC incorporated the concept of the LO into the Business Plan of EFHD The principles of the LO were extended to supplier relationships The number of learning circles increased to 7, with a total of 120 members involved
1994	Regular courses on The LO were established in the Washtenaw Community College Meetings were promoted with suppliers to 'learn both sides' New plant set up in Jarudo (Mexico) The number of learning circles increased to 20, with a total of 500 members involved
1995	First international course on 'The LO' in the Washtenaw Community College Sessions of dialogue were established as a fundamental part of the courses on 'The LO' First international course on The LO in the USA for suppliers to EFHD First international course on The LO in Europe The learning circles grew to 27, involving a total of 1200 members
1996	The plant at Cumbinca in Brazil was built Learning circles increased to 30, involving 1730 members
1997	Ford created VISTEON with a presence in 22 countries. Its objective: to expand sales of components to other automobile companies Charles Szulack was appointed President and undertook to make VISTEON an LO He brought in Bob Womac as his Vice President
1998	International training plan to develop the LO in VISTEON The University of Cadiz (UCA) initiates a collaboration with VISTEON to develop an LO
1999	First course on the LO in Spain for the company 'Cádiz Electrónica' of VISTEON, presented by the UCA

Source VISTEON.

With regard to the retrospective sources, two kinds were utilized: retrospective semi-structured interviews with key informants, and direct observational material in a 'replica company' belonging to the VISTEON Group.

For the conduct of the retrospective interviews, a 'learning history questionnaire' (LHQ) was designed, covering the basic topics that were to be addressed (see Appendix A). The semi-structured interviews were transcribed verbatim and subsequently analyzed using NUDIST software. When it was possible (for numerical data), the informants responded to some LHQ questions (items) on a relative frequency scale ranging from 0 to 3, where 0 = 'never'; 1 = 'seldom'

(once or twice a month); 2 = 'occasionally' (three to six times a month); and 3 = 'often' (more than six times per month). The alpha coefficients of the scale (all with alpha $\alpha > 0.80$) suggested that the scale selected had acceptable internal consistency for research purposes (Carmines and Zeller, 1994; Nunnally, 1978).

The interviews of key informants were carried out in a relatively short time (two per week) and various 'learning history' documents were prepared. These documents responded 'piece by piece' to the different topics included in the interview by applying the MIT learning history model (Kleiner and Roth, 1997). Each document created a record, which allowed informants to see their own point of view in the context of a larger, shared understanding. An example of these documents is included in Appendix B. We developed a two-column format as a means of accomplishing what we intended. The right-hand column was used exclusively for primary data narrative from informants involved in the TQM to LO process on EFHD (experiential comments by participants). The left-hand column was used for more objectively interpretative material drawn by the non-participants (insights, commentary, questions, partial conclusions, interpretations, comments, and implications of particular statements).

The direct observation of the execution of the process of TQM to LO change was carried out in the 'Cádiz Electrónica' plant. This constituent company of VISTEON was selected given the coincidence of two favorable circumstances: it had been chosen by the parent company as one of the divisions of VISTEON where a 'replica' of the strategic renewal process of EFHD had taken place; and two of the authors of this study had participated directly in the process of training its employees in the principles of the LO.

Given our active role as monitors of the LO, care was taken to perform an external, non-participatory observation, in order not to introduce any distortion in the responses of the company personnel or informants. The team of observers captured the information, at both the individual and group levels (in the 'learning circles'), by means of visual and auditory procedures, and principally at the level of practical application of the basic principles of an LO (systems thinking, team learning, shared vision, mental models and personal mastery). The purpose of these observations was mainly to understand better the information gathered from the documentation of the LOE program and from the retrospective interviews conducted, and to utilize different data sources in a validation attempt at 'triangulation' (Yin, 1998).

Data Analysis and Procedure

The method of analysis used for the pilot case is to examine, categorize and tabulate the evidence gathered, in order to fulfill the basic objectives proposed of providing a basic description of the process of strategic renewal in the transition from TQM to LO and of determining the key factors involved.

The general strategy of analysis consists of developing a descriptive structure of the functioning of the pilot case on the basis of the theoretical propositions guiding the study (Yin, 1998), with the objective being attained by means of an adequate narration of the facts and circumstances relevant to the study. This

strategy is applied in this research through the technique of 'pattern matching', in its alternative version of 'patterns of behavior'.

In the case described here, the technique consists of formulating the theoretical propositions of a general character that would be expected in the TQM to LO process, as 'types of behavior foreseeable as leading to an LO', by way of statements or hypotheses that may be either confirmed, modified or rejected when tested against the behavior actually found. Table 3 summarizes the principal expected general patterns of behavior in the development of an LO, together with the key variables associated with each pattern. This synthesis is derived principally from the theoretical review of TQM and the LO presented in the second section of this article.

