

The informational attractors
A different approach of information and knowledge management

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Table of Content

Introduction	3
A different approach	3
The informational system	4
The informational attractor	5
The variables describing the IS	7
The mapping of the IS	8
The emergence and the representation of the attractor	9
The typology of attractors	11
The attractor and the “Ba”	12
The case of an attractor of sharing	14
Conclusions	16

The informational attractors

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Introduction

The usual concern in information and knowledge management is to focus on the effectiveness of different technical and computer procedures and their improvement. Certainly we do not neglect the necessity of information technologies and their essential contribution to the value of the enterprise. But there are more than technologies and processes. Useful information does not consist merely of formal information, i.e. that can be written and managed by computer. There is informal information – the know-how, the unsaid and the historical, technical or sectorial culture– that draws its effectiveness from its status of implicit knowledge. But because of the emphasis put on technology, either implicit information is not mentioned or one put forwards only proper methods to explicit its contents in its entirety. The last step makes the cornerstone of numerous projects of knowledge management. We have a different approach. For us, implicit aspects of information are very important and make up an integral part of the management of the resource. As we consider the enterprise as forming an information system (IS), increasing the value of the business will be realised through IS management. The observation of the IS leads us to note that every IS is indeed made out of a suite of transformations and interactive passages between the explicit and implicit parts of the informational material. Inside this sequence what forms what we called “the informational attractor” of the system. We borrow this notion from the theory of chaos. The attractor explains the behaviour of an information system and is the motor for it. We shall see that it is possible to identify three types of attractors: sharing, tension and rupture. Finally, we examine relationships between IS and knowledge management. We start from the SECI model of Nonaka and Takeuchi² explaining the spiral of knowledge through successive passages from implicit to explicit knowledge. The place where the spiral emerges from is the IS and the attractor gives to it the necessary energy. Therefore knowledge management comes down to that of the IS. We conclude by an example of an attractor of sharing.

A different approach

Information and knowledge management are most often approached through projects set out to increase the value of the enterprise by augmenting that of goods and services that it sells, the satisfaction of its customers, partners and stockholders. They try to promote the potential of knowledge and information detained by the different actors³, to reduce the expenses drawn away by redundancies and withholding of information, lack of pertinence and actuality and, finally, to control the risks related to the disappearing of knowledge caused by the departure of key people in the enterprise. Definitely, the objective is to leverage the use of the other resources through promotion of knowledge.

Making explicit information and knowledge detained and acquired by each of the agents will be

¹ This paper is based on the book « Les attracteurs informationnels », [Descartes & Cie](#), Paris, 2005

² In Nonaka I. Takeuchi H. (with contributions of Mr Ingham). « La connaissance créatrice : la dynamique de l'organisation apprenante », De Boeck, Collection management, Bruxelles, 1997

³ By actor or agent, we understand either a person, or one or several groups, formal or informal, or a part of the structure or system of the enterprise.

then stressed together with the definition and the installation of processes and methods for transferring knowledge. It will be necessary to motivate the agents and to create a network of horizontal relationships between them. Since many enterprises are not really familiar with the culture of sharing that require such projects, a fundamental cultural change will also be needed. Finally technologies of information and communication (TIC) will be implemented to make explicit past and future knowledge, to store it in data warehouses, to distribute it, to put the actors in a network and to list the competences.

However the infatuation for “knowledge management” projects, has had a tendency to become eroded for different reasons. First of all the investments did not always produce expected results. The new “functions” and implemented policies did not always allow ameliorating the sharing of knowledge within enterprises, what gives rise to discouragement⁴. Moreover, “ready made or universal solutions” in information and knowledge management systems do not exist because often projects underestimate the complex nature of phenomenon information and the realities of interactions between the men, technologies and structures, and between the numerous interdependent dimensions, of technological, organizational, cognitive and behaviour nature. Finally, projects and implemented systems have the ambition to explain information and knowledge in full. And, by doing so, they limit themselves to the treatment and the transformation of information that are expressible by nature and that can be codified. The field of implicit knowledge is therefore excluded there.

Our observations, experience and reflections have led us to a different approach in rupture with the one that we have outlined. We consider information to be a specific resource that must be managed in the same way and at the same level of responsibility than the others, financial, human, material. In practice, it is far from being the case⁵. Then we see enterprises bathing literally in a flow of information that mixes up at the same time explicit and implicit information. This disordered flow is their breathing which they are often aware of only in case of difficulties. We consider the enterprise as being itself an information system and not a simple user of information. Consequently, a way to increase its business value is to increase the value of the IS. In order to do that, we need to know the IS.

