

***THE LEARNING MIX: A STRATEGIC TOOL TO
MANAGE ORGANIZATIONAL KNOWLEDGE***

Theme: The Nature of Learning and Knowledge

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Abstract

Implementing knowledge management requires a multi-functional approach and consideration of four categories of issues which form the “Learning Mix”: IT infrastructure, knowledge portfolio, organizational structure and processes, and organizational identity. Of these four, the identity dimension is the most critical. In this paper, we explicate the role and functioning of the “Learning Mix”. We report the results of a longitudinal case-study which looked at the deployment of a KM department within a large consultancy organization. We also present a number of tools and techniques grounded in our experience in Executive Education useful to transform an organization’s identity into a learning identity.

Introduction

Many organizations claim that the creation and sharing of knowledge, the continual enrichment of their intellectual capital and the development of learning capabilities rest at the core of their strategy. Few, however, successfully manage to actually implement these aspirations, and many fail to reap the full benefits this could bring. Frequently, separate initiatives such as implementing information technology applications and systems for knowledge sharing, or actions to identify and catalogue competencies within the organization, or the setting-up of task forces to develop innovations may coexist independently. The difficulty lies in coordinating these various initiatives and articulating them into an integrated management system capable of leveraging organizational knowledge in its various forms. Put in another way, the challenge facing companies is that of deploying a genuine cross-functional policy for knowledge management and organizational learning.

A learning organization is defined by the collective ability of its members to capitalize upon empirical experience, to share existing knowledge, to acquire new knowledge, to innovate and to resolve the problems it encounters rather than seeking to conceal them. From an operational point of view, this requires:

1. The development of a **learning identity**, which in many cases implies complex intervention on basic cultural assumptions, interpersonal skills, and cognitive processes;
2. The identification and proactive management of a **knowledge portfolio** taking into account both the individuals and collective competencies already possessed and those which need to be acquired in the future to remain competitive;
3. The creation and management of a **learning structure**, i.e. a system of roles and a set of operating procedures destined to foster knowledge sharing and formally drive knowledge management;
4. The installation and maintenance of **information systems and applications** enabling the storage, retrieval and circulation of knowledge among employees.

These different fundamental objectives, some of which were drawn from the literature and other grounded in field research we have carried, can be considered as the four components of the *Learning Mix*. The difficulties encountered by organizations who want to become “learning organizations” and are looking to adopt an effective approach to knowledge management can be attributed to a failure to take due account of one or more of these facets or to the lack of alignment among facets.

After presenting our integrating model and describing its four dimensions, we illustrate how these dimensions interact by reporting the results from a two-year ethnographic research which looked at the creation of a knowledge management function within a large IT and Management consulting firm. The case is illustrative of how in practice managing knowledge involves four types of issues which actually corresponds to the four facets composing the “Learning Mix”. The case illustrates the difficulties an organization encounters when it fails to address one or more of the dimensions of the “Learning Mix”. It shows that organizational identity, and notably the experienced and manifested facets of organizational identity (Soenen and Moingeon, 2002) play a critical role in knowledge management. In the final section, we will seek to show how training initiatives can contribute to better manage the *Learning Mix*. We will pay particular attention to pedagogical approaches which can be used to develop individual and collective productive reasoning. Such approaches can pave the way to the creation of a distinct organizational identity conducive to organizational learning and knowledge management : what we define as a “learning identity”.

The Learning Mix

Just listening to top management’s speeches and reading studies by management researchers and consultants is enough to convince anyone of the strong interest currently generated by the notions of knowledge management, learning organization, intellectual capital, intangible assets, etc. While a trend unquestioningly exists, we must note that the first researches on organizational learning were conducted about thirty years ago (Argyris and Schön, 1974). The concept of « learning organization » surfaced only later (see in particular Senge, 1990). We propose that this latter denomination be used to designate the entire sub-category of works on organizational learning with a prescriptive aim (as opposed to those with a purely descriptive objective) (Edmondson and Moingeon, 1998). It has only been since the mid-1990s that have emerged publications on knowledge management, a minority of which have an academic motive (e.g. Nonaka and Takeuchi, 1995). Nonetheless, numerous analysts interested in the learning process have touched upon knowledge management in their studies, without systematically using this denomination or without having it be the main object of their research.

For less than ten years now, academic and managerial publications, top management speeches, colloquiums and seminars all reflect the craze about these different notions. This interest is linked to the recognition that an approach focusing on the mastering of a certain technology as the main source of competitive advantage has its limits. Several years ago, while a technological innovation may have been, in many cases, the main means to acquire and maintain a competitive advantage, today, sustained competitive advantage lies in the capacity to continuously innovate, to learn more rapidly than one’s competitors. It is no longer the technology itself that is a strategic resource, but rather, the organizational, technological and cognitive processes underlying the capacity to innovate and learn (Edmondson and Moingeon, 1996). A learning organization is characterized by its members’ collective capacity to capitalize on experience gained, to share knowledge, to acquire new knowledge, to innovate, to solve problems, particularly embarrassing ones, instead of seeking to cover them up.

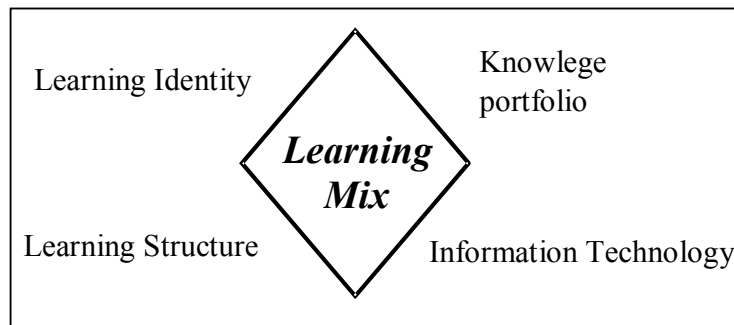


Figure 1: The Learning Mix

In operational terms, this requires that the different dimensions of the *Learning Mix* (figure 1) be managed ¹:

- identity: develop a learning identity, which requires, in many cases, a complex approach that reassesses and remolds values and reasoning processes;
- strategic: identify and manage the firm's knowledge portfolio, that is, both its existing knowledge and the knowledge it needs to acquire;
- organizational: implement and manage a learning structure, that is, an organization with functioning modes that favor knowledge creation and sharing;
- technological: manage information systems, particularly tools dedicated to knowledge sharing.