On the other hand, the 'real patterns of behavior' arise from the 'learning history' method (see Figure 2), which includes the following principal steps (Kleiner and Roth, 1997): reflective research (retrospective interviews, secondary data gathering and close examination of the LOE program); distillation (value analysis of the key variables associated with each subsystem, taking the mass of data, and then rectifying, purifying and refining the 'raw data'); writing an executive overview (two-column format documents 'piece by piece'); and validation (meetings with small groups of key informants of EHFD who have already been interviewed, and data generated through direct and reflective observation of the 'learning circles' in the 'Cádiz Electrónica' plant—the 'replica company').

Results

The analysis of the result of the case study will follow the sequence of the five general patterns of LO behavior listed earlier, in line with the theoretical approach put forward in this article.

Governance

The executives of EFHD, headed by the managing director of the division, took on the commitment of developing an LO from their existing TQM system. Although their TQM system was at the same level as their Japanese competitors, it was not delivering equivalent results. It was soon realized that in order for the LO principles to be adopted by the organization as a whole, first the active commitment of its leaders was required.

A more detailed study of the variables involved produced the results shown in Table 4. In EFHD, all the variables coincided with the pattern expected, apart from the mode of change. A certain degree of resistance to change caused the strategic renewal process to be halted at certain times; once this had been overcome, thanks to the commitment of the managing director of the division, the process was able to continue.

There were two main reasons for this resistance. First, certain managers had difficulty in assuming the more participative style of leadership that was demanded, because for reasons of self-interest they thought that their authority would be reduced, or be seen to be reduced. Second, some individuals perceived threats to their job security, their professional expertise and their social status in the organization. This question is important in respect of the double-loop learning that the LO requires; this is based on the sequence 'unlearn–probe–learn'.

Table 3 Expected general patterns of TQM and LO behavior and key variables involved

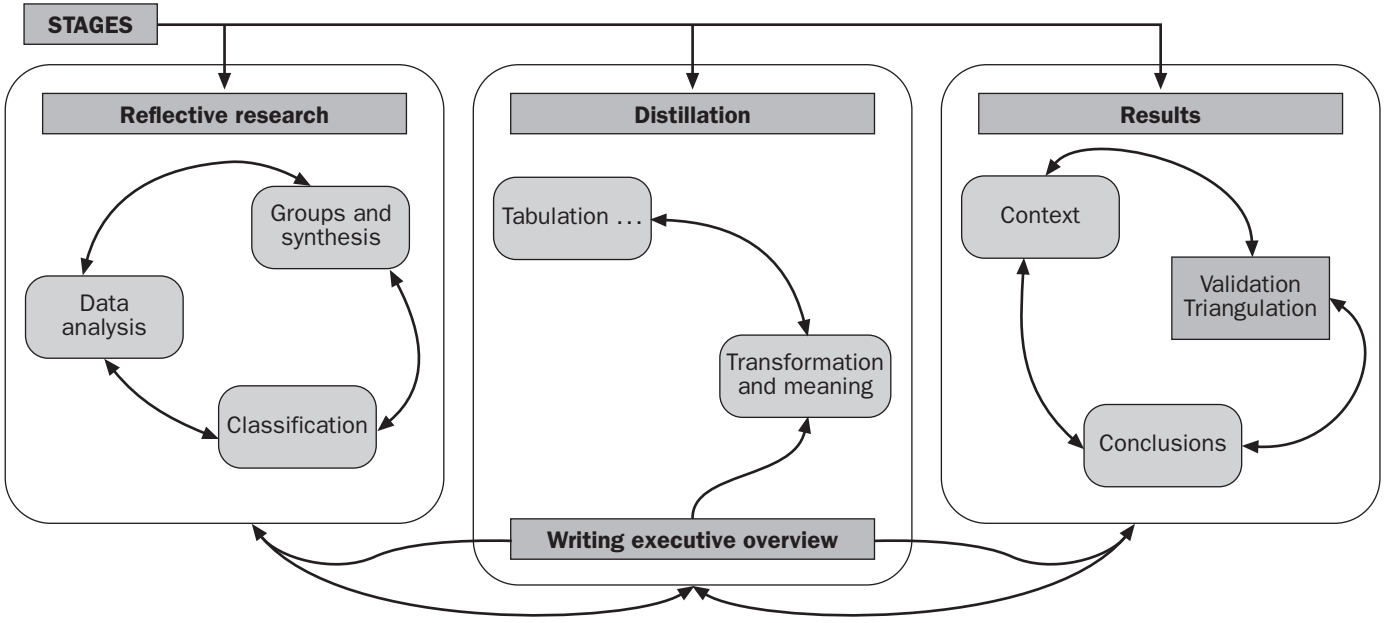
Subsystems	Expected patterns of TQM and LO behavior	Key variables involved
Governance	Long-term management support for individual, group and organizational learning, on the basis of how to handle continuous change under conditions of uncertainty and with emphasis on experimentation with new ideas and anticipation of customer needs	Time scale of change Extent of change Level of change Mode of change Frequency of change Empowerment
Goals and Values	Maintenance of an efficacy–efficiency equilibrium giving priority to efficacy in the attainment of objectives, under the umbrella of a shared vision to generate the commitment of everyone, oriented towards developing the ptoential of individuals, and understanding that this depends on the equilibrium between their professional and personal needs	Objectives Orientation of the culture Content of the culture Origin of the shared vision Content of the shared vision
Psychosocial aspects	Creation of an explicit and generative climate of learning between persons, on the basis of dialogue encouraging the exploration of new ideas and not only the exploitation of previous 'lessons learned', integrating the diversity of existing mental models on both the individual and group levels	Type of learning Transfer of knowledge Learning process Mental models
Structural point of view	Potentiation of a structure of organic character in which coordination is achieved mainly by means of equilibrium between expert knowledge and mutual confidence, on the basis of work teams functioning more like learning circles than improvement groups	Type of structure Specific learning support Linking mechanisms Type of team working
Operational aspects	Complementary utilization of 'cause–effect' analysis techniques, at the strategic and operational levels, from the perspective of anticipation of customer needs and with a temporal focus both retrospective and prospective	Level of cause–effect analysis Focus on anticipation of customer needs Critical techniques Temporal approach of techniques

