Designing Management Systems for Coping with World Complexity: Lessons from Experience

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Abstract

This paper draws upon a research project which aims at contributing to the research agenda of the SAP movement. It purports to develop actionable knowledge about the design of strategic management systems based on “complex thinking” by drawing on the knowledge and experience of firm members. “Complex thinking” offers general assumptions and principles in the spirit of ecological thinking, intended to help one better grasp the world’s complexity.

It is based on a longitudinal case study carried out in a medium-size network service company. This company was chosen because its CEO deliberately and precisely redesigned its managerial systems and processes in reference to principles of complex thinking in 1997. This means, for instance, that these processes were designed so that they could dialogically handle the tension between various ago-antagonist phenomena such as novelty/routine or deliberate/emergent strategy. As another example, all frontline teams were both empowered and urged to behave as learning teams in order to take advantage of the knowledge and ideas which emerge in daily operations.

Various lessons are drawn from this company’s ten-year experience with its complexity-designed managerial systems. For instance, teams’ functioning as empowered learning teams facilitates teams’ adaptation to evolving circumstances through a self-eco-reorganization process. It also appears that the complexity of the processes through which some competitive advantages develop in a complexity-managed firm, together with their situated character, contributes to making these competitive advantages highly idiosyncratic and hence very difficult for the firm’s competitors to imitate.

Keywords: complex thinking, ecological thinking, strategy as practice, actionable knowledge, management systems

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“The true is precisely what is made.”
(Verum esse ipsum factum)

“… Above all, it is necessary to conceive of organization (a) as permanent reorganization of a system that tends to disorganize itself, (b) as permanent reorganization of itself, that is, not only as organization but as self-re-organization. (…) Any living organization, and at the same time any closed organization (protecting its integrity and autonomy), is always an open organization (it has exchanges with its environment or eco-system), thus it is a self-eco-re-organization.”
(Morin E., Science avec conscience, 1982: 180)

“Complex thinking” (Morin, 1977, 1992, 2007; Tsoukas, 2005), is a solidly argued form of ecological thinking (Toulmin, 1990), which provides scholars and practitioners with general assumptions and principles intended to help them better grasp the world’s complexity. These assumptions and principles can also be used to provide useful guidelines for the design of a firm’s organizational systems (Morgan, 1986; Senge, 1992; Stacey & Griffin, 2006), since only complexity can cope with complexity (Weick, 1979).

According to Vico’s verum-factum principle – recalled in the epigraph – and to the American pragmatist tradition knowledge develops in practical activity. “Activity is at the same time the producer of knowledge and its measure.” (Johnson, Langley, Melin, & Whittington, 2007). Thus, the study of systems which have been designed and implemented in reference to complex thinking principles is of prime importance for researchers attempting to develop knowledge about organizational design based on complex thinking.

Few, if any, such in-depth empirical studies have been reported in the literature. Indeed, even from the SAP perspective (Johnson et al., 2007), the question of what practitioners do to cope with the complexity of strategy practice does not yet seem to have been frontally addressed. The research reported in this communication attempts to contribute to fill this gap.

More precisely, the overall research project aims at developing actionable knowledge (Argyris, 1993; Nielsen & Tsoukas, 2007) about the design of strategic management systems based on complex thinking (Morin, 1977, 1992, 1999, 2007). This project has been carried out within a methodological framework (Avenier, 2008) which has been developed to guide researchers in the elaboration of actionable knowledge by drawing on practitioners’ experience and practical knowledge – as well as on any relevant knowledge already available. On the epistemological level, this research has been carried out within the Radical Constructivist Epistemological Paradigm (Glaserfeld, 1984 2001; Le Moigne, 1995; Riegler, 2001) which is an explicitly founded epistemological paradigm consistent simultaneously
with complex thinking (Morin, 2007), the pragmatist tradition, and the Sciences of the Artificial paradigm (Simon, 1969).

The paper is organized into three parts. The first offers an overview of the research project: it presents the research method and provides a brief description of the company where the fieldwork was carried out. This company was chosen precisely because its management systems have deliberately been designed in reference to complex thinking. Some of these systems and the way they operate are described in the second part. The discussion of the third and final part focuses on three questions: Why did BI’s CEO take inspiration in complexity principles for the design of BI’s management systems? Has this complexly-designed management system effectively helped BI cope with environmental complexity? What knowledge has been derived so far from BI’s experience in a complexly-designed management system?

1. Overview of the Research Project

1.1 Research Method

This paper is based on an ongoing longitudinal case study which commenced informally in 1998. Indeed, longitudinal case studies are the most appropriate way to study processes, their design, their implementation and their evolution. This case study takes place in a medium size international (European) network service company in the international road freight transportation industry named Beauvais International (BI).

I decided to study this company because its CEO deliberately and explicitly redesigned its organizational and managerial systems in reference to principles of complex thinking in 1997. These new systems were dedicated to the enactment of a strategy of “customer intimacy” (Treacy & Wiersema, 1993, 1995) in which its top management \(^1\) had decided to engage BI in 1996. The implementation of the new systems took place in 1997, hence one year before I started informally studying the managerial functioning of the company. In fact, I met BI’s CEO in February 1998 at a three-day conference for top managers, titled “Management and Complexity”. At this conference, I presented a conceptualization of a generic strategy adapted to complex environments, which is labeled an “in itinere strategy”\(^2\) (Avenier, 1997, 1999).

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\(^1\) From now on, the phrase “top management” will be used to speak of BI’s CEO and two directors. These three people operate as a learning team in the sense of §2.2.

\(^2\) In the expression “in itinere strategy” the Latin phrase “in itinere” qualifies a process whose course is adapted during its advancement according to the evolving circumstances it encounters as it unfolds. Hence, an “in itinere strategy” designates a specific mode of strategizing. In this mode, a strategy may evolve during its enactment in order to both adapt to the evolving circumstances which the organization encounters and to integrate certain new
BI’s CEO presented how she had redesigned BI’s management system in reference to complex thinking. This was the first time I had met a CEO who herself held such views on management and complex thinking. Indeed, I usually have to argue strongly to attempt to convince top managers of the soundness of complex thinking principles as a guide in their reflection on strategies or management systems’ design.

Between 1998 and 2002, I carried out a number of open-ended interviews with BI’s CEO. The goal was to discover the company, its history since its creation in 1957 by the CEO’s father, its evolution, and the newly implemented organization and managerial systems based on complex thinking and dedicated to the implementation of BI strategy. The BI CEO gave me a number of BI internal documents presenting her strategic vision, the strategy of customer intimacy in which she had engaged BI in 1996, and which was progressively adapted each year according to new ideas which had emerged during the year and to environmental evolutions. Hence, we realized that BI strategy was actually enacted as an “in itinere strategy”. Some documents were describing the new organizational and managerial systems\(^3\) internally designed and implemented since 1997, as well as the rationale underlying their design.

My first formal research project at BI started in 2003. The goal was to understand the genesis of BI current strategy and operating systems. It was also to do what I now call “epistemic work” (Avenier, 2008) on BI strategic management’s core notions, namely “customer intimacy” (Treacy & Wiersema, 1993), “learning organization” (Senge, 1992), and “empowerment” (Argyris, 1998; Bowen & Lawler III, 1992). This project was carried out with a fellow researcher, with whom I wrote a longitudinal strategy teaching case covering the time period from BI’s creation in 1957 until 2003 (Avenier & Pellegrin, 2004).

