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STRATEGIC MANAGEMENT
R E V I E W

ICT implementation. Going beyond expectations? An essay of interpretation through competitive intelligence

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ARTICLE INFO

Article history:

Received 13 October 13

Accepted 13 January 14

Keywords:

Competitive intelligence
Collective intelligence tools
Information and communication technologies
Organizational interactions
Actor network

ABSTRACT

This article focuses on the uncertain relationship between organizational intelligence and ICT usage. It recalls the implementation effects of information and communication technologies ICT under the gaze of collective intelligence. Accordingly, the approach was tested through the observation and interpretation of interactions between a tool of collective intelligence, namely an online-system of indicators, and a network of agricultural cooperatives of a regional federation in southern France. The teachings of this research overstep traditional and theoretical approaches in terms of acceptance and appropriation. Consequently, the actor-network approach has been mobilized - It has revealed that the use of the translation process has led to the occurrence of interactions that go beyond previously intended objectives. Surprisingly, the tool appears as a collective intelligence support in the sense of revealing four facets: inductor (of projects) tool, a symbol (of new networks of exchange) tool, a reference (informational) tool, and lastly a pretext (or a support) tool of the network's concretization. Hence, this paper shows that the use of ICT could promote organizational intelligence in the measure of allowing a refocus on the human but also on perfect subjective information.

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I. General Introduction

1. Research deficit in management sciences in terms of the light shed on the link between organizational intelligence and ICT usage in organizations

The ambiguity and uncertainty of the link between ICT and organizational intelligence result from the fact that there are things we know about the reasons behind ICT implementation inside organizations, but also things

we do not know in terms of ICT outcome and the reasons for which they were designed and implemented inside companies.

Research in information systems and those concerning the different approaches related to ICT usage in particular, evokes a link between the use of ICT and their usefulness, to the extent that the more ICT are useful, the more we accept their usage [1], [2]. Moreover, those theoretical approaches do not identify a link between the acceptance of ICT usage and the pre-intended purposes for which ICT have been created, and

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therefore we know little about the relationship between the acceptance of ICT usage and firms' organizational intelligence. As for the theories concerning the appropriation and the use of ICT, the diversity of the proposed approaches makes it difficult to identify situations in which the appropriation of ICT allows firms to become more intelligent at the organizational level. (Appropriation as a dynamic and contextual process [3], appropriation through usage adjustment [4], appropriation as a collective process [5] and structural approaches of appropriation related to innovation [6]).

Aside from the stated above theories and this time on a sociological scale related to the actor-network theoretical approach [7], the sociology of translation seems able to propose a framework in which we could disambiguate the link between ICT project implementation and organizational intelligence. It remains to see if this is possible. Therefore, it is relevant or interesting to recall the actor-network theoretical approach to deepen what we can learn from the lack of knowledge found on the relationship between ICT usage and organizational intelligence.

2. a. The Project

At a time when agriculture is on a very important turning point of its history (heightened international competition, the rise of emerging countries, enlargement of the European Union and threats on the PAC, unprecedented crises on viticulture, fruit and vegetables), and where cooperatives of the Languedoc-Roussillon region proceed increasingly with operations of alliances and mergers to adapt to their competitive environment, it has become essential to the Regional Federation of Agricultural Cooperation in the Languedoc-Roussillon (FRCA LR) to have a collective intelligence tool for monitoring and management of the sector, although no regional multi-process mechanism exists at the present time. This is dedicated to the leaders of agricultural cooperatives in the Languedoc-Roussillon (LR) and has three main objectives: (1) Provide managers of LR agricultural cooperatives with a dashboard of key indicators (economic, social, commercial, and environmental) specific to each sector. (2) Allow directors of LR agricultural cooperatives to know their position in relation to their environment by comparing (Benchmark) with the regional average of cooperatives of the same status and the same sector. (3) Build and implement a comprehensive online administrative directory of agricultural cooperatives to promote relationships between leaders of agricultural cooperatives, while at the same time follow the development of the regional agricultural cooperative perimeter.

2. b. The holder of the project and its context

FRCA LR is the first agricultural and agri-food network of territorial enterprises, representing the agricultural cooperatives in their entirety. It assembles over 300 cooperatives via specialized federations. It represents and promotes the cooperatives with regards to professional agricultural organizations, governmental departments, local authorities and national and European authorities. It also provides cooperatives with solutions to their specific operational needs and development. Additionally, it

conducts various development missions, consulting, auditing, and training for the benefit of cooperative enterprises.