Individuals do not 'unlearn' unless the possible emotional trauma and psychological injury resulting from change are minimized, particularly when they will be required to adopt new attitudes and values often totally opposite to those to which they had previously been accustomed.

Goal and Values

In the case of the goals and values of EFHD, the results show a general coincidence with the pattern expected. However, in terms of the relative priority given to the objectives, it was not clear that the organization would find it easy to pass from giving priority to efficiency (as in the TQM case) to giving it to efficacy

Figure 2 'Learning history' method



Source Adapted from Rodríguez et al. (1995).

Table 4

	Time scale of change	Extent of change	Level of change	Mode of change	Frequency of change	Empowerment (Orientation)
Expected	Long term	Major	Radical	Continuous	Ongoing	Learning at all levels
EFHD	Long term	Major	Radical	Discontinuous	Ongoing	Learning at all levels

(as in the LO case), nor was it clear that the shared vision could be created without the definitive intervention of the leader. This is indicated in Table 5, which shows a summary of the results found.

In the early stages of developing the LO principles, the commitment of many individuals was low because they did not see a clear relationship between the new technique of dialogue in the learning circles, and the operational business results. Its existing culture that was oriented towards efficiency and quality clashed with a general approach of learning that was more oriented towards efficacy, and with no immediate visible results.

However, the decision to create the PLST, an obviously operational committee, and to apply the tools of an LO to the current major business problem of EFHD—the development and launching of new products—increased awareness of an LO and provided an opportunity for employees to be introduced to LO principles and to put them into practice. Because of this, it was evident from the beginning that equilibrium between efficiency and efficacy was necessary.

The creation of a common commitment was completed with the technique of time management to guide the sessions of dialogue. A simple matrix of four cells was used for this, which involved classifying the events and actions to be taken into two categories of impact on the organization (high or low) and two levels of facility of execution (easy or difficult). In order to create trust, priority was given to the cell into which the following types of event were classified: those with a greater impact on the company but requiring relatively easy action to execute.

Further, the pattern expected from the theory in respect of the origin of EFHD's shared vision was not found. The shared vision of the company as an LO necessarily had to be driven by the managing director of the division because without his active promotion, EFHD would not have continued its process of strategic renewal by transition from TQM to LO. To overcome the obstacles to the

Table 5

	Objectives	Orientation of the culture	Content of the culture	Origin of the shared vision	Content of the shared vision
Expected	Priority given to effectiveness	Employees as individuals	Personal & professional development	Not necessarily provided by a leader	Oriented towards learning
EFHD	Balance between effectiveness & efficiency	Employees as individuals	Personal & professional development	Necessarily provided by a leader	Oriented towards learning

adoption of a shared vision of EFHD as an LO, the actions of the leader emphasized the value of learning, taking little notice of the rank of the persons with whom he was working and their old ideas on the way the business should be managed.

Psychosocial Aspects

The psychosocial aspects are mainly concerned with the human dynamics or micro-level nature of the process, in respect of the creation of a new learning space. Analysis of the results observed in EFHD, compared with what was expected, shows certain singularities worthy of comment, from consideration of the variables involved (see Table 6).