In this research, my colleague and I jointly interviewed 17 different BI staff members\(^4\) out of the 170 BI employees, conducted four formal interviews with the BI CEO, and maintained regular phone and e-mail contact with BI’s top management during the entire research project. We examined a large number of BI internal documents: the PowerPoint presentations that the BI CEO had prepared for all of the strategic meetings (see §2.1) she had organized since she became CEO in 1991, authentic sales offers, authentic sales meeting reports, completed salesmen evaluation reports, etc. I also participated in the 2002 and 2003 strategic meetings.

\(^3\) For instance, the form used for salesmen’s quarterly appraisal, which appears in Table 1.

\(^4\) More precisely, in 2003, we interviewed 15 of the 94 employees located at Beauvais, the main site in France. We also interviewed 2 of the 11 salesmen, one from London and one from Lyon.
When this study was completed at the end of 2003, I was eager to launch another research project on the topic that had instantly interested me when I first met this CEO in 1998, namely to develop actionable knowledge on the design, the implementation and the evolution – as well as the reasons behind these evolutions – of management systems in reference to complex thinking, based on the experience of BI’s members.

BI’s CEO agreed to engage in such a collaborative research project under the condition that I be the only researcher interacting with the BI staff. Indeed, she considered that it could be disturbing and destabilizing for BI’s staff to be observed and interviewed by several different persons wandering around the company asking all sorts of questions. In this project, which started in 2005 – and is currently on-going – I have conducted the following in-depth interviews.

Between March 2005 and April 2008, I have had 17 face-to-face, four-hour (on average) interviews with the BI CEO, and two one-and-a-half-hour interviews with each of the two directors. These three people have played the most determinant roles in the design, implementation and evolution of BI’s management systems. I also interviewed six managers, one salesman and six employees from various departments (operations, sales, marketing and design, accounting, invoicing, etc.) on the headquarters’ site, whom I had not interviewed in 2003. The goal was to hear their views on BI’s management systems. It was also to have their opinions on the implementation of some important changes which have taken place between 2003 and 2008, and on how they have experienced these changes. I plan to carry out a further series of interviews of staff and managers at other European sites in 2008.

In addition to interviews with the BI CEO, I regularly receive copies of certain e-mails which she sends to BI’s staff concerning the proper use of existing procedures or the introduction of new procedures⁵ – my name being simply added to her e-mail list. Among the other internal BI documents that I have also obtained, there are the strategic meetings’ PowerPoint presentations. Overall, I have spent 11 days in the company to observe how the work is being done in the various departments, and how people interact within and across departments.

Finally, I have regular e-mail exchanges with the CEO of BI, which have essentially three purposes. First, obtaining further information on a specific question I am investigating. In her reply, the BI CEO generally illustrates her talk using concrete examples based on authentic completed BI forms – such as sales meeting reports, salesmen wage’s charts, samples of

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⁵ A peculiarity of these e-mails is that they always explain the rationale behind what they ask from the staff.
outputs from the reporting system, etc. She attaches them to her e-mails and allows me to keep them thereafter for my own records. The second purpose of these e-mails is to initiate collaborative reflection on the knowledge I am conceptualizing in the research project (see §3.3). The third purpose is to ask her permission for publication of texts in academic journals or in trade publications, stemming from research projects at BI, which mention the name of her company. So far, not only she has always given me her permission for publishing these texts without deleting a single word, but she usually also makes additional comments which further enrich the text and/or the knowledge I have of the company.

The next section gives a brief overview of this company as it was functioning particularly in between 1997 and 2005, i.e. during the (eight) years which followed the implementation of the managerial system inspired by complex thinking in 1997. Some changes took place in 2006-2007. Only those directly related to this paper’s main focus will be evoked in §3.2.

1.2 Overview of the Beauvais International (BI) Company

Beauvais International is a European group that offers services in the international freight transportation industry. It was founded in 1957. The founder’s daughter, who joined BI in 1983, became BI’s CEO in 1991. In 2003, the company employed 170 people for a turnover of 30 million euros. These figures were fairly stable between 1991 and 2005, because the BI CEO gave priority to the internal development of highly profitable activities rather than focusing on turnover growth and/or external growth by mergers and acquisitions.

BI’s employees are organized into 20 teams scattered over 10 sites located in 5 countries: France, Spain, Germany, Italy and Great Britain (see Figure 1). Its headquarters, which are located in Beauvais (France), contain the centralized functional departments (marketing and design, computing, accounting, invoicing, etc.).

---------- Insert Figure 1 about here ----------

During the 1970s, the company implemented an innovative transportation scheme called “Backbone” (see Figure 1). This scheme was inspired by similar practices witnessed by BI’s founder in the air transport industry, where he had started his career. The BI Backbone links BI’s 10 European sites by road transportation on a daily basis and at fixed hours. An EDI network between the sites, which is superimposed on the road network, supports the management of BI client merchandise flow from initial collection point until final delivery.
At BI, goods and merchandise are handled in three steps: collection, international forwarding, and final delivery. Collections are performed by local third parties that are coordinated by BI on the basis of specific conditions defined by BI. Merchandise is then grouped at the nearest BI site and forwarded via the regular lines of the Backbone until they reach the BI site nearest to the final customer. Local third parties again perform deliveries to the final customer destination. This operating mode makes BI a network-services company.

BI’s mission is to offer its clients judicious transport services aimed at creating some value-added for them through acceleration and increased reliability of their supply chain. For instance, BI’s 99.6% success rate in the accomplishment of the clients’ contract enables assembly lines to treat the parts being transported by BI’s trucks as “stocks on wheels”. Hence, BI’s services are particularly intended for firms having complex supply chains, which can be sources of recurring problems. So, it has two major types of marketing targets: 1) industrial firms whose main suppliers and/or customers are located in Western Europe; and 2) wholesalers operating in Western Europe. BI engages in annual contracts with its clients.

In 1996, the BI CEO considered that “speed and reliability, although necessary, were no longer sufficient to differentiate the company from its competitors” (meeting 1996). Consequently, she decided to implement a more customer-oriented strategy based on “customer intimacy” (Treacy & Wiersema, 1993, 1995). In this type of strategy, each client is addressed individually in order to jointly design services specifically adapted to their individual needs, and then to share with the client the value added resulting from these well-suited services (other examples of companies that have implemented this type of strategy are IBM, Railway Logistics or Airborne Express).

The BI CEO then decided to redesign BI’s managerial and organizational systems to dedicate them to the implementation of this strategy. To do so, she explicitly referred to principles of complex thinking set forth by Morin (1977, 1992).

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6 All the quotations followed by (meeting year) will be quotations from Marielle Bloch-Dolande, the BI CEO. These quotations come from the PowerPoint document which supported the BI strategic meeting (see §2.1) which took place during the year indicated inside the parenthesis.
2. Examples of Managerial Processes Inspired by Complex Thinking Principles

In this section we shall successively examine how the seven guiding principles of complex thinking set forth by Morin (1977, 1992, 1999, 2007), have explicitly or implicitly inspired the design of BI’s managerial systems.

2.1. – The Annual Strategic Meetings: a Means of Implementing the Hologrammic Principle

The hologrammic principle (Morin, 1999, 2007) highlights the apparent paradox of certain systems where not only are the parts incorporated in the whole, but the whole is incorporated in the parts. The DNA chain offers an example of this principle in biology: through DNA, a person’s entire genetic inheritance can be found in each cell of that person. The hologrammic principle is the first of Morgan’s (1986) four principles of holographic design, which are: 1) get the whole into the parts, 2) create connectivity and redundancy, 3) create simultaneous specialization and generalization, and 4) create a capacity to self-organize.