A Learning Identity

This facet is unquestionably the most difficult to grasp as it calls upon the least tangible aspects of a company. Indeed, to study an organization's identity is to consider everything that contributes to making it specific, different from others (Larçon and Reitter, 1979). Beyond identifying managerial procedures, employee behavior and symbolic practices (rituals, organization of time and space, etc.), the dispositions and value systems (systems of which actors are not necessarily aware) behind these practices and procedures must first be unveiled; that is, one must go to the roots of the firm's identity (Moingeon and Ramanantsoa, 1997).

Managing identity does not consist uniquely of identifying the practices that underlie a company's values, but also deciding which values should be modified or acquired, and which practices must be implemented to achieve this end. Certainly, an identity does not change by decree. It is by identifying the roots of an identity and by being exposed to new rules and functioning modes that organizational members will progressively unlearn some behaviors (as well as the dispositions that generate them) and introject new values.

The observation of practices and behaviors in a learning firm indicates the existence of:

- a motivation to learn and progress;
- a willingness to make informed choices based on valid information and knowledge (Argyris and Schön, 1974);
- a propensity to share knowledge;
- a capacity to continuously learn by constantly questioning the values, fundamental

¹ For a detailed presentation of the Learning Mix, see Moingeon, 2003.

hypotheses and existing knowledge in order to acquire new knowledge (Argyris and Schön, 1978);

- employees' capacity to self criticize, to identify that which can hinder them in a given situation (Argyris, 1993);

- a high level of inter-individual trust: this trust is two-fold, residing in both colleagues' intentions (e.g. « When I share knowledge with colleagues, I am not worried because I know that they will not use it against me and my interests. ») and their competencies (e.g. « I can ask him to meet my important clients for me; I know that everything will go well. He is an excellent people person. ») (Moingeon and Edmondson, 1998);

- a collective capacity to confront, in a productive manner, the « real problems », that is, not adopting a defensive logic when the problem discussed is potentially embarrassing (Argyris, 1993);

- the right to make mistakes and a « psychologically safe » environment when problematic situations arise (Edmondson, 1999).

On the road to constructing a learning identity, the obstacles to overcome can be numerous. For instance, employees can develop the « not invented here » syndrome without even being aware of doing so. This leads them to refuse all external knowledge (external to their company, or even to their division or team). This syndrome can be linked to an overly strong appreciation of a technical excellence, which makes it difficult for members to accept and give recognition to an external expertise. Some companies have decided to fight against this syndrome by rewarding the use of knowledge coming from other firms or entities. Consequently, British Petroleum created the « Thief of the Year » award and Raytheon / Texas Instruments, the « This wasn't invented here, but we used it anyway » award.

Another significant hurdle is the system of wages and salaries and power. Several cases must be distinguished. While all companies today agree that knowledge is of paramount importance, rare are those that have truly implemented an integrated approach for *knowledge management*. Thus, one frequently notes a gap between the knowledge management theory that firms profess and their theory of action (Argyris and Schön, 1978). The speeches delivered and the policies stated do not correspond with the practices and functioning modes observed. In terms of identity, one notes that gaps exist between the different facets of a firm's identity: identities professed, projected, experienced, manifested and attributed (Soenen and Moingeon, 2002). Moreover, when a management by objectives approach (definition of annual objectives, both individually and collectively) is implemented, all too often, none of the objectives pertain to the sharing and creation of knowledge. This said, it does not suffice to fix objectives around *knowledge management* (for example: « use the knowledge base to respond to a bid » or « contribute to building this knowledge base») for the management of knowledge to be efficient. Employees must believe in the productivity of such an approach. Otherwise, they can perfectly give the illusion of knowledge sharing by contributing to the knowledge base but in fact keep for themselves the most important information so as to avoid relinquishing power. Motivating practices that companies set up can yield effects that may create obstacles to knowledge sharing. For instance, numerous companies have decided to value employees with rare competencies (experts), those who contribute to the creation of new knowledge (e.g. awarding patent applications). However, these practices show (in an unwanted manner), that since power is linked to knowledge, to communicate one's knowledge is to lose some power. The fewer the experts, the more the

current ones are recognized, etc. These practices thus incite knowledge retention and generate an aversion to helping others attain the expert status.

While all initiatives taken separately have their limits, managing a company's identity involves implementing measures and practices: integrate *knowledge management* in the objectives and remuneration policy (especially by esteeming those who acquire new knowledge *and* share it with others), recognize the right to make mistakes, given that one learns from them, oblige key managers to be role models (the executive committee should be recognized by all as an opportunity to share and create knowledge), etc. By relying on the habitus and field concepts (Bourdieu, 1993), it is possible to explain how employees incorporate in their disposition (a constituent of their habitus) the company's field properties. Prolonged exposure to motivating practices associated with *knowledge management* yields a pedagogical effect. Consequently, the incorporation (unconscious learning process) of operating rules and associated values helps mold to the foundations of the firm's identity a common denominator for individuals' habitus, thereby creating an organizational habitus (Moingeon and Ramanantsoa, 1997). These measures and practices constitute necessary, but insufficient, conditions. For the identity of a company to be qualified as learning, its employees must also develop inter-individual competencies. These competencies can be observed, for example, through their interactions with each other in meetings. The capacity to share, acquire and create knowledge is intimately related to the quality of the interactions, and ultimately, to employees' reasoning processes. In the final part of this chapter, we show how executive education actions can contribute to the development of these reasoning processes, and in turn, to the shaping of a learning identity

The Management of a Knowledge Portfolio

The second facet of the Learning Mix involves the firm's knowledge portfolio. The resource-based view brought to light the key role of these immaterial assets in the constitution of a competitive advantage (Peteraf, 1993). Certainly, it is by pooling knowledge that the firm can develop competencies and organizational capabilities on which it can rely to reinforce its competitiveness (Moingeon and Métais, 2000). Although certain knowledge can be easily formalized (explicit knowledge), others are difficult to explicate and codify (tacit knowledge). As Polanyi (1966) stresses, we know more than it is possible to express orally. These individual expertise, know-how, collective capabilities that constitute an organization's identity, etc., are based on tacit knowledge and can be sources of competitive advantage because they are rare, difficult to imitate or substitute (Barney, 1991). The knowledge portfolio is constituted both of knowledge that the company already possesses (its patrimony of knowledge) and that which it can acquire (particularly by using its learning capacities). The management of this portfolio must be guided by the quest to achieve a balance between knowledge exploitation and exploration (March 1991): exploitation facilitating the capitalization of the acquired patrimony, exploration leading to the acquisition of new knowledge.