The informational system

We define the informational system as a suite of transformations of data into information and knowledge on one hand, and, on the other hand, of interactive passages and exchanges, gone through by numerous effects of feedback, between the explicit and implicit fields of information and knowledge. It is a dynamic, living, adaptive, evolutionary and complex system.

Let us define first the different aspects that takes on the material handled by the system: data, information and knowledge. “(...) Data are any symbol, sign or measures that is in such a form that it can be directly captured by a person or a machine”⁶. It is the raw material that it is possible to fabricate information and knowledge with. Information is defined as one or several data that,

⁴ Byosiere P., Ingham, M « Création de connaissances et innovations », Revue française de gestion, mars-avril-mai 2001

⁵ Does it exist many managers of information or knowledge, distinct from IT and at the same level as a financial, marketing or human resources director?

⁶ Roger Clarke in « Fundamentals of ' Information Systems ' », Principal, Xamax Consultancy Pty Ltd, Canberra Visiting Fellow, Department of Computer Science, Australian National University.

transformed, mean something for a person, a group or an enterprise and become therefore usable by this person, this group or this enterprise⁷. As information, knowledge is related to signification, it is contextual and relational. But contrary to information, knowledge concerns beliefs and commitments and is related to action⁸. Knowledge is the set of information that allows acting. It appears in the course of action.

Then an IS is subjective because it is conditioned by “informational clusters”. These “clusters” are nothing else than “filters”, “hidden software”, through which people, a group, an enterprise, comprehend their environment. They are made up of three groups of elements that blend implicit aspects - not expressed, underlying- with explicit aspects that are clearly defined and specified. There is first the set of concepts that governs the information system and is conveyed by it. The set of contexts comes then in which the different concepts are used⁹. Finally the cluster is supplemented by the sets of information linked to both other sets. They condition at the same time the conception of the information system and its use and notably, its implicit elements.

An IS has its operators. We call them, the “triangles operators”. They are formed by numerous interacting triplets of men, technologies and structures, that transform through a permanent process, the flows of information, give them “sense” and produce “signification”, sources of knowledge¹⁰.

The informational attractor

An IS behaves as a transformer, operated by triangles operators, dominated by informational clusters. These elements lead us to see the complexity of an IS but they are not sufficient to describe it completely, to explain its behaviour and to improve its performances.

The informational material is formed by two domains in interaction: the implicit and the explicit. The analysis of an IS will go through the description of both domains and their intersection, together with their scopes and characteristics. For the analysis, we use a set of five interdependent variables that characterize an IS. They evolve between different limits according to the domain considered. Their analysis is going to make appear “the informational attractor”, a notion coming from the theory of chaos. It explains the behaviour of the information system and leads to its increase in value. It is in a way the “motor” of the sequences of transformation of information within an IS. It shows how they attract the data coming to their range to give them more senses, allow action and so generate knowledge.

The attractor explains the behaviour of the IS. To make better understand this notion, let us take two examples¹¹. We consider first a simple system formed by a pendulum. It loses its energy by rubbing and finally stops moving. By showing its movements on a graph (fig 1), we see that trajectories converge in spiralling towards a simple point. This point is the attractor of pendulum:

⁷ We follow the explanation given by Rafael Capurro in « ON THE GENEALOGY OF INFORMATION », paper was published for the first time in: K. Kornwachs K. Jacoby Eds. « Information. New Questions to has Multidisciplinary Concept », Akademie Verlag Berlin on 1996, p. 259-270.

⁸ Nonaka, I., Takeuchi H., "The Knowledge Creating Company" Oxford University Press, on 1995 pp. 57-58

⁹ The concept “operation” has different signification in a medical, military, mathematical context.

¹⁰ A person, its workstation and its function, a cell, a department, ... form “triangles operators”

¹¹ These examples are drawn from « La théorie du chaos. Vers une nouvelle science », James Gleick, Albin Michel 1989

it "attracts" the movement of the system towards it.