An LO formally creates learning spaces through 'team learning' and dialogue. What is expected is that explicit learning of the creative, generative type (i.e. double-loop learning) should take place. In the case of EFHD, the learning circles clearly served to create common spaces of communication, where dialogue could be achieved with more tolerance and honesty, breaking with the 'winner–loser' dialectic rule and recognizing the diversity of opinions and mental models. In the judgment of the executives, the dialogue sessions were perhaps the principal radical change that the process of transition to the LO involved. Organizational learning then institutionalized the dialogue; but it was not easy to achieve this. At first there were problems of fuzzy distinction between the management meetings, the improvement group meetings and the dialogue sessions, but over time it was found that the techniques of dialogue were introduced subtly and naturally at the group level, improving the results of collective discussions.

In addition, in the pattern of LO behavior expected it is understood that it is necessary to maintain an 'equilibrium in tension' between the exploitation of what has already been learned (feedback) and the exploration of what is new (feed-forward). Senge (1990) refers to this in the sense of provoking a creative tension, to stimulate actions aimed at attaining the shared vision, but avoiding the type of emotional tension that generates anxiety and often a lack of action or a slackening of the drive to achieve objectives. The results show that EFQM had a more than acceptable rate of knowledge acquisition and system of feedback from the management of the organization to the committees, work teams and improvement groups.

Nevertheless, two questions remained at the center of concern during the first few years of transition: Why were the same errors being repeated time after time? And why were the traditional tools and processes of TQM continuing to fail? The answers became clearer as the individuals got more involved: it was necessary to transfer the LO concepts and tools to the real problems and questions of the business, not only top-down but also bottom-up (feed-forward), principally from the level of the individual employee, and this was not happening in the beginning. Knowledge had to be transmitted rapidly and efficiently across the entire organization; this implied a certain degree of rotation of personnel and training programs in the principles of the LO. All this was in line with the fundamentals of construction of an LO (Carley, 1996; Garvin, 1993, 2000).

In relation to the levels of the learning process, the pattern of behavior in EFHD presented certain differences from what was expected. At the individual level, the processes of intuiting and interpreting were being developed based on

Table 6

	Style of learning	Transfer of knowledge	Learning process				Mental models
			Intuition	Interpretation	Integration	Institutionalization	
Expected	Explicit Generative (Double-loop)	Exploitation & exploration	Enterprising	Generalist	Formal & informal	Transitory phase & creative tension	Individual & group
EFHD	Explicit Generative (Double-loop)	Emphasis on exploitation	Enterprising	Specialist	Formal	Transitory phase & creative tension	Individual & group

the sequence 'unlearn–learn', to strengthen the 'entrepreneurial profile' (Crossan et al., 1999). For analyzing new problems and solutions, more intuitive approaches were supported from the level of the division management, going beyond what was traditionally admitted in the company and within the culture of Ford itself. To apply this *intuition* of the entrepreneurial type to the generation of business results, the CPLT and PLST committees coordinated working groups where employees could float their own ideas for the development and launching of new products, in other words, draw on their tacit knowledge and experience.

However, certain dysfunctionality appeared with respect to the mental *interpretation* of the learning. The existing individual competences were more appropriate to a TQM working context that encouraged specialization and technical dialogue. It was proving difficult to transfer these types of competence to the LO context of open dialogue, without taking measures to generate more generalist competences that would help individuals to develop and reveal their mental models. The temporary lack of such generalist competences tended to inhibit dialogue at the group level, and this was reflected in emotional tensions and defensive postures among the employees when it came to accepting negative feedback. Because of this, the integration phase was observed to be hindered initially by an excessive technical formalism and a lack of spontaneity in the work groups.

The process of *institutionalization* of the learning took place, in line with the pattern expected, thanks to the firm support that the managing director of the division was seen to give, and to his ability to articulate a new shared vision for the company on the basis of the more than adequate degree of creative tension generated by the committees (DOC, CPLT and PLST).

Finally, with regard to the analysis of the mental models, in general EFHD fitted perfectly the pattern expected: it was seen that the technique of dialogue, applied at both the individual and group levels, was effective in developing new creative attitudes. The tools of analysis and problem-resolution that the company had customarily used, such as value management, benchmarking and total productive maintenance (TPM), did not take advantage of the mental models of individuals; these procedures were found to be enhanced by the specific LO techniques applied (scenario planning, use of images and metaphors, role-playing, etc.), which were principally practiced in the area of new product development and launching.

Structural Point of View

LO principles are applied in dynamic organizations in which less emphasis is placed on the creation of structures, and more emphasis on the soft aspects of organization design (culture, power and relationships). In such structures, relationships of horizontal communication, coordination and teamwork are strengthened. In the case of EFHD the results of the research are shown in Table 7.

The situation of EFHD generally corresponded to the pattern expected of an organic-type structure (Mintzberg, 1979), although the lower the structural level observed, the more significant the hierarchical component in working relationships. The TQM philosophy had resulted in a mixed system of hierarchical departments and cross-functional teams that was not producing the desired results;

Table 7

	Type of structure	Specific learning support	Linking mechanisms	Type of team working
Expected	Organic	Full-time resource	Mutual trust	Learning circles
EFHD	Organic	Full-time resource	Expert coordination	Learning circles

our conclusion is that this mixed structure was a consequence of the uncertain commitment shown by many of the managers (Masuch and LaPotin, 1989).