As for the existing knowledge, we must first highlight the difficulty in identifying that which is available. The expression « if only my company knew what it knows now » is frequently used by managers wishing to better « know the knowledge », to precisely and in a reliable manner identify the existing patrimony. This difficulty to identify that which the company knows results in the wasting of knowledge by nonuse (Moingeon, 1994). The use of a know-

how, unlike that of other resources, does not lead to its diminution in quality or quantity. On the contrary, it can result in the creation of new knowledge. However, inversely, its nonuse can cause the available patrimony to shrink. This can occur, for example, at the individual level when one does not speak a language or practice a sport over a long period of time. The logic behind knowledge exploitation, though, has its limits. A company can become trapped by its own competencies (Levitt and March, 1988). It will tend to use those that it masters, even if they may not be the most efficient. In this case, that which was once strategic competence can become a « core rigidity » (Leonard-Barton, 1992). These phenomena are often reinforced by the « not invented here » syndrome, with employees refusing to learn from the external environment, and can ultimately cause the knowledge portfolio to become limited to its existing patrimony.

New organizational knowledge can be created in several ways: by combining the company's knowledge and know-how, by obtaining and integrating external knowledge, or even through double loop learning (Argyris and Schön, 1978, 1996), that is, by questioning values, fundamental hypotheses and norms that help define the knowledge that can be mobilized. This form of learning is possible only if the company has a learning identity.

Organization: A Learning Structure

Who does what when it comes to knowledge management? What are the organizational modalities that favor knowledge sharing and creation? The third facet of the Learning Mix dwells on these questions. Publications dedicated to the organization of the knowledge management function are relatively scarce and have mainly a managerial motive (see, for instance, Phillips and Bonner, 2000). This attests to the relatively recent nature of this concern among companies. These works have frequently focused on knowledge intensive organizations (e.g. consulting firms). Indeed, in these types of organizations, the very existence of which depends on knowledge management, one finds a more intense formalization and specialization of the role of knowledge management. Since the early 1990s, functions such as Chief Learning Officer, Chief Knowledge Officer, Intellectual Capital Director, etc. have emerged. According to companies, these titles address different realities. In minimal terms, the Chief Learning Officer is responsible for training programs, the Chief Knowledge Officer, for knowledge sharing tools, and the Intellectual Capital Directors, for patent management. Considering these roles on a larger scale, these directors must incite and coordinate actions related to the creation and sharing of knowledge (e.g. implementing a specific tool, improving the identification and exploitation of the existing knowledge patrimony, enriching this patrimony by identifying and formalizing the « best practices »), avoiding « knowledge loss » (this may have happened in the past when employees left: retirement, lay-off, voluntary departure), etc. At the divisional level, we see specific roles, such as Knowledge Manager (local assistant to the Chief Knowledge Officer), or Knowledge Editors responsible for identifying and codifying new knowledge and ensuring that it is updated (for example, choosing knowledge that must be acquired at the end of a consulting mission, validating it and making it accessible via the IT system).

As I. Nonaka and H. Takeuchi (1995) demonstrate, knowledge management requires knowledge conversion processes: the passage from tacit to explicit, from the individual to the collective, and inversely. The management of these processes is one of the main missions entrusted to knowledge management specialists.

In complement to formalizing roles dedicated to knowledge management, the company's entire structure and functioning modes must be reconsidered so as to facilitate knowledge sharing and creation (Garvin, 1993; Goh and Richards, 1997; Pedler, Burgoyne and Boydell, 1991). A learning structure has several characteristics, including:

- project-based, transversal teams,
- few hierarchical levels (flat structure),
- limited number of formalized procedures,
- decompartmentalization of entities with employees organized in networks,
- existence of communities of practice.

These communities bring together, on a voluntary basis, individuals sharing the same interests (for a vocation, product, technology, etc.). With a functioning mode similar to that noted in associations, they represent an opportune place for knowledge management. Members of a community define their own operating rules and objectives. Their company provides them with but logistical support and the authorization to consecrate a part of their time to the community. For example, at Cap Gemini Ernst & Young, people interested in knowledge management created an international community at their own initiative. This community has an internal newsletter and a forum on the company's Intranet where members share their experiences, indicate best practices observed, share the tools they develop. It also organizes various activities, especially training seminars for other employees.

Technology: IT systems

This Learning Mix dimension, the most tangible, is the one that has attracted the most attention from companies over the past few years. Certainly, many companies have allocated significant resources to the implementation of IT systems. First, we must note that the notions information and knowledge are hierarchized. Information is data to which an individual attributes significance. As for knowledge, it requires that the individual first articulates all the available information and then appropriates and incorporates it. In this perspective, knowledge concerns the actor (individual or collective), and not the management tool itself. Recent technological evolutions have led to spectacular growth, both in IT's capacities to handle and stock information and in the different possibilities for communications.

To illustrate, CRM (Customer Relationship Management), based on the computerized collection and exploitation of an extremely large consumer database (who are they?, what are their buying habits?, etc.), help marketing specialists acquire new knowledge, and therefore, increase efficiency (Hiebeler and al., 1999). Generally speaking, databases, search engines, expert systems and other decision-making tools all provide actors with information that they cannot otherwise obtain due to the limits of their memory and cognition. In this manner, technology is a source of knowledge. In addition, the Internet has led to an unprecedented growth in the possibilities for communications and its use has enabled us to overstep some of the constraints imposed by time and space. Information systems play, therefore, a key role in the sharing of knowledge. However, the significance of the information technology depends on the type of knowledge management strategy the company adopts. Hansen, Nohria and Tierney (1999) highlight the existence of two strategies: codification and personalization. In the first case, the IT system, as well as the employees responsible for them, are at the core of the knowledge management approach. The main stakes consist of identifying knowledge, codifying it and making it available through the IT tool. This strategy is adapted to situations in which knowledge can easily be made explicit. In a personalization strategy, the IT system

plays a much less central role. The stakes consist of making readily available structures and functioning modes propitious to sharing dominantly tacit knowledge: frequent meetings, transversal project teams, etc. Even when the company opts for a codification strategy, though, the knowledge management tool must remain a tool and not become a finality. The « medium must not be the message »; information technology must preserve its supporting role. In other words, knowledge management must not in any case be reduced merely to its technological dimension.