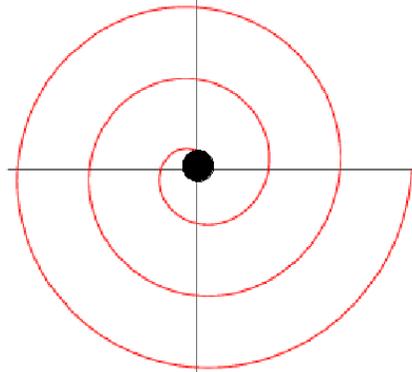


Fig. 1 Pendulum's attractor

Let us take now a complex, not linear system, and let us visualize how it behaves. We see that the orbit neither reproduces nor ever intersects again: it has an infinite length contained in a finished space. It is the case of a system such as the weather forecast or of a certain type of hydraulic wheel. Pierced buckets are hung on the rim of a wheel. Water pours in the top of it. At a certain level of flow, the wheel starts to turn because the weight of the upper bucket triggers off a regular movement. By increasing the flow progressively, it occurs that the movement becomes suddenly disordered and it is then impossible to anticipate the direction of rotation. It is an aperiodic system, which tends to reproduce without ever succeeding. By visualizing data, we get a curve that is, to quote James Gleick about Lorenz's attractor¹², "of an infinite complexity. It remained contained in certain borders without overflowing the page or going past again on itself. It represented a very particular, strange form, a kind of double three-dimensional spiral, as the wings of a butterfly. This form signalled the presence of a sheer disorder: any point or group of points did not appear to it twice. However it also signalled the presence of an unsuspecting order". Such system forms a "strange attractor". It is like the face of an owl, a strange object, interlaced in the infinity. The passage from an eye to the other one could translate, for instance, a reversal of the direction of rotation of the hydraulic wheel.

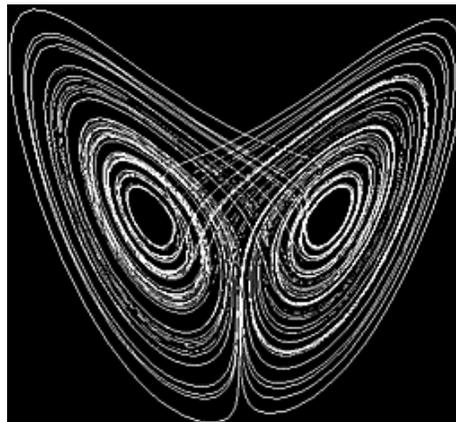


Fig 2 Lorenz's attractor

The behaviour of an information system is similar to a non linear complex system. An IS has its

¹² Lorenz's attractor, « La théorie du chaos. Vers une nouvelle science » p 50, op cit.

“attractor”, the motor of the processes of transformation. An IS turns around two points of anchoring that are the domains of the implicit and the explicit. Each domain forms a “basin of attraction” with continuous passages from one to the other. The informational attractor is the result of which. From analogy, it fits in pretty well with Lorenz's attractor.

Implicit anchoring takes into account the importance of the unsaid, the visions, the wishes, the requests of the different agents of the organization, their informal exchanges within working groups, their ability to react to the external environment and to outside events and the capabilities of initiative they have. Implicit anchoring gets closer to emergence, to creativity, to innovation.

Explicit anchoring concerns the codified knowledge that can be transmitted in a systematic and formal language. “ ... We have access to it on a sequential basis. It can be expressed in words and figures and shared in the form of data, scientific expressions, specifications, textbooks, etc.”¹³. Explicit anchoring expresses the degree of formalization of information attained by the enterprise and manifests itself in most cases in technologies and procedures of information systems (in their technical meaning). Explicit anchoring includes explicit strategy, control, daily and operational management, structured communication.

The variables describing the IS

Five interdependent variables allow to describe the basins of attraction and express their interaction.

1. The variable time determines the spaces of time in which a domain is able to move. In the implicit, it varies between the short and the long term, according to the time span lived by the organization. An enterprise of which activity is fixed on the short term (e.g., fluctuations of the stock market) will live on a short-term basis. As regards the explicit, variation is between real and deferred time. An air control systems must work in real time contrary to those used by a cell of strategic analysis.
2. The variable space concerns the spatial dimension of the activity of the enterprise. It stretches, in both domains, from a limited to a not limited space. The space can be geographical or virtual or both. The implicit of the organization will be very different whether its fundamental approach is local or global. A global enterprise cannot operate efficiently without implementing some network technology.
3. The variable function measures the adequacy of the system in the decision making process. In implicit attraction, variation will vary from verticality (the setting, even complex, is known, defined and controlled) to horizontality (the necessity to integrate wide areas of uncertainty). The variable expresses finally the way that different functions are carried out in the enterprise (degrees of freedom, possibilities of taking initiatives, the right to make errors) as well as the power of internal relational networks, where indeed implicit knowledge is built. In explicit attraction, the variable function varies between two poles. The one called “execution” refers to very structured systems that are used for the execution of tasks within well-defined procedures. The other pole is called “conception”, to point out the presence of more opened and adaptable systems.

¹³ In Ikujiro Nonaka, Noboru Konno, The Concept of « Ba » : Building Foundation for Knowledge Creation. California Management Review, Vol 40, N. 3 Spring 1998.