The goal of the BI systems’ redesign was not that each team can represent BI as a whole, as would be the case in a holographic organization. Rather, the goal was that “each employee embodies the genetic code of BI as a whole” (meeting 2001), which is precisely what the hologrammic principle states. To this end, a tradition of annual “strategic meetings” was instituted in 1996. The goal of these meetings is that BI’s strategy and fundamentals become known throughout BI and infuse the staff’s daily activities.

These meetings take place in Beauvais at the company’s headquarters. Since they last a full day, they are repeated three times within a two-week period in May or June, in order to enable each staff member who wants to participate, whatever his/her function in the company, to attend without any disruption of BI’s daily business. This shows the importance that BI’s top management – who participate in the three meetings – grants to these meetings. The meetings are prepared by numerous “dialogues” (Senge, 1992) with various BI managers throughout the year.

During a strategic meeting, top management recalls BI’s fundamentals (i.e. the customer intimacy strategy, good practices to be followed in the various departments...) and presents new strategic orientations – within the customer intimacy strategy – which they wish the staff to embrace during the coming year. They also present the main references which have guided the elaboration of the procedures or systems newly implemented at BI. For instance, the complex thinking principles which explicitly underlie BI’s systems were presented at three

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7 Hence, BI’s strategic meetings can be considered as episodes in stabilizing BI’s strategy as well as its change(Jarzabkowski & Siedl, 2005).
successive meetings (2000-2001-2002)\(^8\). These meetings are fairly interactive, with

discussions based on participants’ questions, suggestions, and illustrations of problems they

effect. Reflections in small groups on specific topics such as “commercial awareness” are

also organized.

Another device appears *ex post facto* as a practical instantiation of the hologrammic

principle at the operational level: BI’s integrated operational software. This homemade ERP

was implemented in 1997 to support BI’s operational activity throughout its value chain as

well as BI’s management control. Indeed, the support it provides extends from the

management of merchandise flow—it permits interactive real time files handling across the ten

sites – to invoicing, feeding the accounting system, and feeding the monthly reporting system.

Hence, it plays a major role in the connection between strategy and management control.

This software performs all the tasks which could be automated, enabling the operational

staff to invest more time in customer-oriented tasks related to BI’s customer intimacy

strategy. In fact, this software has been designed to integrate the philosophy of “customer

intimacy”. For instance, BI’s frontline employees who use this ERP in their daily activity are

supposed to take each client’s phone call as an opportunity to develop BI’s knowledge of the

client’s universe – activities, sites, projects, suppliers (names, activities, locations, etc.),
customers (names, activities, locations, etc.), etc. – and to feed the system with this

increasingly precise and up-to-date client information.

This software enables each staff member to access every client’s file, whatever the
geographical location of the BI member or the client. This “property”, in the form of
information availability, can be interpreted as an enactment of the hologrammic principle at
the operational level.

2.2. – *Learning Teams: a Means to Foster the Emergence of Continual Improvements*

Since 1997, frontline employees have been urged to organize in teams and behave as
learning teams practicing Senge’s (1992) “team learning” and “dialogue”. The goal was to

capture the knowledge and ideas which emerge in the human agency taking place in daily
operations. This has been inspired by the well-known principle of emergence in complex
thinking. This principle, that Morin also calls the systemic principle, links the knowledge of
the parts to the knowledge of the whole according to 17\(^\text{th}\)-century French philosopher Blaise
Pascal’s statement: “I consider impossible to know the whole without knowing the parts, and

\(^8\) For a detailed presentation of the way these notions have been introduced during these strategic meetings, see
(Avenier, 2005)
to know the parts without knowing the whole.” The systemic idea, which opposes the reductionist idea, is that “the whole is more than the sum of parts”. Indeed, the organization of a whole generates qualities or properties which are novel when compared to those of its parts when they are considered in isolation. These novel qualities are called “emergences”. Morin underlines that “the whole is also less than the sum of the parts” because some of these parts’ qualities are inhibited by the organization of the whole.

At BI, behaving as a learning team means that team managers are no longer supposed to behave in a purely hierarchical manner with their teammates\(^9\), but as supporters participating in the team’s activity with certain further missions. For instance, they are supposed to listen to and provide advice to their teammates. Anyone – including the manager – is likely to be, in turn, in a position of teaching or a position of being taught – as in Weick’s (1977) view of self-designed systems. BI’s managers, however, still have certain managerial prerogatives such as making wage increase proposals for their teammates. The switch to functioning as a learning team has not been instantaneous. According to BI’s top management, it took up to two and a half years before all the BI teams effectively behaved as learning teams.

Beyond frontline teams which have been urged to behave as learning teams, some other learning teams can also be spontaneously constituted upon the initiative of a group of employees having specific affinities, in order to solve a specific problem or to work on a collective project. For instance, in 1999, a learning team was created at the initiative of five employees working at four different sites in three different countries in order to reflect on how BI could take advantage of its physical and immaterial networks in its commercial activities. That is how the idea of the commercial department functioning as a learning network emerged in the first place. Thereafter, this idea was formalized by BI’s top management under the name “learning European commercial network” which now constitutes a competitive advantage which would be very difficult for competitors to imitate (see §3.2.1 below).

The emergence of the commercial department’s functioning as a European commercial network was greatly facilitated by two earlier decisions. Namely, as soon as the current CEO was appointed in 1991, she abolished all references to the notion of local financial profit centers in BI’s management and operations – this meant that from that moment on, none of the BI sites were considered as profit centers. Then, in 1997, she suppressed salesmen’s management by objectives. The goals were to abolish barriers that prevented the requisite

\(^9\) In a recent interview (April 4th, 2008), an employee who had worked in various places before joining BI in 2004 stated that a strong difference she perceived between BI and the other companies where she had worked before is that at BI you don’t feel the hierarchical pressure of managers as in the other companies.
collaboration among sites and among commercial agents for an efficient service-network organization.

--------- Insert table 1 about here -------

The salesmen’s monthly reporting system was replaced by a “Quarterly Global Appraisal” (see table 1), which was presented as the “learning synthesis of the sales’ craft at BI” (meeting 1998). Indeed, this synthetic appraisal takes the form of an activity report that documents six different dimensions of the sales’ craft. Filling out this form requires salesmen to be reflective concerning the way they perform their work and on how to improve it. Namely, to reflect on the reasons why their bids have been accepted or refused, on what they have learned in the previous three months which they consider to be very useful in their work, and on their learning objectives for the next three months. Then, the commercial director prepares a synthesis of the salesmen’s QGAs, which he e-mails back to all of them. Hence the salesmen’s appraisal system is based on a philosophy of learning – first individually and then collectively.

2.3. – Learning Team’s Empowerment in Order to Foster Positive Loops

At the same time as operational teams were urged to function as learning teams in 1997, they were also empowered. This means that they became entitled to autonomously insure the daily operations of the firm within the framework set by the clients’ contracts, the operational software and more generally the company’s rules. Thus, the operational software both enabled and constrained the teams’ empowerment within a network operational organization combined with highly centralized functional departments such as accounting, computer, invoicing and marketing and design which prepares all BI proposals (including their pricing).

The empowerment implemented at BI has the peculiarity of not being individual, as is usually presented (see for instance Bowen and Lawler 1992), but collective. This is intended to not inhibit the mutual aid and solidarity among operational agents which are necessary to an efficient network functioning. Besides, when combined with learning, team empowerment fosters the development of a positive loop: team member competence in dealing with daily business increases as the members take on more responsibilities, which incites them to take on still more responsibility, and so on.