The Learning Mix in practice: managing knowledge in a consultancy organization

In this section, we present the results of a two-year research which looked at the creation and implementation of a knowledge management (KM) department within a large IT and Management consulting firm. Results of a users' survey are also incorporated in our analysis. Based on a grounded inquiry (Glaser and Strauss, 1967), this case illustrates that in practice managing knowledge involves dealing with four types of issues, i.e. technology, knowledge portfolio management, organizational design and organizational identity. We used an inductive methodology and the case was not designed to explore the Learning Mix : the 4 dimensions composing the Mix emerged from the data. The case therefore provides substance to our claim regarding the importance of the Learning Mix. It notably illustrates the difficulties an organization may encounter if it fails to address one or more of the dimension of the Learning Mix. It shows that organizational identity (Albert and Whetten, 1985), and notably the experienced and manifested facets of organizational identity (Soenen and Moingeon, 2002) play a critical role in the creation of a learning organization as it exerts a strong albeit sometimes subtle influence on the other three facets of the Learning Mix.

Research objective, setting and methodology

We started with a rather loose research objective : to build a descriptive account of the deployment of a knowledge management department within a large consultancy organization. Our intention was to provide a “thick description” (Gertz, 1973) of the issues and processes involved in managing concrete knowledge management practices. The study took place in the French division of the organization. The division employs around 9000 people and enjoy a high degree of autonomy from corporate headquarters.

Data were collected during a period of 27 months, from September 2000 to January 2003. Throughout this period, we conducted a participant observation. One of the co-author was involved full time with the management of the KM department. In addition to direct observation, semi-structured interviews were carried out with members of the KM department as well as with representatives of other functions in the organization, and internal documents were collected. All the mails exchanged among members of the KM department through the KM diffusion list were also collected (903 in total). We also conducted a users' survey, whom results were included in our analysis.

Categories used for observation as well as for interviews were based on two theoretical sources. First, we made the assumption that the deployment of KM could be regarded as a

technico-administrative innovation. We could make this assumption because it was the first time that this organization was putting a formal KM department in place, therefore *in this setting* KM was an innovation. Building on the “innovation journey” framework developed by van de Ven et al. (1999), we searched for data on :

- (i) *People*: who are the innovators, the innovation’s target users, the resources controller ?
- (ii) *Ideas*: how is KM defined, notably, what is its scope, does this definition evolve over time?
- (iii) *Transactions*: which other groups within or outside the organization does the KM team work with ? How are these relationships ? For instance, are there any groups in the organization strongly in favor or opposed to the creation of a KM department ?
- (iv) *Outcomes*: what are the results of setting up a KM department ? What kind of results actors are interested in ? How are these results measured, analyzed and judged ?
- (v) *Contexts*: are there events at the organization’s level or in the environment which have an impact on the deployment of KM ?

Over the 27 months period of observation, we recorded the changes in any of the above categories.

In addition to the categories described above, we have grounded our field work and data analysis in the organizational sociology of Michel Crozier and Ehrard Friedberg (1977). Indeed, the “innovation journey” framework is very broad and researchers are encouraged, while paying attention to the 5 categories, to focus on a particular dimension in order to develop additional insights about the innovation process. We have chosen to focus on the ‘people’ and ‘interactions’ dimensions because these items have received less attention in the literature on KM, which typically focus on strategic or technological issues. The concepts and field work techniques developed by Crozier and Friedberg provide the methodological and conceptual tools needed for such an analysis. It is beyond the scope of this paper to present this approach in details. In short, this methodology is :

- Concerned with actual practices, which result from the uncertainties actors face and the practical solutions put in place to deal with them.
- Inductive: we started with a rather loose research question and build up the analysis as we went (grounded theorising, Glaser and Strauss, 1967).
- Systemic: we treat organizations as *action systems (i.e. sets of interdependent relationships leading to temporary negotiated orders)* paying attention to both components *and* the relationships among the parts.
- Micro: we focused on *actors*, who we suppose are boundedly rational; we treat actors’ actions as the primary unit of analysis (an approach termed ‘methodological individualism’ by Boudon, 1990) – but *actors* can be either individuals or collectives.
- Inert ‘things’, such as machines, technologies, etc., can take a life of their own : it is useful *analytically* to treat them as potential actors².

² This idea is taken from Callon’s concept of “actant” (1986).

Findings

Deploying KM: A chronology.

The KM department was officially created in April 2001. However, prior to this official announcement, a number of events took place.

- **May 2000** : Following the acquisition of a competitor and the ensuing reorganization, the group nominates a CKO for the French division for the first time in the organization's history. However, a number of initiatives both at division and group level preceded this decision, at least over a 5-year period. The legacy of this long gestation period is a vast system of knowledge bases more or less interconnected with a common web portal access. The system has a bad reputation and factually it is deficient : badly maintained, the knowledge bases are plethoric and their content is often of average quality. There are also some technical problems.
- **December 2000** : At a management committee meeting, building on the successful KM initiatives designed to support account management for key clients, the CKO manages to convince the French CEO that the division should have a proper KM department. In practice, this means allocating a budget to fund knowledge managers positions in every operational units of the group. This amounts to an important sum, but the CKO presents it in such a way that it looks like a rationalization of previously hidden costs rather than additional expenses. Indeed, until this date there were KM initiatives being developed in several entities of the group but these were not coordinated, and most consisted in specific, therefore often redundant, IT developments. From now on, all IT developments for KM purposes are to be centralized under the CKO supervision and the savings generated used to fund knowledge managers positions. The budget also caters for the costs of the KM department "core team" (4 persons including the CKO) and for the costs of subscription to external information providers such as Reuters.
- **December 2000** : A unit specialized in providing economic intelligence, such as updates on markets, competitors and clients, or more specific on-demand research is included in the administrative perimeter of the KM department. This service is inherited from a past acquisition. Budget wise however, this unit remains separate; the integration became complete only after the historical leader of the unit left the group.
- **April 2001** : The KM department organizes its first official « kick-off », a one-day event destined to mark the official creation of the department. At that time, only 70 % of the budgeted knowledge managers positions have been filled in.
- A few days later, the division CEO grants an additional budget for the development of a new knowledge bases system destined to replace the old system. The objective is also to harmonize KM systems throughout the division, including in the recently acquired entities, by providing a single common system. The budget includes the costs of software licenses, storing space and the salaries of the servers' administrators. The system chosen, based on Lotus Notes technology, is the same as the one the recently bought competitor used. There are several reasons behind this choice,

including price consideration. Another factor which has shaped the decision is the presence in the KM department core team of the former KM responsible in the acquired company. In addition, following the acquisition, which was presented more as a merger-like operation, it was good to demonstrate that good things existed in both companies : adopting the KM technology of the acquired company therefore made political sense. From that moment, the knowledge bases become the dominant issue in the KM department preoccupation and communication activities.