4. The variable usage is linked to questions relating to the exhaustiveness and to pertinence. Does the information system provide necessary and sufficient data and information for the accomplishment of the tasks within the organization? In implicit attraction it varies from analysis to synthesis in relation with the contents of the jobs and in explicit attraction from exhaustiveness to synthesis. An air control system must give real-time the entirety of information on all planes flying around in its sphere of control. A synthesis of all received and issued bills is enough for a treasurer.
5. The variable context is the most complex of the five.
 In implicit attraction, it includes the culture of the enterprise, its history and the values that it conveys as well as the management style. We will feel there the importance of the informational clusters conveyed by the organization. The “implicit context” synthesizes collective and individual behaviours of the agents. One of the poles of the variable will be the collective behaviour (dolphin) which puts the emphasis on shared and known values and concepts, on the collaboration and wish that all partners are winning. The other pole (shark) ¹⁴will be marked by the domination of personal views and interests above the collective interest of the enterprise
 The explicit attraction concerns the way technologies are understood and used by the agents. Variation stretches over a mixture of systems and technologies going from operational to integration, including communication systems.

The figure 3 gives a summary of the variables and their poles in both domains.

TABLE OF VARIATIONS

Fig. 3

VARIABLE	POLE	IMPLICIT ATTRACTION	EXPLICIT ATTRACTION	POLE
		VARIATIONS		
TIME	Short term	(a)	(a)	Real
	Long term	(a)	(a)	Deferred
		(b)		
SPACE	Limited	(a)	(a)	Limited
	Unlimited	(a)	(a)	Unlimited
		(b)		
CONTEXT	Individual (shark)	(a)	(a)	Operational
	Collective (dolphin)	(a)	(a)	Communication Integration
		(b)		

VARIABLE	POLE	IMPLICIT ATTRACTION	EXPLICIT ATTRACTION	POLE
		VARIATIONS		
FUNCTION	Vertical	(a)	(a)	Execution
	Horizontal	(a)	(a)	Conceiving
		(b)		
USAGE	Analysis	(a)	(a)	Exhaustiveness
	Synthesis	(a)	(a)	Synthesis
		(b)		

The variations of variables are represented by series of (+) or (-) (a) according to the importance of variation towards one pole or to the other one. Interrelationships between variables are numerous. They translate agreements and oppositions whose interplay will allow defining different kinds of attractors. They are synthesized in the part (b) of the table.

The mapping of the IS

Determining the value of the variables for a given information system is not the result of precise measures but definitely the translation of a true and justified belief in the importance of the variable on a ladder going from one pole to the other: for instance from real to deferred time,

¹⁴ The behaviours “dolphin” and “shark” characterize the collective and individual dimensions of the variable context. They are explained in « La Stratégie du Dauphin », Dudley Smith et Paul Kordes, les Editions de l'Homme, 1994.

from execution to conception, from the vertical to the horizontal ... This qualitative work rests on a consensus, the result of the observation of the IS and of the place of the variable. The agents play an active role in the consensus. The process used is based on a “mapping” of the IS. It looks like maieutic: leading the enterprise itself to “give birth” to the informational system of which it is the holder.

The informational system is described by means of three sets of maps. The first set allows going through the generic processes of the enterprise (acquisition of resources, transformation into goods and services, distribution and sale) and certain generated processes without whom it would be unable to work. It is not a question of re-engineering, but definitely of understanding and describing the big processes of the enterprise and to show the interactions that form between them. The different related jobs and know-how are also resumed there.

Informational uses form the second set. We establish it by associating with every map of processes, the information (or data), *implicit and/or explicit*, that the process uses and produces during its execution. It is an enlargement of the maps of processes seen from an informational point of view.

The “subjectivities of use” is the third set. It gives a view of the series of transformations of data into information and of their conglomerations. It shows the actors and the different views they have on information. The objective is to distribute informational material between its explicit and implicit parts. It is a difficult work because the question there is not making the actors to explain the tacit part of their knowledge but to specify the outline. It is container and not contents that matters.

The three sets of maps (processes, circulation of information and transformations) are completed by the map of implemented technologies together with their history, the motivations of their choices and their utilization.

The undertaken cartographic work shows first the relative importance of the explicit and implicit parts of informational material manipulated and produced by the organization. By showing its layout and distribution, it brings out the different concepts used in the enterprise, the values which it conveys, how it organizes work and its own management style. It shows mainly whether or not the IS fits in with the organisation, its suitability to the reality of the business, either implicitly or explicitly. Finally the combination of maps makes the organization aware of resources that it puts to work in the management of information.

The emergence and the representation of the attractor

It is from the mapping that it is possible to make appear the attractor by determining the order of magnitude of the surfaces of the basins of attraction, their respective force of attraction and relationships between variables of both domains.