The agricultural cooperation of LR has a cultural heritage of emphasizing socio-political issues on economic issues. In this socio-economic context, the culture and skills of the leaders of the LR agricultural cooperatives are more technical than economical. [8]

At the individual level a culture of compartmentalization and opacity characterizes much of the leaders of Languedoc agricultural cooperatives. At the institutional level, the tensions and challenges of power have long opposed the institutions of the Languedoc agricultural cooperation. [9], [10].

3. Research Question and Issue

As part of this research, by "collective intelligence" we temporarily mean: the sharing of information through specific tools. By "organizational intelligence" we mean: the ability to solve problems within a group of individuals through collaboration. In other words, generally speaking, we are in a situation in which organizational intelligence refers to an organization which is able to recognize its problems through collective action.

At a time when the deployment of collaborative tools (collective intelligence) that belongs to ICT becomes widespread, it is difficult to know (or it is necessary to check) if their implementation promotes an evolution in terms of organizational intelligence in firms, and thus lead to the purposes for which they were designed. Therefore, our research question is the following:

Could the implementation of a collective intelligence tool induce interactions that foster organizational intelligence, especially in a group of structures of a specific type?

II. The Method

The context in which we are, the LR network of agricultural cooperatives, has a number of properties (historical, cultural, organizational etc...) that makes it well suited to conduct a research-action that concerns: the Creation and Observation of interactions between this collective intelligence tool and the network of agricultural cooperatives in the LR. Indeed, the research-action is necessary because we are in the heart of an empirical study in which the real needs are raised by agricultural cooperative actors. Additionally, our field is constantly confronted with literature back and forth, also, the creation and observation of interactions seems to be adapted to our field because we can expect that the fundamental properties of the natural environment are that everyone agrees with this tool (collaboration is reflected by cooperation so as interaction), while at the same time it could be expected that everyone rejects (as a cooperative manner) this tool for different reasons, this time socio-political and historical per example. All this, makes this diverse and complex business environment conducive to the study of interaction. Our epistemological posture is interpretative. Means that we have mobilized to gather information are: unstructured interviews, observations, field notes, meetings, focus groups, documentary analysis.

III. Theoretical foundations: From the Actor Network to Competitive Intelligence

1. a. The actor-network and the apprehension of an ICT project

The term "actor" is developed in the framework of the actor-network theory; in fact the word "actor" refers not only to humans, but also any object that may have a role in the establishment of a network helping the implementation of a project [11].

The actor-network theoretical approach is a framework for understanding the implementation of innovation projects in the field of information systems. Considering innovation as unpredictable and uncertain, the actor-network approach takes into account factors not previously identified by other theories concerning ICT usage, for example, the political factor that may add conditions to the translation operations (the art to convince, seduce to negotiate, enlist etc..).

The very same approach which is sensitive to the network's formation analysis is not immersed in the constituent details of the actors. However, it steps back the necessary to conceptualize the actors (human and non-human). This level of analysis allows us to explain the success or failure of innovations. Indeed, the actor-network approach seems to be appropriate in order to understand the issues stated in the introduction, of tools belonging to ICT in places where the interaction between technology and social actors is strongly influenced by socio-political factors. This approach is appropriate to researchers who need to undertake a narrative and interpretive approach, like ours, and to examine the role of each factor (technical, social and political) in the network formation. From a theoretical point of view, we are therefore assuming that the success of this tool is explained by the actor network theory that will allow us to understand the development of technology while taking into account the positions of all the actors on their direct or indirect relations, in favour or against (controversies) the implementation of this tool in a specific business environment: the agricultural cooperatives of LR. It remains to see if this is possible. The approach of this study by the actor network is based on the interactions (humans / objects) that are the basis for the creation of networks. These interactions can be explained by "the model of translation" defined by Callon and Latour as: "all the negotiations, intrigues, acts of persuasion, calculations, violence whereby an actor or force allows himself or is given the authority to speak or act on behalf of another actor or another force: "Your interests are our interests," "do what I want", "you cannot succeed except through me". Once an actor says "we", here he translates other actors in one will of which he will become the soul or the spokesman. He begins to act for many and not for one. He gains strength. He grows up" [11].