Positive – and negative – loops are a way to designate recursivity in lay language, a notion which has long been considered as foundational in the ecological way of thinking (Bateson,
1972; Harries-Jones, 1995). With respect to recursivity, more generally, BI’s top managers strive to stimulate positive loops in the company and to inhibit negative loops as soon as they perceive such loops emerging in the company. They also encourage BI’s staff to act in the same way.

Recruitment at BI is also based on the principle of stimulating positive loops. Preference is given to people who seem to have life attitudes in phase with BI’s culture, since BI’s top management considers that: «Doing one’s job properly is not enough, one needs to have the BI culture of a learning network» (meeting 1998). The favored life attitudes are: liking customer relationships, team work, learning, information and knowledge sharing, initiative taking; being curious and open to others…

Hiring people who seem to have these attitudes facilitates their integration into the company and permits taking advantage of the recursive loop which links a firm’s collective culture with that of its individual employees. Recruitment at BI contributes to the perpetuation of the learning network culture which has developed at BI. Besides, functioning in empowered learning teams very rapidly leads one’s teammates to unmask people who do not genuinely have these attitudes.

A customer intimacy strategy also appears to foster the following positive loop: customer intimacy stimulates an adaptive development of the interrelation BI has with its “customer intimate” clients, which increases the knowledge BI has of their supply chain management’s issues. Consequently this increases BI’s capability to jointly design (with these clients) solutions specifically adapted to their idiosyncratic needs, and hence BI’s intimacy with these clients is enhanced, and so on.

2.4. – Managerial Processes Designed to Maintain a Dialogical Tension between Ago-Antagonist Poles

At BI, management system and process designs have been inspired by another principle which is at the core of Morin’s complex mode of thinking, namely the dialogical principle (Morin, 1982).

This principle brings together two – or more – ago-antagonist (Bernard-Weil, 1988) logics or notions which “on the face of things” should tend to exclude or repel one another, but are in fact indissociable for understanding the phenomenon under consideration. A

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10 Ago-antagonist notions or phenomena are notions or phenomena which appear to be simultaneously contradictory and complementary (Bernard-Weil 1988).
dialogical tension forms a complex unity in which the different logics do not dissolve – contrary to what happens in the case of dialectical reasoning. Morin calls such a complex unity a *unitas multiplex*. The dialogical principle formalizes Weick’s (1977) notion of ambivalence.

BI’s managerial processes have been designed to continually maintain a dialogical tension between the two aspects of the numerous ago-antagonist phenomena that strategic management inevitably involves, such as reflection/action; stability/change; novelty/routine; long term/short term concerns; deliberate/emergent strategy; design/implementation; process/content; centralization/decentralization; hierarchy/network; local/global; differentiation/integration; exploitation/exploration; empowerment/regulation; means/ends…

So BI’s approach differs from what is currently done in firms, namely arbitrating for one of the underlying logics involved (for instance deciding to stick to the deliberate strategy no matter what the circumstances) or for a third one which definitely transcends these logics (for instance deciding to review and adapt the current strategy systematically in June of every year).

Let us examine how this dialogical functioning is achieved at BI using a number of examples.

BI strategic meetings play a central role in maintaining a continual dialogical interplay between deliberate orientations and emergent actions (Mintzberg & Waters, 1985) and reproduction of the organizational routines and change of strategic practices (Jarzabkowski & Siedl, 2005). Indeed, the announcement of specific strategic orientations during a strategic meeting is deliberately made “without specifying precisely the ways to implement them” (meeting 2001). The goal is to stimulate the emergence of innovative local strategic actions congruent with the new orientations and the general “customer intimacy strategy”. Then, those ideas which are judged particularly promising by BI’s top management are immediately implemented. Others may stimulate ideas for novel strategic orientations that will be worked out during the year and announced during the following strategic meeting.

The adaptation of global procedures and processes to local specificities of BI’s various sites in Europe is dialogically performed in the following way. Among the proposals stemming from local sites to adapt BI’s general functioning to their local particularities, only those adaptations which make sense for all sites and bring some added value for the entire company are accepted. Then they are immediately and uniformly implemented, because uniform functioning is judged by BI’s top management as necessary to the efficient functioning of such a network company. This rule enables the firm to take global advantage of
improvement ideas which have emerged locally as fostered by BI’s empowered learning team system.

As seen in §2.2, BI’s managers are supposed to continually maintain a dialogical tension between two ago-antagonist positions. Indeed, they have to combine certain hierarchical responsibilities – such as wage increase proposals for their team members – with attitudes of humility and support within their team. Concerning the ago-antagonist pair centralization/decentralization, the dialogical relation between decentralized operational activity and centralized decisions and actions is handled, in particular, by the teams’ empowerment which is enabled by the operational software within a dialogical relationship between the ago-antagonist poles empowerment/regulation.

2.5. – An Operating System Designed to Function as an Self-Eco-Regenerating System

The self-organization principle is a well-known fundamental principle of ecological thinking (Morgan, 1986; Stacey & Griffin, 2006; Tsoukas, 2005; Weick, 1977, 1979). Morin’s self-eco-re-organization principle (1982) presented in the epigraph emphasizes the fact that the relentless re-organizing of an organization (Brown & Eisenhardt, 1997; Tsoukas & Chia, 2002; Weick, 1979) takes place not only in reference to the organization’s goals but also in reference to the organization itself (prefix “self”) and to its environment (prefix “eco”), because an organization depends on its environment and interacts with it in order to draw upon the energy and the information which the organization needs for its self-organization. Hence, the notion of self-eco-re-organization is close to that of self-design which Weick (1977) develops.

BI’s operating system is based on the activity of frontline teams which are supposed to behave as empowered learning teams, conferring to BI’s operating system self-eco-regenerating capabilities.

Indeed, operational teams’ empowerment means that these teams accomplish the daily business both autonomously (self) and respectfully of BI’s rules (eco) such as BI’s operational software and client contracts. The fact that these teams behave as learning teams stimulates the local emergence of ideas for improving BI’s operational system. Whenever these ideas appear interesting for all sites, they are immediately and uniformly implemented throughout BI (§2.4).

In fact, the learning team functioning turns out to be the primary motor for this self-eco-regeneration, which permits the company to dialogically combine stability and relentless change. Learning teams stimulate the emergence of novel ideas (§2.2) which are supposed to
be congruent with the customer intimacy strategy because of the implementation of the hologrammic principle (§2.1). An example of such an emergent idea is that of systematically doing follow-up prospecting work in firms where BI goes for the first time either to collect or to deliver merchandise (because these firms are new suppliers or customers of an existing BI client, or because they are suppliers or customers of a novel BI client). Similarly, the idea of having the commercial department function as a learning European network has emerged from BI’s functioning as a learning organization. This then constitutes a BI internal capability which provides it with a major competitive advantage which is very difficult for its competitors to imitate.

BI’s customer intimacy strategy induces a form of co-evolution between BI and its main clients. Certain new developments in these client’s modes of functioning have led BI to acquire and implement new resources which have then been made available to all BI clients. The direct line between Manchester and Aachen (see Figure 1) is such an example.

In this continual evolution of BI’s operating system, BI’s top management sees to it that rules and procedures which have become obsolete be immediately removed.

Two other principles of complex thinking will now be illustrated which BI’s CEO did not explicitly refer to when she redesigned BI’s management systems. Nevertheless, some ways of acting that top management has promoted at BI can be interpreted in light of these two principles. The first one can readily be deduced from the self-eco-re-organization principle. Hence, it is not a founding principle of complex thinking. Its importance comes from its considerable practical interest in organizations. On the contrary, the second one cannot be derived from any of the other principles, hence it can be considered as a founding principle.