The transition to the LO created a situation of more effective communication for the deployment of double-loop learning, thanks to the emerging new role for the leaders as coaches and facilitators. DOC members believed that the grass-roots workforce would become learners only if they, as leaders, proved they could introduce, facilitate, energize and sustain the learning effort themselves. To do this, they set in motion 'lesson plans' that included 'hexagons' to generate collective understanding, causal loop diagrams to encourage dialogues, scenario modeling, and visioning and creative tension exercises, to help the DOC improve its shared vision.

Following the pattern expected, the company created a technical infrastructure to support and develop in an orderly way the company's own LO. In this respect, the most significant actions taken by the DOC were the following: specific times were set aside for managers to practice dialogue with the employees; an initial learning team (PLST) was formed and supported; LO was regarded as a strategic initiative in the business plan; training courses in LO were promoted and approved; learning, taking the experience gained from TQM, was the base for the improvement of the company; resources and personnel were dedicated full-time to the implementation of the LO; events and results were considered to be sources of learning, and a plan was drawn up to spread organizational learning throughout the whole company.

The starting up of the learning circles, in line with the pattern expected, was seen to be facilitated by having personnel accustomed to working in teams who moved fairly smoothly from being directly involved with the commitment to quality and customer service, to an LO system in which the teamwork was more free-ranging and more specifically related to learning as the source of competitive advantage, with the organization even being thought of as a process in 'communities of practice' in the terminology of Brown and Duguid (1995).

Finally, the expected pattern of coordination (mutual trust) was not clearly reflected in the mechanisms for coordination utilized by EFHD. The structural inertia implied by the practice inherent in TQM of coordinating by means of expert knowledge was maintained for some time, and was seen to have more weight than the type of coordination demanded by LO, based more on loose, flexible links, termed 'loose coupling' (Sanchez and Mahoney, 1996).

Operational Aspects

The results of this research show a clear coincidence between the expected pattern of LO behavior and that which took place in EFHD, as well as the clear complementarity between TQM and LO in the operational aspects of the process of transition that was observed (see Table 8).

Table 8

	Level of cause–effect analysis	Focus on anticipation of customer needs	Critical techniques	Temporal approach of techniques
Expected	Dynamic & interdisciplinary	Implicit	Ethnographic, 'story telling', paradigms, dialogue, images, metaphors	Emphasis on prospective aspects
EFHD	Dynamic & interdisciplinary	Implicit	Time management, causal loop diagrams, scenario modeling, EFHD team learning project model, dialogue, images, metaphors	Emphasis on prospective aspects

The experience was utilized to make in-depth changes. On applying the five disciplines of Senge (1990, 1994), use was made of techniques that were already being applied within the company and that formed part of the TQM program, especially those relating to team working and to the analysis of points of improvement in processes and products. But some of these tools, which were applied to the elimination of practices without added value (i.e. without capacity to create differentiated products—automobile electronic components—with high added value to supply a broad range of markets) and reduced the allocation of budgeted funds, were creating vicious circles by reducing participation and the trust of employees, without attacking the deeper causes of why added value was not being generated. The application of systems thinking, the discussion and agreement of the shared vision, and the new practices of dialogue increased the trust of people and reduced the need for supervision. The process of continuous learning revitalized and provided a new dimension to the techniques and tools of TQM, which continued to be applied. It should be remembered that an LO requires the creation of learning spaces where it is potentially possible to develop transformational routines that, in many cases, will be very different from the standard routines and improvement techniques typical of TQM.

In particular, both the executives and the employees of the company learned to utilize the technique termed the 'EFHD Team Learning Project Model' (i.e. issue generation, clustering, causal loop diagrams, and action-item generation). This technique facilitated the introduction into the system of work of the 'unlearn–probe–learn' process, which is more exploratory and open than the 'probe–learn' process (Garvin, 2000), although limited to the activities of product and service design.

Discussion and Further Research

Conclusions

This article has focused on the process of TQM to LO transition on the premise that certain complementarities exist between the two systems that facilitate the implementation of organization renewal, and also on the identification of key factors facilitating the transition.