- In parallel, the KM strategy is clarified and start to be actively communicated. The number one objective is to contribute to the growth of the group by supporting business development activities. Business developers are identified as the primary target for KM : knowledge managers are asked to help them in priority, and are encourage to meet physically with them, to get into the commercial decision making circles, and, more generally, to establish partnership with them. This objective is aligned with the corporate objectives for 2001 : weathering a difficult period, the group has decided to battle for conquering new clients, which means investing in business development activities. This will have strong and lasting influence on the management of the organization knowledge portfolio. In other words, the structuring of the organization knowledge, which is made plain in the system of indexation adopted for the knowledge bases, derives from the choice of a target population, which itself derives from a strategic objective decided at corporate level.
- **June and July 2001, then September 2001** : The KM core team creates a reporting system to track the deployment of its strategy. The stabilized version is used from September on. The system is designed to allow for comparisons among units. It does not allow to track the diffusion of KM practices throughout the firm, rather, it allows to benchmark units in terms of compliance to guidelines issued by the KM department. By crafting such a system, the CKO gives himself a lever he can then use to force recalcitrant units to comply to its strategy. Indeed, this reporting is debriefed in the monthly meeting of the executive committee.
- **November / December 2001** : The internal pricing system for the Research & Analysis unit (which by that time was officially part of the KM department) is at long last agreed upon. Until that time, it was unclear whether the units that were asking for studies had to pay for it, and at what price. Because of this uncertainty, the service almost died : its headcount dropped to 5 (whereas there are usually 15 persons in this unit).
- **March 2002** : The members of the executive committee visit the KM department offices. During that period, the CKO has launched a campaign destined to gather testimonies from business leaders about “what KM has done for them”. For the KM core team, this serves a dual purpose. First, the testimonies constitute an excellent communication platform in order to increase the legitimacy of KM. Second, it offers a way to assess, and further encourage, the relationships knowledge managers have with business developers. During the visit, the CKO notices a testimony by a business developer regarding the impact of KM on winning a large contract. This event is interpreted by the KM core team as an encouragement to continue their strategy and to search for additional testimonies.

- **May – June 2002** : The KM department launches a survey to assess the degree of diffusion of KM practices throughout the group.
- **September 2002** : The results of the survey are presented (cf. next section for more details). There are disparities among units regarding the extent to which KM had been effectively adopted. Entities which ranked high in the KM reporting have on average better results than those who did not do well in the reporting. This is interpreted as a sign that the KM strategy implemented is on the right track and that the reporting system functions properly. Overall, there is a sense that the foundations have been established. However, the survey also reveals important difficulties. Notably, there are a number of cultural barriers preventing KM to deliver its full potential, the importance of which had escaped the CKO. These results form a basis for the “second wave” of KM, and for the KM core team this is a turning point. The KM strategy for 2003 breaks away from the orientation hereto followed. In addition to a focus on business development activities, the KM should also target “delivery” activities, that is the activities involved in actually delivering the services to the clients once a contract has been won. In addition, there are questions about whether the KM department should go beyond the codification strategy followed until then and also consider more tacit form of knowledge.
- **November – December 2002** : The CKO presents his strategy for 2003 against a difficult economic climate forcing the group to consider costs reduction programs. The 2003 strategy emphasizes the need to strengthen the KM organization put in place over the past 2 years as well as 5 new priorities :
 1. The development of a knowledge-sharing culture
 2. The inclusion of « delivery » activities into the perimeter of the KM department
 3. A more rigorous content management program
 4. A better technology for remote access to the knowledge bases
 5. To go beyond the codification strategy implemented so far in order to better managed non-codifiable knowledge.
- **January 2003** : The French division implements a cost reduction program. There are talks about a 25% reduction in the KM budget. The executive committee says it wants to maintain a minimal structure for KM, which means to focus almost exclusively on the knowledge bases. Actors of KM believe that the executive committee reason in the following manner : since the KM technology is in place, there are no needs for further investments in KM. The projects planned for 2003 are put on hold.

Adoption of KM within operational units.

In this section, we present the main results of a survey we conducted on behalf of the Knowledge Management department in June 2002. For the CKO the objectives of the survey were to measure whether the KM services put in place since June 2001 were being adopted throughout the organization and if there were differences among entities in terms of rate of adoption. Another objective was to assess whether employees were satisfied in terms of knowledge management services offered to them and also to figure out what their perceptions of KM was. We used a web-based questionnaire which we send to 2500 employees.

Respondents were selected randomly. We used a stratified sampling procedure in order to get a sample representative of the 15 operational entities composing the group and of the various professions. The survey yielded 810 usable answers. The response rate was 28.8%. We compared the population, the sample and the respondents in terms of age, seniority as well as sex and profession : we found no indication of non-response biases (cf. Appendix 2). The key findings of the survey were :

- KM is perceived as indispensable by 93% of the employees, while 88% consider KM to be a necessity in order to remain credible when dealing with clients. These results hold across functions and across departments.
- Since the creation of the KM department, employees overall awareness of, and satisfaction with knowledge management services has increased. On a 5-point likert scale, satisfaction with the “new KM services” (i.e. those provided by the new KM department) as compared with the satisfaction with prior KM services has increased from 2.9 to 3.2 : this is a 10.2% increase. There are significant differences among entities : in units where the recommendations of the KM department have been implemented, awareness and satisfaction are higher.
- Employees are satisfied with the degree of cooperation among colleagues within their unit (only 20% are dissatisfied), but are dissatisfied (41%) when it comes to inter-units cooperation. There are certainly in-group versus out-group biases at play, but some explanations lie at the organizational identity level which hinders knowledge-sharing. Indeed, business units managers are each responsible for a separate profit and loss account, and have been historically judged solely on their financial results. More generally, the organization encourages entrepreneurship. Because of rapid market evolutions and frequent internal reorganizations, coupled with the frequent “bundling” of consultancy services into repackaged new offers, several business units may found themselves to be competitors on certain market segments : hence the expression of « Gaul villages » frequently heard among employees. This is compounded by the fact that the rules governing internal resources transfers are frequently debated. In consequence, many BUs leaders have more or less officially adopted a policy whereby they forbid the capitalization of certain knowledge deemed too sensitive (understand “potentially harmful if in the wrong hands»). Such behaviors have of course a negative impact on inter-units cooperation.
- A KM strategy solely based on codification has limitations. This strategy consists in codifying knowledge and then storing it in electronic data bases that can be accessed remotely (Hansen, Nohria and Tierney, 1999). Our survey shows that such a strategy only covers 20 % of employees KM needs. When asked about the most important sources of information or knowledge used in order to do their work, respondents mentioned : knowledge bases (20%), colleagues, either in one’s immediate vicinity or belonging to one’s personal network or community of practice (50%), internet (11%) and one’s hierarchy (5%) and other sources (13%).