2.6. – No Specification of Ways for Implementing Novel Orientations in Order to Take Advantage of Everyone’s Intelligence

The ecology of action principle (Morin, 1999) states that as soon as an action is launched, it becomes involved in self-eco-re-organization processes and escapes the control of those who initially launched it. Therefore, any action may have unintended (Poole & van de Ven, 1989) and/or unexpected consequences. The unintended consequences are those that are not in line with the action’s goals such as, for instance, what is known as collateral damage in wars. Some plausible unintended consequences may be known in advance and anticipated. Unexpected consequences, by definition, are not known ahead of time. Unexpected
consequences may be positive or negative with respect to the action’s goals. They may also suggest new goals such as in Simon’s (1969) means-ends dialogical process.

At BI, the way novel strategic orientations are dealt with by BI’s top management can be interpreted as a manner of taking advantage of the ecology of action phenomenon. Indeed, the announcement of specific strategic orientations during a strategic meeting is deliberately made “without specifying precisely the ways to implement them” (meeting 2001) in order to take advantage of the BI members’ intelligence in designing novel actions in line with these orientations (§2.4). More generally a deliberate learning organization’s functioning implicitly relies on taking advantage of the ecology of action phenomenon.

2.7. – Taking Advantage of Staff’s Cultural Differences in Order to Enrich the Global Functioning

The last founding principle of Morin’s complex thinking is called “the reintroduction of the cognizing subject in any knowledge”. It states that “from perception to scientific theory, any knowledge is a reconstruction-cum-translation of that knowledge by a mind-cum-brain situated in a certain culture at a certain time.” (Morin 1999: 264-265)

BI is implanted in five different European countries and its prime clients – those with whom it is “customer intimate” – are multinational industrial or wholesaling companies. In 2000, one BI manager offered to prepare a general report on the cultures in the countries where BI operates. This report would pinpoint cultural differences and show, using actual examples taken from BI’s “life experiences” of how these differences can create problems. Other examples would show, on the contrary, how these cultural differences had been taken advantage of in solving operational or commercial problems, and more generally could enrich BI’s global operating mode. This proposal was accepted and elements of this report were presented during the 2001 strategic meeting.

Some examples also showed that a particular message might be interpreted differently by BI’s members or customers from different countries, not solely because of possible language difficulties. These examples can be viewed as illustrating Morin’s principle of “reintroduction of the cognizing subject in any knowledge”.

Several operating implications were drawn from this study. One concerned important non-routine messages. For such messages, which are traditionally e-mailed, BI’s members are urged to make sure, via a phone interchange, that the e-mail’s addressee has interpreted the message in the intended way.
3. Discussion

In the discussion of BI’s experience about complexly-designed management systems we will successively address three questions:

− Why did BI’s CEO decide to refer to complex thinking principles for redesigning BI’s management systems?
− Has this effectively helped BI cope with environmental complexity?
− Which actionable knowledge can be derived from BI’s experience about complexly-designed management systems?

3.1. – Why did BI’s CEO Decide to Base the Redesign of BI’s Management Systems on Complexity Principles?

The PowerPoint documents which supported the BI strategic meetings in 2000, 2001 and 2002 present the reasons why the BI CEO considers it crucial to take inspiration in complex thinking principles for designing the management systems of a company. The main reason stems from her conviction\(^\text{11}\) that the functioning and evolution of living beings in their complex and unpredictable world constitutes an appropriate metaphor for conceiving of the functioning and the evolution of firms in their own environments – which are also complex and fairly unpredictable. Taking inspiration from the way the living world functions and evolves in order to design management systems permits one to take advantage of the experience gained in the sciences of complexity.

This conviction is based partly on various readings (Mack, 1997; Morin, 1977; Senge, 1992) and partly on BI’s CEO’s experience and observations made in various firms, particularly those of BI’s clients. She observed a number of malfunctions which were generated by the Newtonian style of management which is still very much in effect in European industrial firms.

More precisely in the PowerPoint presentation which supported the strategic meeting in 2000 (see Appendix 1\(^\text{12}\) for more details), BI’s CEO states that the complexity and the unpredictability of the contemporary world call into question traditional methods of reasoning. In particular, they call into question

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11 In all the discussions I have had with BI’s CEO on this subject, I got the feeling that this is a genuine conviction.
12 Appendix 1 summarizes the way BI’s CEO presented principles of functioning of the living world which inspired her conception of the functioning of her company. It also summarizes how she illustrated these principles by using examples of desired or effective functioning at BI. Then it presents how, in 2000, she explained her strategic vision for BI, which she calls “economy of sense”.
the usual linear mode of reasoning, which claims that the same causes always produce
the same effects;
the principle of local optimization which amounts to considering that a whole is
merely the sum of its parts [while BI’s CEO considers that a company as a whole
cannot be reduced to the sum of its various parts]13;
and the principle of a pyramidal organization.

Furthermore, she explains that complex systems behave according to the following rules:
they function as networks [this explains why BI’s operational teams are organized as a
network]; all agents are continually interacting [this explains why she promotes the notions of
“informal networks” and “collective bubbling” within BI (meeting 2002)]; and finally, they
are continually subject to random phenomena [this is what BI’s staff experiences almost
daily].

In the second part of this paper, we have seen a number of examples of BI’s procedures
and processes which are inspired from complex thinking.

The strategic vision of BIs’ CEO was also inspired by complex thinking. She introduced
this vision at the 1997 meeting under the unwonted phrase “economy of sense” which means
the following. Instead of considering BI as just one particular actor in a financial economy,
she views BI as participating in the advent of an “economy of sense”.

At the 2000 meeting, she explained this vision more precisely in the following way. For
her, “what federates BI is its strategy of customer intimacy [see the hologrammic principle in
§2.1]. This choice of strategy is based on three arguments:
1. Since its founding, BI has always sought to best serve its clients in a customized
fashion. BI’s goal has always been to do better than the rest of the competition;
2. Customer intimacy is based on a principle of co-evolution. Therefore it is coherent
with a complex systems approach.
3. Customer intimacy means co-creating solutions with clients, that bring them some
added value, hence some sense. Therefore BI’s approach is to create some sense in the
society.

Man becomes a co-pilot of a co-evolution which implicates the living world, human
societies, machines, networks, cities, and the ecosphere. As a co-pilot, man intervenes in

13 In this paragraph, the views expressed in the parentheses [ ] do not appear in the document. They are my
interpretation.
the functioning of complex systems. He has to be conscious of this role, to bring certain solutions and therefore, some sense, and thus this vision for BI to participate in the advent of an economy of sense.” (Meeting 2000)

3.2. – Has BI’s Complexly-Designed Strategic Management Helped BI Cope with Environmental Complexity?

Obviously, it will not be possible to offer a clear-cut answer to the above question, which is a complex one and hence can only have a complex answer. Looking at the tenure of BI’s employees: “Two years or a lifetime!”\(^{14}\), or at the surprisingly high rate of return on investment that BI has had between 1997 and 2006\(^{15}\), would suggest a “yes” answer to the above question. On the other hand, the economic difficulties that BI has experienced since 2006\(^{16}\) may suggest a “no” answer…

So, what happened to BI in between 2003 and 2008?

In relation with the economic turndown which started in France in 2005-2006 and affected BI just like any other company, some of the plants which were providing merchandise traffic to BI moved from Western Europe to Eastern Europe, Turkey, Tunisia, Morocco, or China. In other words they left BI’s traditional territory, which extends around BI’s transport network – called Backbone – as shown on figure 1. BI’s top management examined the possibility of accompanying some of these moves, namely by expanding BI’s “Backbone” towards Eastern Europe. They decided not to invest there at that time because until 2006-2007 it appeared to them that, as in most emerging markets, the merchandise flows were composed mainly of full loads or partial loads while BI’s core business is grouping. Now that grouping traffic is starting to emerge in Eastern Europe, BI will again consider the opportunity of developing into this area.