First, it is important to consider the discontinuity found in the process. The fundamental reason for the absence of continuity in the process of change is the resistance to change shown by the senior executives. The possibility that individual resistance to change may be greater than the capacity to change, has come to be identified as 'audience learning' (March and Olsen, 1976). This age-old phenomenon is not totally unexpected here, given that the LO requires an extraordinary degree of commitment of the executives to the principles of LO: this is only possible on the basis of a consistent shared vision and sense of community. The absence of both factors in the initial phases of the transition towards becoming an LO may give rise to egoistic postures by executives, in that they may wish to focus the learning more on their own interests than on those of the organization. Pedler et al. (1991) have already drawn attention to this possible dysfunctionality of the 'learning company'. In our view, this defensive and often obstructionist position of senior people is in most cases not intentional, but rather is the result of the bureaucratic inertia of the existing system itself (March and Olsen, 1976), which can create defensive routines (Argyris, 1992).

In particular, to speak of bureaucratic inertia and defensive routines in organizations that operate under TQM principles may be surprising since the logic of such a commitment to innovation and continuous improvement should in theory be incompatible with a bureaucratic style of functioning. But simple observation of the sectors of activity where TQM has been adopted shows not only that the initials 'TQM' are used by companies with different degrees of commitment to quality, but also that there exists terminological and conceptual confusion between TQM as a system and as the obtaining of quality certifications (Terziovski and Samson, 2000). On this point, one dysfunctionality observed in TQM is that, over time, the commitment to quality tends to become focused on complying with the paperwork requirements imposed by standards authorities for the award of successive levels of certification, and the global sense of an organizational commitment to quality improvement is lost. In such organizational situations of 'apparent TQM', the new learning space and the techniques of LO may cause unpleasant surprises to individuals and provoke fear of the possible loss of stability and job status. Put another way, we believe that the discontinuity observed in the TQM to LO transition was not caused by the lack of complementarity between the two systems, but by the actual dysfunctionalities existing under TQM, prior to the process of organization renewal.

On the second objective, the study has found a series of key internal factors facilitating the TQM to LO transition process (see Table 9). We conclude therefore that the absence of such factors must inhibit the process or at least make it even more difficult.

Finally, in the conclusions of this study, mention must be made of the complementarities found between TQM and the LO, which lead to the reaffirmation of the idea that experience in TQM facilitates the transition to an LO, in spite of the initial difficulties due to the pre-existing dysfuncionalities of TQM. This affirmation is also supported by previous studies as already mentioned.

Although Hackman and Wageman (1995) talk of the capacity of TQM to produce a 'flourishing' of learning in certain situations, most of the specialist literature has supported the 'TQM–organizational learning' relationship, with reference to, among other points, the creation of a climate favorable to learning

Table 9 Some key factors that facilitate the TQM to LO transition process

Initiative for the process	The initiative and the direction of the process must be internal, although external complementary collaboration may be useful
Commitment of the leader	The full and active commitment of the leader of the company, on the basis of lessons learned from the past, and the motivation and determination to create individual and group spaces for learning, with the aim of institutionalizing the learning
Training and commitment of the organization	Prior training and personal commitment of the senior executives and of the rest of the employees in respect of the principles of the LO, and its practical application. The following factors are especially critical: attaining the shared vision and maintaining a real sense of the organization as a community (this factor was also found by Boyle, 2002)
Empowerment	Empowerment must be oriented in two priority directions: towards the creation of opportunities for individual learning, strengthening the autonomy of the individual, in the sense of the 'action of learning' (Revans, 1982); and towards reaching the situation in which the groups at all levels are empowered to achieve new ways of viewing and doing things (Limerick et al., 1994)
Infrastructure of learning	Creation of an adequate infrastructure for the development and support of the LO. The provision of specific resources dedicated full-time to the dynamic construction of the LO is essential for the generation of 'unbounded learning' (Murray, 2002)
Learning circles	Some of the factors observed that enhance the effectiveness of the learning circles are: broader consideration of the impact—short, medium and long term—on the whole organization; commitment to continuous and second-order learning; allowing the teams to manage risk; and recognizing the different phases of team learning
Institutionalization of the learning	Creation of spaces and cycles of integrated learning at all levels, which may bring nearer and include technical and commercial areas of the business, developing transformational routines that go beyond the standard routines of work and improvement. This is in line with the finding of Harris (2002), who refers to the 'gulf' between the personnel of different functional areas acting to inhibit learning

(Love et al., 2000); the strong correlation between continuous improvement and learning, which both operate in a concurrent and integrate way (Barrow, 1993; Garvin, 1993); or learning as the natural way of life of those organizations committed to genuine TQM (Senge, 1994).

Nevertheless, the crucial question is whether the climate of organizational learning developed through TQM facilitates the consequent development of a second-order learning style characteristic of the LO. In this context, Terziovski et al. (2000) concluded that 'mutual dependence' does exist between TQM and the LO, since the commitment to continuous improvement not only results in organizational learning, but also awakens an active interest in experimentation, which we know is one of the learning mechanisms that sustains a true LO. For their part, Mukherjee et al. (1998) were perhaps more conclusive. Their research in TQM organizations tested for the existence of operational learning and, above all, of conceptual learning. They confirmed that it was limited to the first type of

learning, but that there could be greater potential for the second type arising from the generation of knowledge and results.