It is not possible to represent all possible combinations of the values of variables in each of the domains of attraction. Every IS has its own characteristics. We can however “show” an informational attractor intuitively, its two attraction, their variables and poles between which they oscillate.

Every variable is represented by an axle along which it may travel from a pole to the other one. Poles stands at the same distance from the centre of the axle. The middle of the axle marks the passage from one pole of variation to the other one. Therefore, in a given informational system, every variable will take two values, one on each side of the middle of the axle combination of which shows its influence, e.g., the importance of execution on conception. Every variable represents in fact a “tension” between poles (see fig. 4).



Fig 4 The variable function

There will be two groups of axles, the one for implicit attraction and other one for explicit attraction. Each group intersects in their centre. On each of the axles, we mark values allocated to the variables. By joining those points, we draw two polygons that determine the basins of attraction. (See an example in fig.5)

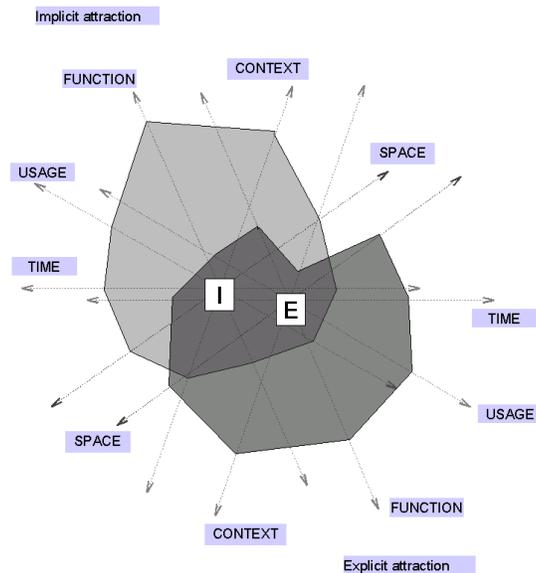
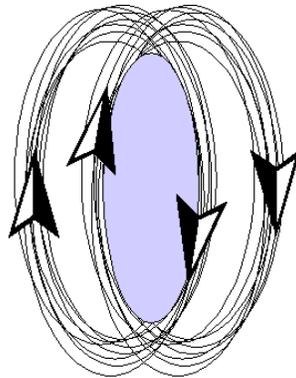


Fig. 5 SHARING ATTRACTOR

A consensus means that each value constitutes an average and, consequently, for each of them there will be a maximum and a minimum between which a whole set of values is possible. To have a dynamic view of the attractor, let us imagine the tops of the polygons oscillating continuously in the space according to those values. Then the informational attractor complies more, mutatis mutandis, with the attractor of Lorenz. Polygons give a “static” view, a state of an IS at a given instant of observation. The following figure is a dynamic view of an attractor in which we have only represented curves within which polygons are inscribed.



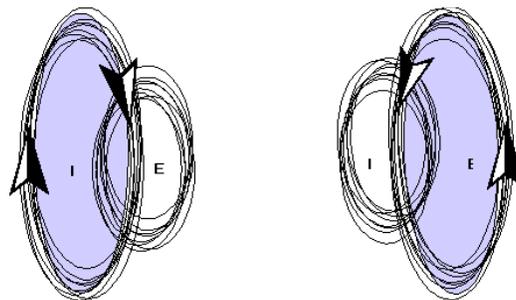
Dynamic view
Sharing attractor
Fig 6

The typology of attractors

Among very numerous possibilities of attractor, we identify a typology according to the attractive force of the basins and their interaction. We identify three types of attractor that differentiate the situations of attraction: sharing, tension and rupture.

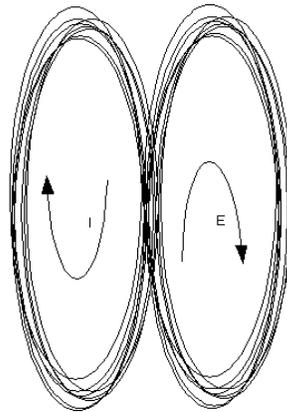
The attractor of sharing is the one where the basins of attraction are globally balanced and where the processes of transformation converge to the zone of sharing (the overlapping) of the basins of attraction. Both previous figures illustrate this situation. It is the case of an IS where the agents come easily from one domain to the other (follow the arrows fig 6). In other words there is consistency and adequacy between the culture of the organisation, the requests, told or untold, information and available tools. With this type of attractor, the IS is managed and develops towards an optimum of sharing.