Overall, those results were considered satisfactory in light of the objectives assigned to the KM department and the starting situation 18 months ago. However, the survey also revealed a number of difficulties which are slowing down the diffusion of KM throughout the group. Notably, employees feel there is a lack of management support, i.e. 33% declare that KM is

not supported by their unit's management. Second, there is a dark side to KM : 44% of the employees declare that to contribute to the knowledge bases is equivalent to a loss of personal power, and 49% declare that "my knowledge is my property ». Another 20% declare that to capitalize knowledge is risky because one never knows if the knowledge which is codified and stored will be used appropriately. Another aspect of the deficient managerial support to KM rests in the fact that KM is not embedded into key organizational routines, such as the sale process, quality controls and HR policies. Indeed, 80% of the employees declare that there is no "official time" for KM in their entities, and 50% declare that the capitalization of knowledge is not integrated in their units' standard operating procedures. Another barrier to the diffusion of KM lies in the fact that KM technology is not yet fully mastered : more than 40 % of the employees report experiencing technical problems when accessing the knowledge bases, notably while remote-accessing. More than a raw technical challenge, this is an illustration of KM low status and strained relationships with the IT department. Finally, content management is felt not to be rigorous enough : 35% of the employees declare that the documents stored in the knowledge bases are too old, and 49% declare the knowledge bases are incomplete.

3. Implications for practice

Several lessons can be drawn from this case study. First, organizations should have an explicit strategy for managing knowledge. As the case illustrates, business units which have implemented the corporate KM strategy enjoy a significantly higher level of employees' satisfaction in comparison to units which have not. In the former, there is also a higher level of awareness regarding knowledge practices³. As it is often very difficult to put a ROI figure on KM investment, users' satisfaction can be a key determinant in whether or not KM is retained as a business practice or become just another fad. Clearly, an organization knowledge ought to be managed in a purposeful way.

Second, implementing KM requires a multi-functional approach which caters for the four facets of the "Learning Mix". Managing knowledge involves dealing with a great number of issues, which can be conveniently regrouped under 4 headings : IT infrastructure, knowledge portfolio, organizational structure and processes, and organizational identity. These empirically derived dimensions corresponds to the different facets of the "Learning Mix".

The case shows that these dimensions are interdependent, but that technical issues tend to monopolize managers' attention. This is risky, because when facing a difficult period, or having to cut costs, executives can fall into the trap of believing that once the KM IT infrastructure is in place, there are no need for further investments into the organizational aspects of KM. This is what had happened before within this organization: investments in KM had stopped once the knowledge bases were in place. The case shows that an IT based KM system cannot deliver any value on its own : managers need to deal with issues of

³ Unfortunately, although our study did include measures of actual adoption, such as rate of usage of KM services, comparison could not be made among units. Indeed, the intensity of the need for knowledge management varies from one unit to another. For example, a unit involved in management consulting activities, where the timeframe of typical projects is about 2 months, has a frequent need for KM activities focusing on business development. On the contrary, an entity focusing on Application Management, an activity for which typical projects last for several years, has much less frequent need for business development oriented KM activities.

knowledge portfolio (ex: what kind of knowledge are we targeting, for which population ?), organizational structure (ex: what is the ideal profile for a knowledge manager, where should he be located within the organization ?) and change management.

Organizational identity should be a top management concern : it can make or break a KM strategy. The case illustrates that a culture emphasizing knowledge-sharing is necessary if employees are to contribute to the KM processes. Capitalizing one's knowledge is not a "natural thing" and this should be acknowledged. Although this is often taboo, knowledge is power and sharing one's knowledge can sometime effectively lead to a loss of personal power. At an aggregated level, the enduring power relationships which characterize an organization's manifested identity (Soenen & Moingeon, 2002) condition how the other facets of the Learning Mix should be dealt with. Whether choosing a KM IT infrastructure, nominating knowledge managers, or deciding upon a strategic orientation for knowledge sharing among business units, power is always present.

Finally, the process of implementing of a KM function shares the characteristics of an innovation process as described by Van de Ven et al. 1999, i.e. implementing a KM function is an 'innovation journey', and managers should relinquish the idea of fully mastering the process, and instead learn to learn as they go.

Learning to manage the Learning Mix

In executive education programs, it is possible to illustrate, using case studies, personalization and codification strategies and the associated technological choices. An analysis of the best practices, as well as practices used by companies that had made significant investments in tools that few employees actually employ, opens the discussion about technology's role and place and brings to the fore the importance of other Learning Mix dimensions. In inter-company programs (with participants from different companies), and even more so in so-called « customized » programs (all participants are top management or managers in the same company), the discussion topic can be about current practices, types of strategies adopted (whether or not the choice was consciously made), difficulties confronted, etc.

Improving reasoning processes

The Learning Mix dimension that is the most difficult to manage is unquestionably the one linked to the firm's identity, as actors' values and reasoning processes must be considered. In this final part, we have chosen to describe a pedagogical approach, based mainly on the theory of organizational learning developed by Chris Argyris and Donald Schön, for this dimension (Argyris, 1993; Argyris and Schön, 1974, 1978, 1996; Argyris, Putnam and Smith, 1985). In accordance with Kurt Lewin, these authors consider that the best validity test of a theory is the implementation of actions of change. Research studies are used to conceive the pedagogical tools. In turn, a training seminar (or in-company training) provides information about the validity of the theory of change, and even contributes to defining new research questions.