1. b. The operation of translation at the heart of the actor-network

Occupying a central place in the actor-network theoretical approach, the translation comes from the study of the mechanisms of power that stand through the construction of heterogeneous networks formed by human and non-human actors. It focuses on tracing the transformation of these networks that consist of humans, organizations, machines and other objects. Additionally, it is especially mobilized to explain the successes

and failures of project implementations with technological and innovative nature. In other words, it helps understand innovation as an actor-network. For this we have chosen to focus on the steps of the translation process.

According to Callon [12], [13] and Akrich & al [14], [15] the translation is done in four steps:

- Problematization
- Profit
- Enrolment
- Mobilization

Problematization: This is the first step of translation in which it is essential to form a problem. It requires drawing the borders of a question and then showing its solution. In other words, this is how an actor seems like a "gateway" to solve a problem.

Profit: It is to ensure that other actors are interested in our project. This is necessary for building a network of relationships among actors in order to rally them with the problematization. The profit could be deployed with human or non human elements (speech, seduction, solicitation materials, etc...) in order to attract and anchor the different actors to the network. Indeed, the success of networks building is related to the choice of objects mobilized.

Enrolment: It is a step that aims to stabilize the role of each actor by assigning him to a specific task so that he can achieve his own goal or satisfy his own interest and then mark simultaneously this interest in the framework of problematization set by the main actor. In other words, the enrolment distributes specific roles within the network to which the gateway shows that it has what it takes to resolve the issues raised in problematization.

Mobilization: It consists on selecting spokespersons who have sufficient representativeness within the different groups of actors to stabilize and expand the scope of the network. Spokesmen selected "speak on behalf the groups of actants" [16]. It is therefore a mobilization that takes shape via concrete actions.

Using the translation operation would be useful to understand the implementation of our tool in a narrative and interpretive approach and then answer the research question.

Despite the importance of the actor-network approach in our study, considered alone, it remains insufficient to simply and definitively answer the research question. Yet placed in the context of competitive intelligence, we could provide an answer to our research question in the sense that, beyond the initial intentions, the implementation of a collaborative tool of informational intelligence in a network, induct structural effects by itself. That is why in what follows, we will discuss the theoretical framework of competitive intelligence by placing a particular focus on a specific model of the CI model SVP (Source, Value, Project) [17], which was recently developed through research in CI and which we think it would be appropriate to help us answer our research question.

2. From the actor-network to competitive intelligence (CI)

2.a. Introduction to CI

The purpose of this introduction is to state in general what is Competitive Intelligence, in few definitions. In fact, our goal is not to provide a complete state of the art on CI but to use some of the concepts to approach them the simplest with our research topic. One of those we retain states: "Collective intelligence is a collective system of acquisition, production and transformation of information into useful knowledge for the company to improve its decision-making process, image, its ability to influence, to create value, seize opportunities, strengthen its competitiveness, innovation, detect threats, prevent risks, ensure the safety and security of its members and partners, then enhance and protect its heritage" [18].

Among the many definitions of CI proposed by the book "ce que Intelligence Economique veut dire" [19], we state Nicole Almeida's definition: "Competitive intelligence is not a science, it is an art, an art of circumstance" [20]. This at a scientific level may be less demanding than the first definition. However, it carries a lot of sense because it highlights the fact that it is something not to be missed if we are looking to increase organizational heritage. Capturing the circumstance is for us a sense of discernment in terms of informational intelligence. Indeed, informational discernment can lead to intelligence when it comes to choices and decisions and therefore can lead to organizational intelligence.

According to Almeida, CI is an art - it is somehow a quest for perfection. The art of circumstance is something that refers to waiting. Circumstance leads us to wait, even though deep down we never know in advance what will be the nature of this circumstance. This is something we cannot conceive the way it is. Often, in businesses, we are not able or we don't have the attitude to capture all important information (circumstance information) presented to us. So we condemn them, we reject them, we know they do not correspond to what we want because they are not included in our original intended objectives, yet we do not know exactly what we are seeking. Therefore, many informational or decisional circumstances circulate inside organizations without serving. Collective intelligence invites us to return to the opportunity of circumstance, that by not letting information pass without stopping it, so that our decisions, when least expected, could be transformed into organizational intelligence and promote growth and organizational competitiveness.