Either implicit or explicit attraction is dominant in the attractors of tension. The processes of transformation are divergent and the shared zone of the basins of attraction is the stake of a conflict. When implicit attraction prevails, there is no room for training and return of experience: the enterprise reinvents non-stop what it should already know. Otherwise, the domination of explicit attraction stifles the faculties of innovation and leaves fallow the potentialities of the enterprise. In both cases technologies are not responding to the needs. The management of the IS of the enterprise is dispersed between the agents with most often a too large domination by technology.



TENSION
Implicit attraction dominant Explicit attraction dominant
Dynamic view
Fig 7

The third type of attractor is the attractor of rupture. The basins of attraction have only a point of tangency. There is neither consistency nor adequacy between implicit and explicit domains. The information system is unsuitable for the decision making process, it is inappropriate in the execution of tasks and the culture of the enterprise is very individualistic. Information is in complete escheat and the effectiveness of the information system is void if not negative. Constant and systematic changes in both attractions will be needed to head for more sharing. The information system is not managed.



BREAK
Dynamic view
Fig 8

The attractor and the “Ba”

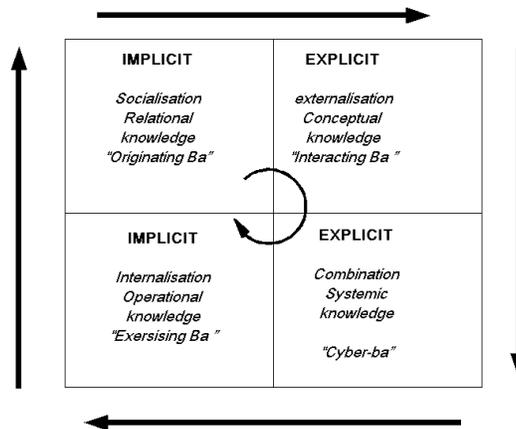
We have defined knowledge as the combined set of information that allows acting. It is through action that the enterprise creates value. We now have to examine the relationships between the IS and creation of knowledge.

The model SECI¹⁵ of Nonaka and Takeuchi¹⁶ represents the creation of a spiral of knowledge by the passages of implicit knowledge towards explicit knowledge. Informal exchanges in front of “the coffee machine” (friendly knowledge) are progressively transformed into concepts (conceptual knowledge). Those are combined to form a system (systematic knowledge) that is then operated, internalised (organizational knowledge) - it is the return towards the implicit – and, finally, we meet again in front of the coffee machine. But it is a new machine and coffee is better¹⁷. The loop starts again and the spiral of knowledge is booting. But it is necessary that it is rooted somewhere and it needs a source of energy to developing itself.

¹⁵ S = socialization, E = externalization, C = combination and I = internalization.

¹⁶ In Nonaka I. Takeuchi H. (avec des contributions de M. Ingham). « La connaissance créatrice : la dynamique de l’organisation apprenante », op cit

¹⁷ Otherwise, there would be no spiral



The SECI model
Fig 9

The source is the information systems, the place where knowledge can appear. And the informational attractor is the force that is triggering off the movement of the spiral.

This echoes with the Japanese concept of “Ba” that Nonaka and Konno introduced by continuing their reflection on the forming of knowledge in the enterprise and to explain it better. “Ba” could be roughly translated in English by “place” or “space”.

« (...) “Ba “ can be thought as a shared space for emerging relationships. This space can be physical (e.g., office, dispersed business space), virtual (e.g., e-mail, teleconference), mental (e.g., shared experiences, ideas, ideals) or any combination of them. What differentiates “ba” from ordinary human interaction is the concept of knowledge creation. “Ba” provides a platform for advancing individual and/or collective knowledge. It is from such a platform that a transcendental perspective integrates all information needed. »¹⁸

This notion of “Ba” fits in with that of the informational attractor. The domains of the implicit and the explicit are inextricably linked. There is in the attractor a common place - whatever is its “surface” - where forces of attraction enter in competition. This space is a place of sharing, tension or rupture. The mixture of attraction characterizes the attractor and gives it its force. This shared basin of the attractor is a “ba”, a virtual place of possibilities of exchanges between both attractions of the attractor.

The passage from a stage of knowledge to the other one can be made in harmony only if the attractor of the information system is of a shared type. The attractions are then on the same level of force and blend easily. In that case, the overlapping part of the basins of attraction forms a “ba of synthesis”, or “ba of integration”, a space from which the dynamic process of creation of knowledge can fan out and boot its inventive spiral. This last has a feedback effect over the informational attractor through changes resulting from new information via internalisation.

Other types to attractor would have as effect to destabilize the model of knowledge creation either by giving too much importance to certain processes of transformation (attractor of tension) or by dissociating them absolutely (attractor of rupture) and by preventing the passages from the implicit to the explicit. In other words, the spiral would not “cover” passages from a domain to

¹⁸ Ikujiro Nonaka, Noboru Konno, in " The concept of « Ba »: Building foundation for Knowledge Creation. » op cit.

the other one but would become divided in two, one for every domain.