Besides, with the 2005 economic turndown, a number of BI clients started to reinforce their cost-killing policies throughout their companies, in particular in the area of supply chain management. BI’s high-reliability services\(^{17}\) are sometimes considered too expensive by purchasers who have been hired specifically to kill costs in their firms and often take into account only direct costs rather than global costs. Global costs include the extra-costs incurred

\(^{14}\) This is the answer that two different employees gave us during separate individual interviews that were carried out respectively in March and April 2003.

\(^{15}\) BI’s roi has obviously fluctuated over the years, but it has regularly been over 10%, while the average rate in BI’s sector is about 3% except during economic crises (such as during the years 2002 and 2003) where it is even lower.

\(^{16}\) BI laid off 8 persons in France (out of 70) at the end of 2006. Besides, about thirty employees who left BI in Europe in between 2003 and 2007 were not replaced.

\(^{17}\) See BI’s 99.6% success rate in the accomplishment of the clients’ contract evoked in §1.2
in local plants when contracting with an apparently cheaper but much less reliable carrier than BI. So, cheaper direct costs often end up inducing higher overall costs for the company than BI’s all-inclusive services, but part of those costs are hidden: they are not seen by centrally located cost-killing purchasers.

As a consequence of this situation, two key-accounts disappeared from BI’s client-portfolio. The first one delocalized its British production sites to Turkey. Since this relocation in Turkey did not fundamentally change the client’s problem of management of its European suppliers’ merchandise flows, BI made a service bid. This proposal was short listed by the production site manager in Turkey. Unfortunately for BI, the final decision was made by the firm’s financial department, which is located in Sweden – without any dialogue with the Turkish production site – apparently on the basis of direct costs rather than taking into account overall costs.

The other client was lost because of a dumping offer made by a multinational carrier which was 40% lower than the three companies which were retained on the short list (of which BI was one).

These events reminded BI’s members of the importance of one of BI’s rules according to which any company may loose one or two of its major clients in the same year. Hence both the turnover and the profitability must be high enough to withstand these losses.

Despite all these phenomena, BI’s turnover in 2007 was only slightly below that of 2006, because of BI’s business model and complex services offers which enabled it to cushion the economic turndown while limiting the effects of client loss. Furthermore, not only is BI still in business in 2008, but BI’s top management will be able to announce some comforting news to BI’s employees at the May 2008 strategic meetings: BI’s turnover has picked up again in the first quarter of 2008, which enables a most welcome wage increase throughout BI.

Let us now examine three aspects of complexly-designed strategic management systems which, on the basis of BI’s experience, seem capable of helping a firm cope with environmental complexity.

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18 BI’s turnover in 2007 is 2% below that of 2006. BI’s contracts with its clients bear on the management of merchandise flows for the following year, and as a result, a client which does not renew its contract with BI impacts BI’s turnover during the following twelve months. The fact that one of BI’s main clients did not renew its contract in October 2006 had more impact on the 2007 BI’s turnover than on its 2006 turnover.
19 It is probably the last totally independent company of this size in this industry operating throughout Western Europe.
20 It is roughly 3% higher than that of the first quarter of 2007.
3.2.1 Complexly-Designed Strategic Management Systems Enable the Development of Highly Idiosyncratic Competitive Advantages

The capability of self-eco-reorganization which the empowered learning team functioning has conferred upon BI’s operational teams constitutes a resource which helped BI adapt to the large staff reduction which occurred between 2003 and 2007\(^{21}\) as a result of the loss of two major BI clients in 2006. In particular, the polyvalent competence within BI’s teams resulting from their functioning as empowered learning teams considerably facilitated teams’ evolution and reorganization during that period.

There are other ways in which BI’s learning team functioning described in §2.2, helps BI cope with environmental complexity. For instance, the fact that BI’s commercial department operates as a learning European network provides BI a considerable competitive advantage which is very difficult for its competitors to imitate. Indeed, for example, this enables BI’s salesmen to jointly canvass the various sites of European industrial groups and to have BI’s centralized Marketing and Design department prepare global service proposals for these groups’ European supply chains.

3.2.2 Staff’s Embodiment of a Firm’s Fundamentals in Complexly-Designed Strategic Management Systems

The contemporary world is constantly on the move (Chia, 2002; Tsoukas & Chia, 2002). Changes, such as those associated with butterfly effects for instance, cannot always be anticipated. In the contemporary situation of environmental high volatility and complexity, it seems crucial to equip a firms’ staff with some temporary, stable landmarks, known by everybody, that they can use in their decisions and actions – as the hologrammic principle suggests (§2.1). Indeed, as Blaise Pascal already observed in 1650: “we are sailing on a vast environment. We are always uncertain and floating, pushed from one extremity to the other. (…). Nothing ever stops. It is the state which is natural for us, and nevertheless the most contrary to our inclination.”

BI’s vision, BI’s customer intimacy strategy, BI’s empowered learning teams constitute some of BI’s fundamentals which have helped its staff overcome the trauma of economic difficulties and dismissals for economic reasons. BI’s strategic meetings constitute a means for activating the embodiment of those fundamentals by BI’s staff (§2.1).

Because of BI’s economic difficulties and the fact that BI’s top management was kept busy by multiple concerns related to these difficulties, the tradition of strategic meetings was

\(^{21}\) It decreased from 170 employees in 2003 to 140 in 2007.
interrupted in 2006. During the interviews I carried out in April 2008, I perceived that a number of BI’s fundamentals such as the strategic vision, the customer intimacy strategy and even the notion of the empowered learning team have become hazy for a number of BI members. This observation confirmed the relevance of the BI top management’s decision to revive the tradition of strategic meetings in May 2008.

3.2.3 Dialogical Handling of Ago-Antagonist Phenomena in Complexly-Designed Strategic Management

We have already observed in §2.4 that firms’ managerial environments are full of ago-antagonist phenomena such as reflection/action; change/continuity; novelty/routine; long term/short term concerns; deliberate/emergent strategy; centralization/decentralization; hierarchy/network; local/global concerns; individual/collective matters; design and implementation, differentiation/integration; empowerment/regulation…

The dialogical principle suggests designing processes and procedures capable of maintaining over time a dialogical tension between the contradictory and complementary logics underlying ago-antagonist phenomena. When she redesigned BI’s management systems in 1997, BI’s CEO strove to conceive the various processes and systems so that they could be operated in this way.

In §2.4 above, a number of examples of functioning at BI which have been deliberately designed to be dialogically operated, were presented. For instance the strategic meetings constitute a means of integrating emergent ideas into the deliberate strategic orientations. The integrated operational software constitutes both an enabling and constraining system (Giddens, 1984): it both provides enabling support to the effective empowerment of operational teams and constrains it by specifying the framework in which this empowerment can be enacted. BI’s organization combines a network organization with a (flat) hierarchical structure having two and a half levels: the top management level which comprises BI’s CEO and the two European directors, the BI staff level, and, in-between, the level of team managers who are teammates who also have some managerial prerogatives.