If we go further in the definitions of CI, we will notice that they have multiple meanings such as understanding, knowledge management, conclusion of alliances, adaptation to contextual changes, knowledge of competitors, help with decision making, collective strategies, operations pooling of information, solidarity and transparency in information management; in short, all what is a "business cooperation" [19] cited by Damien Bruté de Rémur. Regarding this research we retain that competitive intelligence concerns information fundamentally [19]. Initiating from this point of view, we have to know how to use information, and how do this cross-disciplinary field react.

Regarding our field of research on agricultural cooperatives, it seems that

the fundamental and natural characteristics of the agricultural cooperative sector have common properties with CI, with one principal property which is cooperation. "Territory" is another dimension in common with agricultural cooperation and the actor network by building networks and competitive intelligence in the sense of "territorial intelligence" [19]. Territorial intelligence is defined by Jean-Michel Bruneau as "the ability to anticipate, to control information of any type, and to use organized networks of influence and action by elected officials and regional managers for the benefit of the territory to which they are responsible" [21]. Also, in accordance with our research, the concept of the LR network of agricultural cooperatives allows us to address the concept of "autopoiesis" which is inspired by the characteristics of the living cells systems and the theory of autopoiesis. "An autopoietic system is organized as a network of components production processes that: 1) continuously regenerate the network that produced them via their transformations and interactions, and 2) constitutes the system as a concrete unit in space, where it exists, by specifying the topological domain where it is realized as a network" [22, [23].

After stating few definitions and concepts of CI, we will now touch on the "SVP" model, (Sourcing, Value, Project) [17] which we consider a major theoretical leverage that may lead us to answer our research question.

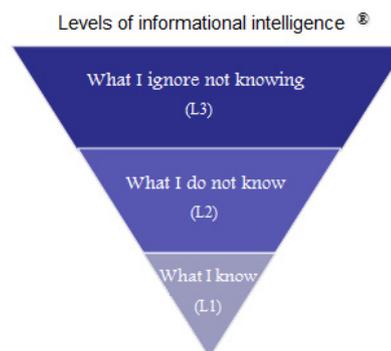


Fig. 1 - The three levels of informational intelligence - the SVP model

This model links information with the reason it exists. Its purpose is to increase organizational business performance, expressed through strategic aims to achieve goals. How?: By promoting attitudes and postures while passing through the three informational levels that we will discuss, companies arrive to strategic organizational goals by marking the passage from management of information to management by information.

Level 1, What I know

This is what the company has in-house as informational capital - all information available (known and identified) in the company, and ready to be exploited. At this informational level, information can be in a rough state, from tools, software, documents and other existing devices in the enterprise. This information is abundant in firms, but few companies know how to use it effectively. Generally speaking, information is used in reaction situations; companies are in a state of «performance reactivity» in which "they should use the best their internal cognitive resources. In terms of equipment, the research plan can be applied internally on the basis of

an informational plan more or less developed [17].

Level 2, what I do not know

It is about information we are conscious to ignore and therefore try to know. We know where it can be found, thus, we know which tool we must mobilize to go get the information. How is it done? Through the intelligence cycle of competitive intelligence. This cycle can be illustrated in several ways. Here we have chosen the simplest form. In order to achieve what we search, it is required that we know our needs, collect information to suit our needs, process and analyze information and then disseminate it in order to achieve our goals (or meet our needs). It is called knowledge management (or information management).

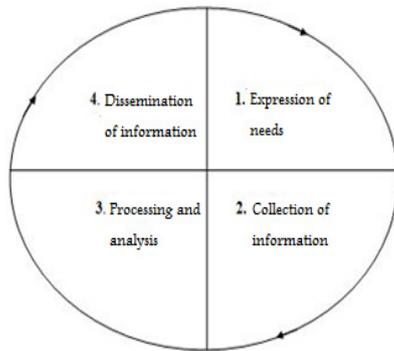


Fig. 2 - The intelligence cycle of competitive intelligence (International Review of Competitive Intelligence. Vol 3 – 2011)

In other words, the second level of informational intelligence represents: "proactive performance; it is about targeted monitoring: doing research on a topic, a subject, a project" [17].