A Learning Mix seminar can help improve the efficiency of knowledge sharing and creation processes. As this efficiency is intimately linked to the quality of interactions between people, the objective is to encourage participants to provide feedback on how these interactions occur. Concretely, this includes helping top management to become aware of its part of responsibility in deplorable situations. During a meeting, the tendency for participants to defend their points of view without seeking to understand others' (obstacle to knowledge sharing), to ignore the « real problems » and to avoid questioning past choices (obstacle to knowledge creation) can all be explained by the reasoning processes used and the underlying values. How can this be brought to the fore during a training seminar? It is insufficient to merely expose the foundations of this learning theory and to illustrate with numerous examples. Recognizing in a cited example that a manager's behavior could have created an obstacle to knowledge sharing and creation is one thing. Acknowledging the similarities in one's own conduct is another thing. Training must therefore go beyond this difficulty and push the participant to become aware of his own behavior, to adopt a reflective attitude about himself, his interactions and reasoning processes. For this to occur, it is necessary to analyze the « here and now » and observe the participant's behavior. He thus becomes the main actor in the case study. The objective is to start from the resulting data (Chris Argyris calls this directly observable data) and then demonstrate how it illustrates such or such an aspect of the theory presented. To understand the reasoning processes and underlying values, the animator uses inferences, the validity of which the participant can confirm or disaffirm. In the following section, we will present three exercises to illustrate this pedagogical approach that is used during top management training seminars.

The first exercise is a problem solving game⁴. Each participant is first given a piece of paper with several sentences on it. For example: « When they must voice their opinions, Steering Committee members, as usual, tend to hierarchize the possible options. Each elaborates a list, starting with the option that he prefers. » The animator then says, « You belong to a team responsible for a mission. You have thirty minutes and all the information necessary to identify the actions that need to be undertaken to accomplish your mission. Remember, although you are allowed to read out loud what is written on your paper, you may not show it to other team members. » The animator sits and observes the group (he does not answer any questions). At the end of the game and after having given the solution if the participants had not found it, he uses the data gathered during his observation to illustrate different notions. For example, he noticed that certain group members, after having tried unsuccessfully two or three times to communicate what is written on their papers, tend to withdraw thereafter. If the solution was not found by the given time, these members do not hesitate to blame those who did not listen to them. The animator tests these individuals by asking them to interpret their behavior. « After having spoken twice, I saw you withdraw from the group, reclined in your armchair. I said to myself, he must be thinking: "Well, they don't want to listen to me, too bad for them. I'm not part of this anymore" and you did not speak until the end of the game». If this analysis is confirmed, the animator continues: « Perhaps the group did not pay attention to what you said. But have you thought that the way in which you spoke may have been part of the reason why you were not heard? Research shows that we are all adept at analyzing others' or the system's part of responsibility, but do not realize that we ourselves are in part responsible ». Such a statement can hurt participants. Certainly, it is uncomfortable to be critical of oneself. However, if we consider that the only way to change is to change

⁴ We would like to thank Diana Smith for introducing these kind of exercise to us.

others, we can quickly become pessimistic when confronted with difficulties and can consider that any change is impossible. On the contrary, there is always the possibility of changing our own behavior. When we are in a managing position, or even more so in a top management position, it is likely that relations with various collaborators evolve and that profound changes occur.

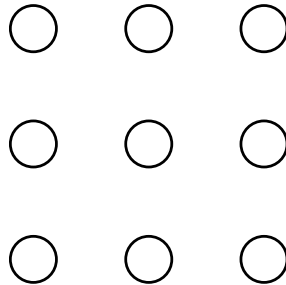


Figure 2: The 9-dot challenge

Another exercise on reasoning processes: the nine-dot challenge. Nine dots are drawn on a piece of paper, arranged in three rows and three columns (figure 2). People are asked to link all the dots by four straight lines, without lifting the pencil off the paper. This game is very well-known, and it is frequent that participants know how to do it, even if they do not remember the « solution ». They are asked to say nothing at first and a person who has never done this exercise is invited to the blackboard. The person is asked to write down all the different possibilities that he envisages mentally. This allows everyone to see the different solutions considered. In a great majority of the cases, the attempts are unproductive. The animator then invites those participants who « know » to give a hint. Generally, they say: « To solve the problem, you must go out of the square ». Indeed, the nine points constitute a « virtual square » (eight make up the sides and one is in the center). The animator then tests a hypothesis with the participant at the blackboard: « It is as if you had, perhaps unconsciously, fixed a rule for yourself, such as: these points constitute a square and the straight lines must not go out of the square ». If you know that « to succeed, you must go out of the square », even if you did not memorize the solution, you can still find it through trial and error (cf. figure 3 in Appendix 1).

From this exercise, it is possible to address the learning mechanisms in single and double loops, as brought to the fore by Chris Argyris and Donald Schön in their research (figure 4). For these authors, learning is linked to the identification and the correction of an error. To attain an objective, we implement a strategy of action. When the observed results do not confirm expectations, the learning in a single loop involves selecting a new strategy of action from the repertoire. However, sometimes, as in the nine-dot challenge case, this single loop learning is insufficient. Consequently, we must backtrack to the level concerning tacit knowledge, values and norms that determine the content of the available reserve of strategies. Double loop learning consists, then, of modifying these tacit knowledge, values and norms so as to generate new action strategies and enrich the patrimony of knowledge that can be mobilized. This is what the participant discovers when he realizes that he perceived the nine points to be a square in which he confined himself. As soon as he knows that he must « go out of the square », he will develop a new set of action strategies, among which he will find the one needed to meet the challenge. This double loop learning capacity is key in the knowledge and innovation creation process.

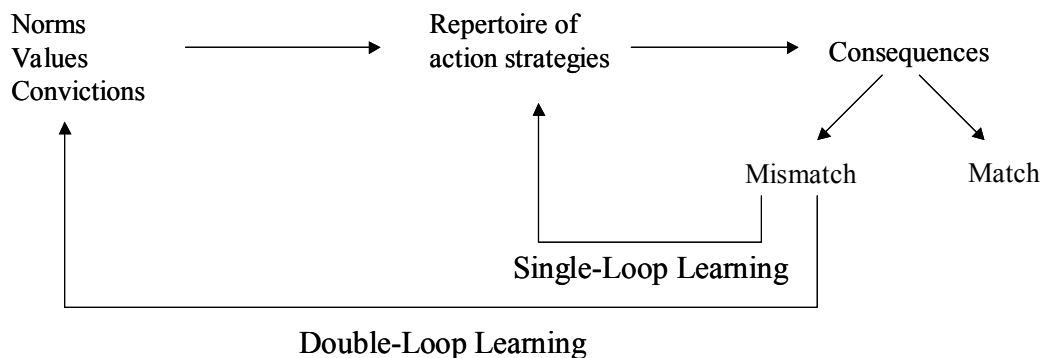


Figure 4: Single and double loop learning
(adapted from Argyris, 1993, p. 50)