The case of an attractor of sharing

We limit ourselves to discussing the results of observations made on the IS - that is the values of the variables - and to present the attractor.

It is about the information system of an international non-governmental organization. Information is essential for the realization of its missions because all its activity depends on it. To answer emergencies, it must know precisely contexts in which it operates, to anticipate and to identify its domains of intervention, to specify its perimeter of action and to reuse always the results of lived experiences. It uses information to inform and increase public awareness, put pressure on authorities, motivate the donors for its fund raising campaigns and document its calls to the institutional backers. Therefore the organization produces a huge quantity of quality information. In spite of this abundance, it often felt in the situation of having to reinvent what it is already known, without taking into account lived experiences. Besides, technologies (e-mail, shared discs, documents management systems) contributed to increase informational chaos.

The culture of the organization is very strong characterized by its associative aspects, by the motivation of the actors, their sense of a community of action and their ease to stand in short and long term perspectives. Informational exchanges are easily made and the capacities of feedback are pretty high. Debate is frequent and expresses itself through commented and broadly diffused documents. The structure of the organization is a matrix one. The unsaid, the implicit of the organization is therefore particularly developed. Every important document is the result of a sum of debates, know-how and experience. Used technologies are simple and controlled and favour exchange and communication.

Table 10 gives a synthesis of the observations . The variations of the variables are consistent: both domains “echo” each other.

VARIABLE	POLE	IMPLICIT ATTRACTION	EXPLICIT ATTRACTION	POLE
VARIATIONS				
TIME	Short term	+++	+++	Real
	Long term	+++	+++	Differed
<i>Correspondence</i>				
SPACE	Limited	+++	+++	Limited
	Non Limited	+++	+++	Non Limited
<i>Correspondence</i>				
CONTEXT	Individual shark)	-	+++	Operational
	Collective (dolphin)	+++	-	Communication Integration
<i>Weak correspondence</i>				

VARIABLE	POLE	IMPLICIT ATTRACTION	EXPLICIT ATTRACTION	POLE
VARIATIONS				
FUNCTION	Vertical	+	+++	Execution
	Horizontal	+++	+	Conceiving
<i>Weak correspondence</i>				
USAGE	Analysis	+++	+++	Exhaustiveness
	Synthesis	+++	+	Synthesis
<i>Correspondence</i>				

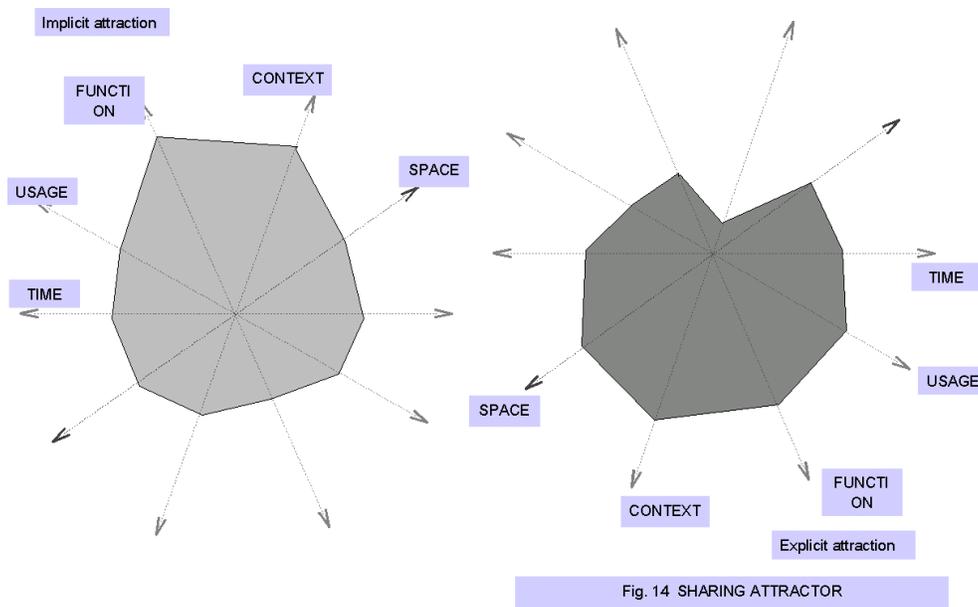
Fig. 10

However, correspondence is weaker as concerns variable “function”. In implicit attraction indeed, capacity to integrate uncertainty is strong (horizontal +++), and the variable will lean distinctly in that direction. The tools of execution (+++) are available to fulfil work what is consistent with the value of the operational (+++) in variable "context" (cf. infra). The potential of conception of tools is however weak. Variable “function” is distinctly on the side of execution in explicit attraction. But the value of the same variable in the implicit (horizontal +++), would have demanded more developed possibilities of conception. More tension appears so between the

implicit and explicit values of variable “function”.