Level 3, What I ignore not knowing

This level of informational intelligence is achieved by developing an attitude and a culture that is gained by being captive in terms of information we collect at any occasion, then crossing it with the two previous levels of informational intelligence. This level positions us somehow at the heart of competitive intelligence just like "the art of circumstance" [20], in other words, it is the art of exploiting the circumstances presented to us. Achieving this informational level is possible given the abundance of information that flows in and around the company. At the same time it is necessary, even essential; to achieve this level of informational intelligence if one seeks to increase the competitiveness of organizations in today's hyper-competitive global context. Compared by the author to "serendipity" (the art of finding what we do not search), this level of informational intelligence represents "the pre-performance activity. It is about general monitoring. All information is potentially meaningful to the organization" [17]. At this level we move from knowledge management (management of information) to management by information.

IV. Research Results

1. Interpretation through the actor-network

During the implementation of the tool, between late 2006 and late 2009 (3 years period), there was a mobilization of people, objects and resources - identification of the needs of cooperatives - difficulties - stances - tool resistance, etc... However, the tool had been eventually built; we called it **COOPERFIC®** with reference to **CO**operation, **PER**formance, **I**nformation and **K**nowledge "Connaissance" (www.cooperfic.fr). The results corresponded to the initial objectives intended by the FRCA LR. Namely the establishment of:

- An online dashboard of indicators
- A benchmark opportunity
- An online directory

Indeed, these results provide us with a first illustration of the translation process according to the actor network theoretical approach.

The tool was put online by end of 2009 and it has been ergonomically and intrinsically developed. From late 2009 until the end of 2011, the number of member cooperatives using the tool had increased from 39 to 89, and ever since, these cooperatives are called "Interactive". Again, it is an extension of the translation operation according to the actor network approach. Beyond its ability to explain the project implementation, the actor network approach has shown that the use of the translation operation has succeeded in inducing interactions that can be summed in four main results. These results are not intentional, since that they were not originally intended by the FRCA LR.

2.a. Interpretation through the three levels of informational intelligence – the SVP model

In this section, we describe the results and findings of our research-action regarding the implementation of the project COOPERFIC® in its Operational phase. This phase covers the period that lies between late 2009 and late 2011.

The results we obtained by implementing the COOPERFIC® tool and observing the interactions confirm that the agricultural cooperative system is irreducible in one simple expression. Even if we could anticipate some of the tool's interactional effects with the agricultural cooperative system, it is because our initial intentions were the same as the goals desired by the FRCA LR. In other words, we expected that managers of the cooperatives would consult the dashboards of indicators and the directory of cooperatives and then compare their averages with the regional average of cooperatives. In this manner, the intentions and goals of the FRCA LR were sufficient to legitimate the implementation of our tool.

Beyond the original intentions of the FRCA LR, and if we would have known that the tool would have other effects in terms of outcomes of interactions, we would have not been able to predict the nature of these

results. In the complex context of the LR agricultural cooperation in which there has been a lot of interactions with the COOPERFIC® tool, we needed to go against the linear view, quite usual in management science, where causes are being enforced to produce effects. This vision was not relevant to answer our research question. The results of interactions that we have placed in what we called "**the square of the collective intelligence**" that we will discuss later, confirm that we are in a complex system and therefore in a system of indeterminacy. In this environment of indeterminacy within the agricultural cooperative system, the introduction of the tool COOPERFIC® have produced opportunities despite the risks (resistance towards the tool, or categorical rejection due to political issues etc..).

In order to better position our results in relevance with one of the axes of reflections on the cross field of competitive intelligence, we will compare our experience with the SVP model (Source, Value, Project) [17] of informational intelligence that we mentioned in the theoretical part of this article (Fig.1):

Level 1, what I know

The first level of the SVP model represents what the directors know about the economic situation of their cooperatives. After the tool's implementation, we could now question the managers of cooperatives: *are you able to give us information about your cooperative?* In other words, *do you know what is happening in there?* Therefore, this level corresponds to information already available in cooperatives and already known by the directors of cooperatives. Especially accounting information (income statements and balance sheets), or information on the status of stocks, current and previous sales etc.. The degree of detail and the importance of information available varies from a cooperative to another (the existence or non-existence of tools to monitor the activities, size etc..).