It is known that experimentation and conceptual learning (*know-why*) can facilitate the basic sequence 'unlearn–probe–learn', the origin of second-order learning and of 'learning to learn' (deutero learning) characteristic of the LO, from which it can be deduced that the transition from TQM to the LO is facilitated.

Limitations

There are various limitations in this study that should be commented on. Although the TQM to LO transition of EFHD took place over the period 1992–96, some of the primary data were collected in 1998 through the retrospective interviews, once the process had been finished and the favorable business performance had become known. This time factor could be responsible for a certain bias in the opinions recorded.

Also the pilot study of the research project investigation is based on a company in the global automotive electronic component industry, therefore any generalization of the conclusions to companies in other industries should be treated with caution. The observation of the process carried out by EFHD (USA) in the 'replica company' ('Cádiz Electrónica' of Spain) could also be subject to differentiating cultural factors that we know influence the nature of organizational learning (Taylor, 1998); further, the actual organizational learning pattern of each company could be subject to the interactions between different subcultures (Cook and Yanow, 1996).

Finally, it must be emphasized that the effectiveness of the process of TQM to LO renewal in EFHD has been considered only with regard to the improvements observed in the financial measures of business performance based on accounting information (profit and return on investment; ROI), on the economic measures of success (market share and sales growth), and on the internal measures of product quality. Our study did not extend to the analysis of other measures of the effectiveness of the LO, of the non-financial type, such as those related to the future positioning of the company (prospects for market diversification and product development), employee satisfaction at various levels and functions, and other measures of social responsibility. The multidimensional consideration of the results (Hart and Banbury, 1994) would contribute substantially to a better understanding of the evident effectiveness of the processes of renewal based on learning.

Implications for Research and Management

From the methodological perspective, this qualitative study offers a more refined method of research that combines case study with the 'learning history' to provide a mixed cross-sectional and longitudinal view of the phenomenon under study. One of the basic aspects of this methodology consists of the design of the case protocol on the basis of the learning history questionnaire (LHQ).

From the point of view of renewal strategies or programs, the results of this work have two main implications for companies operating under TQM principles: (1)

they have a good opportunity to make the transition to an LO model without losing their hard-won potential capacity to exploit what has been learned, and to increase their innovative capacity through the creation of a more innovative and proactive culture of learning; and (2) it has been demonstrated that, by working under a TQM system that is only apparent and not genuine, they are likely to suffer bureaucratic dysfunctionalities that could slow down and obstruct any transition to more evolutionary or radical renewal formulas (such as the LO), when the dynamics and complexities of the company's business environment demand such renewal.

This article also puts forward useful pointers for the practice of better management of companies and organizations. It shows that there are organizations that progress beyond TQM and learn continuously to renew the sources of their competitive advantages, and proposes a model for the LO. To achieve this, in such organizations people are willing to 'forget' past successes that they will not be able to repeat in the future, and to put into practice new forms of behavior: first, reducing hierarchical control to give freedom for experimentation that arises from the intuition of individuals; second, stimulating a systems perspective that, with the help of dialogue and open communication, improves people's capabilities of interpretation and the integration of innovations into the organization, thanks to a shared vision; third, making use of expert knowledge of their resources, together with a more generalist and heterodox knowledge, that converts diversity and trust into internal elements of its equilibrium; and fourth, expressing, planning and taking active measures so as to become organizations in the process of continuous learning.

The results also have implications for researchers in the field of strategy, and particularly of strategic dynamic alignment. The study detects certain advantages of the LO system as the principal means of achieving 'institutionalized learning', aligned with the strategy, the structures and the systems of the organization, in dynamic and complex environments. In particular, the results of the study confer maximum importance on the alignment of the employees with the renewal strategy. The question is whether the employees understand the direction and the objectives of the change from TQM to LO; and whether they are able to see how their individual job and status fit into the common shared vision that emerges as the basis of the renewal process. The management must make great efforts and attach importance to giving the employees a clear 'line of sight' (Boswell and Boudreau, 2001) to the new organizational objectives (direction of change, purpose, strategy, learning style, etc.), through the additional practices using the tools and concepts of LO. The absence of commitment by the leaders, and the absence of a true functioning of the organization as a community are the principal factors endangering the effectiveness of the TQM to LO process.

This article also raises questions for consideration in respect of future research work. Among these is the need to study in more depth the mechanisms that drive or inhibit the stock and flows of knowledge and learning. A learning process can be compared to a production process: the key to success is to identify the elements and means required to accelerate the process. For example, the *feed-forward* and *feedback* equilibria and flows among the levels of the 4I model proposed by Crossan et al. (1999) need to be better understood. But, in addition, reconciling the tension between exploitation and exploration requires identification of the

practices in human resources and the systems of information and management that are best suited to the process of continuous learning and strategic renewal in the company. A third line of study proposed is the one related to the implications of LO for the social community in which the company operates, and therefore also related to the concept of social capital applied to the theory of the organization (Nahapiet and Ghoshal, 1998), a concept that is wider than that of corporate culture and surely involves new thinking about organizations with more flexible boundaries (Ashkenas et al., 1995).