The same can be said for variable “context”. The collective pole of the variable is distinctly predominant in implicit attraction. The communication between the agents is natural and made easier by the structure of the organization. In explicit attraction, systems are orientated to the operational and communication (see execution also in variable “function”) making tilt the variable in that direction. There is a certain lack of tools of integration. The weight of integration in variable context is too weak compared with needs and requests that express the collective value of variable “context” and horizontality in variable “function”.

The following figure represents both basins of attraction separately. We will point out the hollow in explicit attraction (weakness of integration in variable “context”) as well as weak value of synthesis in variable "usage " and conception in variable “function”.



Their meeting shows an attractor of sharing, representation that we had chosen to illustrate that of the attractor.

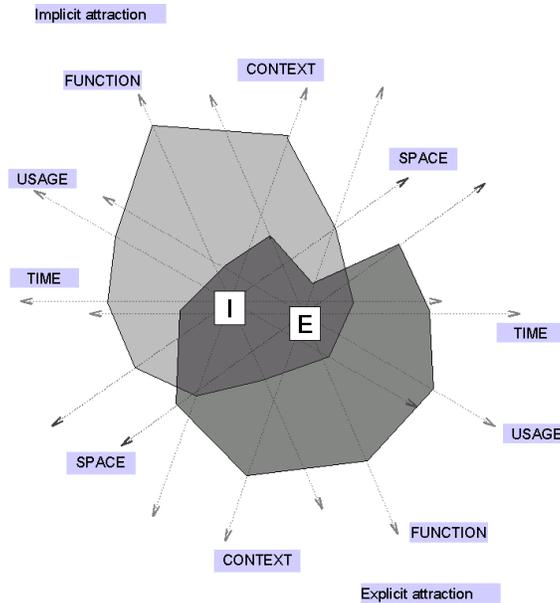


Fig. 5 SHARING ATTRACTOR

Collective intelligence does exist in the organization but it stays in the implicit part of the informational system. It does not appear expressly because it is not synthesized due to the weakness of the value “integration” (-) from variable “context” in explicit attraction and deficit of tools of synthesis (+). The organization must often rebuild from existing data and from numerous debates an information moreover potentially available but “hidden”, that is to say spend time and efforts to search, collect and synthesize. The coherence exists. The surfaces of the basins of attraction are similar and the overlapping of their respective basins marks the presence of a zone of sharing between both domains.

This analysis had practical consequences. The first reaction would have been indeed to buy and set up missing technology to palliate the lack of tools of conception and integration and to start with a project of making all information explicit. But with the attractor present on mind, the solution was to increase the value of the integration of the variable “context”, the weakest point of the information system that prevented the expression of collective intelligence. We worked at the same time on cultural organizational and technical aspects and we thought thoroughly about the nature of information, its flows and especially its use and its signification for the organization. The technological investment was insignificant: the organization succeeded “in making more with less”.

Conclusions

Information is for us a plain resource, an original one certainly, fluid, variable, difficult to figure out, in a permanent condition of transformation. But it must be managed, as other resources, with the same energy and at the same level of responsibility. Information is not therefore any by-product, a minor detail, and the foil in a way of other resources. It contributes directly to the increase of value of the enterprise. Moreover we integrate into information management the fact that a not negligible part of the informational “material” is and stays in the field of the unsaid, that of the cultures of the enterprise and that the domain of the implicit is elusive, if not by its

container.

The informational system as we have defined it, is a place of tensions between the explicit and implicit elements of information. We concentrated on the observation of the IS that is fundamentally a transformer whose motor is the informational attractor. The attractor allows understanding the functioning of the system. The analysis of the IS by means of its five variables makes the attractor appear and explains its nature: sharing, tension or rupture. The management of informational resources will be optimum only if the motor of the informational system is an attractor of sharing.

In our opinion, knowledge emerge from the IS whose the attractor is the “place”, the “ba”, out of which can form and fan out the spiral of knowledge and the source of energy in which it feeds. There will not be a management of knowledge as such but definitely a management of the IS, specific, voluntary, trying to make the best from the bath of information where the enterprise is immersed. IS management is not the job of a machine whatever its complexity. It is above all a human task, a complex one, subjected to a permanent questioning, that combines technologies, processes, human resources and change management.