The research project I am currently running at BI has revealed that despite the BI CEO’s intent to design and implement dialogical procedures and to operate them dialogically, two crucial processes were not designed or operated dialogically, namely the salesmen management process and the way the global reporting system was used. We shall successively go over these two examples.
The salesmen management process via the QGA procedure set up in 1997 (see table 1) was not designed to dialogically handle the ago-antagonist poles of learning/performance control. Indeed, it focused on learning with no specific mention of salesmen’s performance. In other words, there was almost no control of salesmen’s individual performance. In 2006, this revealed that, in the long term, it had generated some malfunctions in the BI commercial department, such as the fact that certain salesmen were not as commercially active as they were supposed to be. More precisely, it appeared that these salesmen made few client or prospecting visits, and they did not show much involvement in striking bargains when they were selling service proposals. Their success rate in the actual selling of service proposals turned out to very low indeed²².

The research project has also revealed that the new formal system set up at the beginning of 2007 for salesmen management does not seem to dialogically handle the ago-antagonist poles learning/performance control, it seems primarily focused on performance control. Indeed, after 2003, salesmen became more and more reluctant to fill out their QGA’s. As a result, this procedure progressively became inoperative. The implementation of the sales software in 2006 immediately provided BI’s top management with great clarity of vision concerning each salesman’s activity such as his number of daily calls and visits to prospects and customers, his level of sales relative to various customer segments, and so on. This enabled top management to exert a tight control on salesmen’s activity, which was perceived as a tremendous change in BI’s commercial department’s culture²³. This led to the resignation of half of the salesmen and to a considerable global increase in the level of new business development in 2007 by the remaining salesmen²⁴.

So, somehow the salesmen management system switched from a learning focus which was forgetful of performance control, to a performance control focus which is forgetful of learning in the sense of the learning aroused by the QGA procedure: this procedure was intended to stimulate the salesman’s individual reflection on his on-the-job learning, with the further goal of transforming this knowledge, which was individually acquired through learning-by-doing, into collective learning within BI’s commercial department.

²² It revealed to be about 30% for those salesmen.
²³ This change in salesmen’s management can be interpreted in Weick’s (1977) words as a switch from a “chronically unfrozen system” to a more frozen system.
²⁴ The level of new commercial developments in 2007 turned out to be 5 times larger than those of 2006, which means that, on average, each salesman individually succeeded in developing new activities in 2007 10 times more than in 2006 (since there was two times less salesmen in 2007 than in 2006)…. 
The salesmen considered this reflection very demanding and progressively stopped complying with this procedure. So, in the new system, the responsibility for reflection concerning salesmen’s learning has been transferred to the commercial department’s director. Indeed, the control system is now used not only for determining the variable part of salesmen’s wages but also for identifying salesmen’s possible training needs. For instance, if for a certain salesman the variable part of his wage is below average, the commercial department director examines the underlying reasons: Does it come from an insufficient number of calls? From an insufficient number of appointments? From an insufficient rate of bargain striking? From a maladjusted targeting of prospects? and so on. The answers to these questions help the director determine the specific training that may help the salesman improve the corresponding skills, together with the specific person(s) within BI’s European commercial department who could provide the corresponding coaching.

In other words, control of the salesmen is used within an evaluation perspective (Ardoino & Berger, 1986), where evaluation and control are defined in the following way. To control means to first measure the gap between the actual situation and some predefined fixed standard, and then strive to reduce this gap. To evaluate means to first determine the gap between the actual situation and a certain standard; then to reflect on the reasons for this gap and on the relevance of keeping the current standard or adopting a new one for the future; and, finally, to determine relevant actions, if any, to be undertaken right away. A dialogical relationship between evaluation and control means that control is performed at some point in time in reference to some standard that the concomitant evaluation will question and may suggest to replace by another standard according to the evolving circumstances encountered and to new goals which may have arisen along the way – like in Simon’s (1969) means/ends analysis, which, in fact, he typically viewed as a dialogical recursive relationship.

Besides, concerning salesmen’s management, regular videoconferences have just been instituted which permit BI’s salesmen from the different countries and BI’s top management to have collective interactive interchanges once a week either about a particular European client who is commercially handled by several BI’s salesmen from different countries, and/or about salesmen’s training needs, or even about tricks and tips that certain salesmen have recently learned on-the-job.

The new continual collective learning and sharing processes implemented at BI are crucial for perpetuating BI’s commercial department culture of a learning European network.
Let us now turn to the second example. It offers an illustration of a non-dialogical use of a system designed to be dialogically operated – i.e. of a system which was designed to handle dialogically ago-antagonist phenomena, but which, in practice, focused on only one of the two poles. It concerns the way BI’s top management used the reporting system which was designed in 1997 to be used dialogically. In an interview in March 2005, BI’s CEO explained that the operational functioning of BI as a network organized around the “Backbone” must be read through the holding’s consolidated accounts – hence the abolition of all references to the notion of local profit center. BI’s reporting system was designed in such a way as to permit the understanding of BI’s turnover and the tracing back of the origin of any given synthetic line item. In the March 2005 interview, the BI CEO stated that she normally reads only the synthesis, except if significant variances with her expectations appear. And that, in agreement with the abolition of all references to the notion of local profit centers, she looks neither at the national subsidiaries accounts nor at the ten BI’s local sites’ accounts – and neither of the two directors do either.

Then in 2006, an internal audit conducted at the ten BI sites revealed that BI’s purchasing procedures were not being respected and that this generated cost inflation at the local sites. Somehow top management’s sole focus on global figures and the fact that local sites were not treated as profit centers had created a situation of absence of control on purchasing practices at local sites.

So, purchasing control was established throughout BI in the following way. First, for any “general” purchase contemplated at any site – such as stationery, office furniture, computer equipment, and so on – a new procedure required that the applicant systematically ask for three cost estimates. This permitted the identification, for each type of purchase, of the country which offered the most competitive prices. Then, after about a year, purchases were centralized for the entire company. They are now centrally managed. Orders for “general” supplies are placed for the entire company with whichever supplier offers the most competitive prices in Europe. This procedure has permitted dramatic cost reductions. Indeed, purchases are now made where prices are lowest in Europe, orders for larger quantities permit the negotiation of even better prices, the local sites are more careful about the orders they transmit to headquarters because of the centrally exerted control, and BI’s employees waste less time completing their individual purchases. Naturally, at the beginning the corresponding change of habits that the new procedure imposed was perceived negatively and generated a feeling of loss of autonomy in the various sites.
This centralization of “general” purchasing goes along with the decentralization at all sites of the cartage purchasing for local collection and delivery – which is performed by local subcontractors as explained in §1.2. So, BI’s current purchasing process offers another example of a process henceforth dialogically operated: centralized “general” purchases together with centrally-controlled decentralized cartage purchasing.25

The two examples that have just been presented illustrate four things. First, that at BI, in two instances, focusing on only one pole of ago-antagonist phenomena has created important mal-functioning in the long run. Second, that systematically maintaining dialogical functioning over time is not an easy task. Third, that, even when strongly convinced of the relevance of such a mode of functioning, one can easily drift towards the relative easiness of designing, implementing or operating managerial processes attending to only one of the opposite poles. Fourth, that the dialogical principle does not preclude the institution of controls as long as these controls are performed within the dialogical tension of evaluation/control. Indeed, a dialogical evaluation/control relationship is crucial to the enactment of self-designing systems (Weick, 1977) and of in itinere strategies (Avenier, 1997, 1999).

3.3 – Knowledge Derived from BI’s Experience about Coping with Environmental Complexity

This section briefly synthesizes some tentative knowledge on the design of strategic management systems aimed at coping with environmental complexity, which has been elaborated by crossing BI’s experience as presented and discussed above, with existing knowledge on the subject.

- Morin’s seven principles of complex thinking provide useful guiding landmarks for reflecting on the design, implementation and evolution of management systems aimed at coping with environmental complexity.