Third type of exercise: mini cases. They can take upon different forms. The animator can ask participants to comment on top management's decisions⁵. « Let us take the example of a CEO who insists upon the necessity to innovate, claiming that it will lead to a competitive advantage. He is so truly convinced of this that he allocates resources to innovation. His future son-in-law just joined the company as a development engineer. Invited to lunch, the son-in-law finally says to his future father-in-law that his innovation speech is a « joke » to everyone in the company. Asked to justify himself, the son-in-law explains that for an innovation to be ready to be launched, it must first be approved at 240 different stages in the pipeline. The next day, the CEO asks his management committee for a report, which confirms the process described. He then creates a task force with the mission of significantly reducing the number of necessary testing stages. In less than ten days, this number is divided by three. What do you think about how the CEO handled this situation? ». Very often, participants focus on the CEO's reactivity and question whether or not the number of testing stages is still too high. The animator, while not contesting that these comments are well justified, shows that the participants all follow the same logic. Rare are those who identify the existence of another level of problems that the approach adopted by the CEO does not resolve. In fact, this situation that the CEO dreads can perfectly reoccur under another form because he did not address the "second-order error": why is it that he was not informed, other than by his future son-in-law, about this situation that discredits his speeches and all his actions in favor of innovation? This calls into question his management style, the type of environment that he has helped create in the company, etc. The routine defensive notion explains why we tend to avoid these types of questions. Chris Argyris highlights a protection mechanism (routine defensive) that helps us avoid (at least in the short-term) embarrassing situations. When in action, this mechanism actually has an adverse effect: it does not help find a solution to the original problem, and the solutions considered will even aggravate the problem. This can be illustrated in the following case. A Director, at the end of a meeting with managers, asks if anyone has questions. When the room falls silent, he blames the communications manager for this situation that he deems unacceptable and very uncomfortable. To solve this problem, the communications manager sets up a procedure for the next meeting. He invites all managers to submit to him beforehand questions that he will

⁵ We would like to thank Chris Argyris for sharing with us this story.

give, anonymously, to the Director. Here again, participants are asked to voice their opinions about this choice of action. As in the previous example, there are two layers of problems. Effectively, the solution used solves the problem about the absence of questions. However, if we ask the Director why he thinks no one asked questions, upon reflection, he evokes the existence of a distrustful environment insofar as he is concerned. He explains that he had to lay off several employees for embezzlement and preferred to keep these reasons silent. For him, this contributes to the development of an environment laden with incomprehension and distrust. The anonymous questions solution, though, does not solve this problem; on the contrary, it reinforces the problem because it communicates to employees: « if you have embarrassing questions to ask, do so anonymously ». After elaborating this analysis, the animator calls upon the participants for suggestions on an approach that the Director can adopt at the next managerial meeting. Now is the opportunity to communicate the results of the research work that has drawn out, in such a manner that can be discussed, the problems perceived to be embarrassing. In doing so, the defensive routines, genuine obstacles to the sharing and creation of knowledge, can be reduced. Complementarily, it is also possible to discuss the cases drafted by voluntary participants. These cases describe an inter-individual situation (for instance, a meeting with a colleague) deemed unsatisfying (feelings of being misunderstood, even unfairness, absence of knowledge sharing, etc.). When the conversations are transcribed, the participants indicate what they felt or thought but did not say to the person with whom they were conversing (for an illustration of this approach, see Argyris, 1995). The study of these conversations show often that the protagonists have an argumentative logic, where each tries to convince the other, not by explaining the steps in his reasoning, but by attempting to impose his point of view. These protagonists tend to consider as proven fact that which is but constructed hypotheses or interpretations. They do not seek to understand others' viewpoints. In addition, a gap can frequently be noted between what is thought and what is said. This does not mean that we must say what we think, as very often, these thoughts are of the same nature: hypotheses are considered to be fact. It is thus advisable to change how we think in order to modify the way that we interact with others.

Conclusion

Efficiently managing knowledge and transforming a company into a learning organization are ambitious projects. The difficulties encountered by practitioners (managers and consultants) tempted by this adventure and by researchers seeking to identify these problems, or even hoping to propose improvements, can be explained by the parceling out of the different approaches and the absence of an integrative vision. In this context, the Learning Mix model responds to a true need. It identifies the different dimensions that must be considered: technological, organizational, strategic and identity. It is unquestionably this last facet that is the most difficult to grasp, but pedagogical approaches that help make reasoning processes evolve exist.

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Appendix 1 :

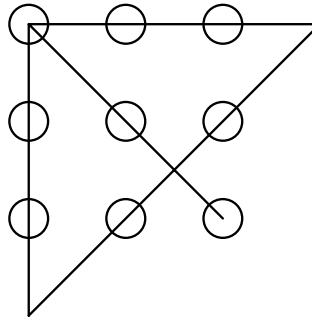


Figure 3: The solution to the 9-point challenge.

Appendix 2 :

Entity	Number of		Age (average)			Seniority (average)		
	Respondants	Answer rate	Respondants	Sample	Population	Respondants	Sample	Population
1	67	28,91%	34,97	34,06	33,23	4,7	4,58	4,33
2	54	32,00%	33,95	36,19	35,3	4,71	4,51	4,8
3	50	24,60%	32,01	32,88	32,37	2,95	3,92	3,72
4	31	18,00%	35,81	38,1	36,41	3,32	3,8	5,3
5	78	26,19%	34,87	34,49	33,59	3,76	3,46	3,29
6	52	21,70%	36,85	38,88	38,36	4,87	6,39	6,69
7	50	18,78%	38,34	38,92	38,4	3,64	4,39	5,31
8	44	38,30%	34,9	35,14	34,64	3,93	3,6	4,55
9	73	30,94%	36,21	35,27	34,59	5,34	4,69	4,85
10	60	27,54%	36,6	40,87	39,19	5,18	5,31	6,53
11	39	32,14%	37,21	36,02	33,94	4,44	5,07	4,56
12	48	28,04%	33,45	34,73	33,84	4,44	4,95	4,63
13	65	34,49%	33,85	34,59	33,63	4,74	4,95	5,09
14	36	32,93%	34,79	33,98	33,94	5,67	4,89	4,94
15	63	30,38%	36,31	35,97	34,99	6,06	5,77	5,92
Total	810	28,71%	35,32	35,49	34,45	4,57	4,69	4,8