Notes

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1. VISTEON Group is structured in seven divisions: chassis systems, climate control systems, vehicle glazing systems, interior components, exterior components, electronic components, and power control systems (into which division EFHD has been incorporated). The company has been quoted on the New York Stock Exchange since July 2000.

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Appendix A: Interview Instrument (Learning History Questionnaire—LHQ/EFHD)

Part I: Overview

General information

Company background—history, annual sales, number of employees, products, number of total customers and suppliers, business performance

Strategic information
Definition of the business, scope of business, technology, market segments, key resources differentiated from those of competitors

Information on the organization
Internal organization, general organization chart, type of leadership, personnel management processes.

Part II: Learning

History of the LO at EFHD

Framework for the LO
Dimensions of change, individual-level learning, group-level learning, organizational-level learning, single-loop learning, double-loop learning, feed-forward learning, feedback learning

Commitment of leaders
Dialogue, team learning, fit between the LO and the business plan, improvement plans, resources, learning events, the LO in departments and staffs

Leaders as coaches and facilitators
Responsibilities, employee perceptions about leaders, mental models

Purpose of the LO
Systems thinking, personal mastery, shared vision, tools and methods, diverse and cross-functional participation, voluntary participation in learning teams, learning model for the teams' performance

Workplace as a community
Honest environment, community-shared vision, personal mastery, respect

Impact of the LO
Trust and cooperation, orientation towards issues or people, responsibility of individuals, informal atmosphere, cost savings, product launches improvement, communication, global expansion, quality, profitability, and timing requirements.

Appendix B: Example of 'Learning History' Document (LHQ/EFHD: *Commitment of Leaders*)

In 1992, the DOC decided to make EFHD a learning organization. Over the next couple of years, operating committee members took several actions to develop an infrastructure to support and roll out the learning organization principles. The leaders made personal commitments to understand the LO concepts and to become leaders instead of managers.

Does LO use the critical technique of open dialogue to create a shared vision?

DOC Member: We decided to schedule weekly dialogue sessions seqparate and distinct from our business meetings, because we recognized that the rules had to be different for the two meetings. We even held the dialogue in a separate room and at a separate time. And right from the start, we carved out those two hours and dialogued.

Division General Manager: During our initial dialogue sessions, we basically dialogued around the subject of what are we going to do with the tools and methods of the learning organization, and how are we going to use it to boost our rate of learning.

COMMENT: The open dialogue is used as a work tool in order to arrive at sharing views on the themes. But the initial resistance from some directors to dedicate time to dialogue sessions must first be overcome.

DOC Member: The Tuesday luncheons can be dialogue for dialogue's sake. The danger is that you can just talk and talk and nothing changes and nothing happens. That is one of the negatives of the dialogue sessions.

Are there differences between improvement groups (TQM) and the learning circles (LO)?

DOC Member: Whenever DOC members would try to use the two-hour dialogue as a typical meeting, we would stop them and say, 'We're not here to discuss issues. This time was set aside for us to dialogue, to get to know each other, and to explore issues.' This caused some frustration for those DOC members, and they would say, 'We've got problems to solve. We are all here, so let us solve the dammed things because we are wasting time. We have real work to do.' The division general manager held firm. He said, 'No. This is what we need to do now'. And that was that.

COMMENT: As long as the improvement groups (TQM) work on resolution of problems, the initial purpose of the learning circles (LO) is the open dialogue for achieving mutual trust, personal fulfillment, and shared vision.

Does the atmosphere of dialogue in the learning circles transfer to the operative problems?

Division General Manager: We quickly began to focus the DOC dialogue sessions and our learning efforts on product launch management, which was our biggest weakness. The alternator and starter had recently been launched together. They were very difficult launches, and they consumed all of our resources as well as all of the division's resources. It was absolutely essential that we learn how to launch products without consuming everybody and affecting the bottom line of the business. That's how the Product Launch Success Team got started and grew into what it is today. Of the five essential principles of LO, team learning was really what we wanted to accomplish. But, unless you have a shared vision of success and people who are committed to their own improvement and who take personal responsibility for this improvement, you cannot begin to have team learning.

PLST Member: The PLST was the first team formed by the DOC to discover the lessons learned from product launched. A council of about 12 managers met to talk about how we were going to learn these lessons since we were launching so much equipment.

COMMENT: The learning circles can create the atmosphere of cooperation in order to face the operative problems, if the team members try to learn and improve themselves, take responsibility for it, and have a shared vision.

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