- Morin’s dialogical principle does not preclude the institution of controls as long as these controls are performed within the dialogical tension evaluation/control (Ardoino & Berger, 1986)

- Operating as empowered learning teams facilitates teams’ adaptation to evolving circumstances through a self-eco-reorganization process.

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25 Cartage purchasing represents roughly 1/3 of BI’s total expenditures.
The complexity of the processes through which some competitive advantages develop in a complexly-managed firm, together with their situated character, contributes to making these competitive advantages highly idiosyncratic and hence very difficult for the firm’s competitors to imitate.

Handling and maintaining dialogical tensions between opposite poles of ago-antagonist phenomena\(^{26}\) can help managers cope with business complexity. Processes facilitating the handling and maintaining of such tensions are not easy to design and implement nor are they comfortable to operate – as the colloquial phrase “to be of two minds” expresses it. On the contrary, it is easy to drift towards the relative easiness of designing, implementing or operating managerial processes attending to only one of the opposing poles.

Any top manager who is already convinced of the relevance of implementing this kind of dialogical process in his/her firm, still has to set up devices – such as posting a reminder on his/her office walls – aimed at continually reminding him/her, and his/her staff as well, to maintain the dialogical operation of the processes which have been designed for this purpose; and to not slip towards the relatively more comfortable position of focusing only on the easier or more pressing pole needing to be handled.

\(^{26}\) such as short term and long term concerns, reflection and action, deliberate and emergent strategy (Mintzberg & Waters, 1985), means and ends (Simon, 1969), differentiation and integration (Lawrence & Lorsch, 1969), design and implementation, planning and improvisation (Weick, 1977), evaluation and control (Ardoino & Berger, 1986), exploitation and exploration (March, 1991), stabilization/ destabilization of existing strategy (Jarzabkowski & Siedl, 2005), etc.
Conclusion

In this paper we have studied the case of a deliberately complexly-designed strategic management system.

On the one hand we have shown that complexly-designing a strategic management system offers some possibilities to help a firm cope with environmental complexity. For instance, it facilitates building competitive advantages specific to the firm’s staff and activity, which are difficult for competitors to imitate.

On the other hand, it obviously has limitations. For instance, we have seen that complexly-designing a strategic management system does not help a medium-size firm such as BI prevent its clients, who might be much bigger than itself, to delocalize their activities outside its traditional territory. Nor does it particularly help the firm to force its clients, who might not be interested in developing such a close relationship, to become/remain customer intimate with it. And so on…

As already pointed out, the fact that complexly-designed strategic management systems have both advantages and limitations does not come as a surprise within our complex thinking approach. The limitations highlighted here result from the difficulties that firms, which are not amongst the largest in their field, have when trying to influence their environment. Besides, the internal mal-functions discussed in the paper stemmed mainly from processes which had not been operated dialogically enough. Hence these difficulties did not particularly come from the fact that the strategic management systems had been complexly-designed, but rather that these systems were not operated complexly enough, even at the level of top management.
References

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Appendix 1: Summary of the way complexity principles were introduced to BI’s staff during the 2000 strategic meeting

Part of the 2000 strategic meeting was dedicated to presenting the complexity principles that inspired BI’s CEO in the redesign of BI’s managerial and organizational systems which were implemented in 1997. The presentation below is pulled from the PowerPoint document which supported that meeting.

The document starts with recalling various evolutions that the firm underwent during the past decade. These evolutions concerned the hierarchical relationships in the company, the computer system, the relationships between the national subsidiaries in the various countries where BI has sites, the relationships between salesmen within the commercial department, and the way operational teams are managed. This “backward travelling” underlines the evolution of BI’s organization towards a network organization supported by the integrated software implanted on the EDI system which links BI’s 10 European sites. As a result, there are numerous interactions between BI’s various teams and services as well as interactions within the operational teams which were empowered and urged to behave as learning teams in 1997.

A preamble on complexity follows which explains that complexity is defined in reference to the living world and its evolution. It means that there are multiple interactions. It does not mean complication.

Then it is stated that the complexity and the unpredictability of the contemporary world calls into question traditional methods of reasoning, such as, for instance, the linear mode of reasoning, which claims that the same causes always produce the same effects; the principle of local optimization, which amounts to considering that a whole is merely the sum of its parts; and the principle of a pyramidal organization.

Thereafter, it is explained that complex systems behave according to the following rules: they function as networks; all agents are continually interacting; they are continuously subject to random phenomena.

Then the BI CEO presents what she considers to be principles of functioning of the living world and immediately illustrates them, using examples of desired or current functioning at BI:

1. Emergence, illustrated using various examples of ideas which emerged in BI’s various departments.
2. Regulation is presented as permitting the establishment of a viable equilibrium within an organization and illustrated using the following example: frontline teams handle short term concerns, top management takes care of medium and long term concerns, and they mutually feed each other through dialogue (Senge 1992) as practiced at BI.

3. Self-organization, illustrated using the example of frontline teams’ self-organization because of their functioning as empowered learning teams (see §2.5).

4. Self-catalysis, a term used to describe recursivity, illustrated using the example of the self-catalysis of competences stimulated by the functioning of frontline teams as empowered learning teams (see §2.4).

5. Co-evolution, illustrated via the examples of teammates’ co-evolution within learning teams and of BI’s co-evolution with its “customer intimate” clients (see §2.5).

6. Self-selection, presented as meaning “progressive invasion of the environment” through a self-reinforcing loop. It is illustrated using the example of some of BI’s empowered learning teams which have spontaneously eliminated some members who were considered by their teammates as not sufficiently committed to their work in the team. Another example provided is the recursive loop of successful customer intimacy (described at the end of §2.3).

Then the document comes back to BI’s customer intimacy strategy and to the BI CEO vision of an “economy of sense”. In the document, she explains this vision in the following way:

“What federates BI is its strategy of customer intimacy. This choice of strategy is based on the following arguments:

1. Since its founding, BI has always sought to serve its clients in a customized and outstanding fashion. BI’s approach has always been to do better than the market;

2. Customer intimacy is based on a principle of co-evolution. Therefore it is coherent with a complex systems’ approach.

3. Customer intimacy means co-creating with clients solutions which bring them some added value, hence some sense. We create some sense... Remember the vision economy of sense.

Man becomes a co-pilot of a co-evolution which implicates the living world, the human societies, the machines, the networks, the cities, and the ecosphere. As a co-pilot, man intervenes in the functioning of complex systems. He has to be conscious of this role, to bring certain solutions and some sense, and thus this vision for BI to participate in the advent of an economy of sense.” (Meeting 2000)
Figure 1: Beauvais International’s “Backbone”

Table 1: Content of BI’s salesmen’s “Quarterly Global Appraisal”

<table>
<thead>
<tr>
<th>1. Target</th>
<th>When you retire a prospect after a visit, explain your decision: why, finally, is this prospect not a BI target?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Training</td>
<td>Explain which training you would like to receive in order to improve your knowledge of industrial matters and better understand prospects’ needs.</td>
</tr>
<tr>
<td>3. Proposal refusals</td>
<td>Determine and understand why prospects refused these proposals.</td>
</tr>
<tr>
<td>4. Proposal acceptance</td>
<td>Determine and understand why prospects accepted these proposals. Determine and understand on which basis the BI services’ offer made a difference compared to competitors.</td>
</tr>
<tr>
<td>5. Learning satisfactions</td>
<td>Describe what you have learned during the last quarter, which has brought you increased professional knowledge and a better working environment.</td>
</tr>
<tr>
<td>6. Learning satisfaction goals</td>
<td>State your learning satisfaction goals for the next quarter.</td>
</tr>
</tbody>
</table>