Level 2, what I do not know

This informational level matches with the goals set by the FRCA LR. These objectives reflect the needs of the LR agricultural cooperatives in terms of management to deal with the crisis the LR agricultural cooperation is facing. The COOPERFIC® tool would give each cooperative an online secured access to a range of economic indicators, having the form of dashboards devised into different axes, and subsequently allow cooperatives to compare themselves to the regional average and have an electronic directory that will facilitate networking. Achieving these objectives has triggered a process of requirements, collection, classification and treatment definition, to disseminate information that meets the needs. Indeed, this matches with the information cycle of competitive intelligence that we discussed in the theoretical part of this article. The question that arises at this level for managers of agricultural cooperatives is: *are you aware of the reality of your performance?* In other words, *do you know what you know?* This level also corresponds to the validation phase of the translation process according to the actor-network theory, in which we managed to achieve the objectives set intentionally by the FRCA LR.

Evolution temporelle comparative

Les valeurs qui suivent illustrent l'évolution au cours du temps de cet indicateur pour votre coopérati

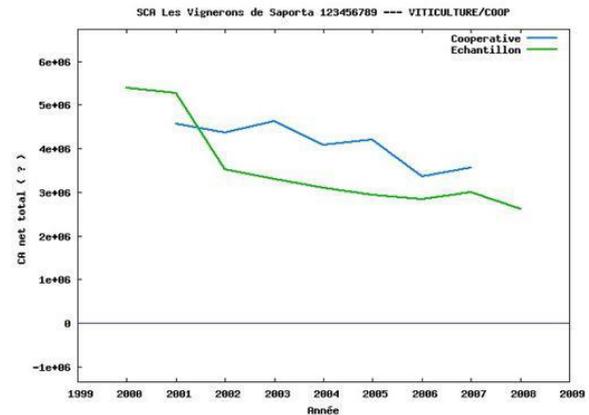


Fig. 3 – Screenshot: comparative online dashboard, COOPERFIC®

Level 3, what I ignore not knowing

This informational level reflects the surprise effect revealed unexpectedly after the implantation of the COOPERFIC® tool in the regional agricultural cooperative system, through the unintentional results we have placed in the collective intelligence square. As we could not predict these results, and as we ignore not knowing them, we could not therefore get them. Moreover, the decision to implementing the tool has allowed us not only to achieve the intended objectives, but to be led to unexpected results that have marked the transition from management of information to management by information through the translation process, despite the uncertainties and resistance we have met. Thus, we are typically in a competitive intelligence demarche.

We have called the systemic paradigm, in which the structural aspect has facilitated the observation of interactions that happen in our field of research. Illustrating our results of interactions leads us to build what we call **the square of collective intelligence** in which we place the four main observation results.

The square of collective intelligence

| | |
|--------------------------------|-----------------------------------|
| ★ The Pretext Tool | ★★★★★ The Inductor Tool |
| ★ The Reference Tool | ★★ The Symbol Tool |

Fig. 4 - Beyond the actor-network, the square of collective intelligence

Before discussing the results, we will justify below the naming of the "square of collective intelligence."

The square shape: the four results obtained by observing interactions, reflect the four facets of our tool. The form of a square shows our desire to provide readers with a visibility/consideration of same sizes and thus show the importance related to these facets, which means that each outcome/facet of our tool has the same importance as the other. Consequently, these results need to be analyzed individually; that is what we will do in the next paragraph. The square is a dimensional representative framework of four equal dimensions and importance, which makes it suitable to place our results. Accordingly, the square is logically the most appropriate while the choice of another shape (round or diamond, for example) would not have the properties of equality in terms of importance and it would have subsequently left some space for ambiguous interpretations of our results.

Positioning results in the square and the stars used: Although our results represent four equal sides of a square, we have chosen to place these results in the following order:

- Inductor tool
- Symbol tool
- Reference tool
- Pretext tool

The inductor tool is placed on the top right of the square. Logically speaking, we could say it should be placed on the top left to match the Latin direction of writing. We chose the top right to rule out any preference between the top and bottom of the square, since if in case the Symbol tool is placed second in the bottom of the square, it is not because it is less important than the tool located at the top. In fact, we placed the inductor tool on the top right to avoid placing the first two results (tool and symbol) at the top of the square, which could lead the readers to think that the top is more important than the bottom. In the same manner of thinking, we placed the reference tool and then the pretext tool.

As for the stars we placed in the square, they represent the number of times our tool was inductor, symbol, reference or pretext. In other words, these stars are very important - despite the equal importance of the four facets, these stars, according to our study, shed the light on one of the facets where the tool reflected a facet more than the other. We will see later that the collective intelligence tool has been an inductor tool for several projects within the French and regional agricultural cooperative network.

Collective intelligence: Beyond the will of the project's holder "FRCA LR" to have a tool of collective intelligence, the term collective intelligence that can be found in our article highlights competitive intelligence as a cross-discipline which converges with management science to the extent where the fulfilment of purposes for which organizations aspire, and therefore the outcome of organizational intelligence in companies, pass through a management closely linked to the production of useful information for maintaining the competitiveness

of enterprises. In our research's context, this notion concerns more precisely the collaboration tools belonging to ICT and thus refers to the sharing of information through these tools. Indeed, the purpose of the collective intelligence notion is to enable a range of actors to share information in order to improve one or more aspects of their performance. In other words, in general, these tools are created to promote a form of intelligence that organizations fail to achieve individually.

Collective intelligence is linked to both competitive and territorial intelligence we mentioned at the beginning of this article. Moreover, our research field has fundamental properties that make this field a place conducive to collective and collaborative work.

After justifying the nomination of the collective intelligence square, we will now present our four results.

These results show us that beyond the purposes for which the COOPERFIC[®] tool was designed, the very same tool has been an inductor tool, a symbol, a pretext and a reference tool. We will see that thanks to its four facets that the actor-network can play its role, and that was done within a period of five years which can be considered relatively short. If the tool did not have these properties, the actor-network could have hardly succeeded.

The inductor tool (in the sense of its ability to induct projects and initiatives through interaction): Inductor of projects of economic issues; we include an example of a project on the prevention of economic risks. It has attracted the cooperatives that joined COOPERFIC[®] through this, and it has brought to us additional information. So we are in an interaction. We are in a project driven by the inductor effect of COOPERFIC[®].

The inductor tool of partnerships: It is about a strategic partnership between the FRCA LR and the Mediterranean Agronomic Institute of Montpellier. This partnership has also led other relationships with other organizations. The adoption of the COOPERFIC[®] tool by six Regional Federations of Agricultural Cooperatives covering 12 administrative regions of France; basically the operation of translation has led the actors to become spokespersons of the tool in other regions. The COOPERFIC[®] tool as a ground for the launch of innovative projects in relation to its environment: it is the induction of an electronic data exchange project (EDI). Territorial organizations need the tool: COOPERFIC[®] has led to the creation of a "KIT study area" that is a part of the tool. Currently being tested, it has already allowed a territorial organization to identify cooperatives of its territory that are still operating. It will later allow this organization to better know its local enterprise cooperatives.

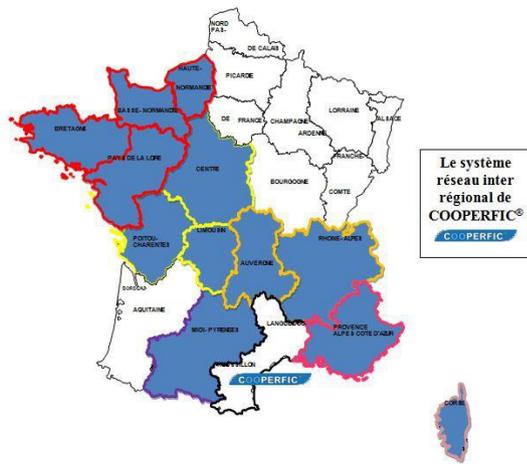


Fig. 5 – (Inductor tool); the adoption of the COOPERFIC® Tool through twelve French Administrative Regions

The symbol tool (symbol revealed by a current network system which is inheritor of socio-political issues): The tool has significant controversies and betrayals (defectors). With the emergence of new needs that have economic issues, a new regional order that promotes economic projects has appeared and which the FRCA LR has joined. The COOPERFIC® tool symbolizes the membership in this new order which the historic network of cooperatives have resisted, where the controversies have arisen in resistance to the tool and its questioning. On the other hand, there have also been betrayals when cooperative actors of the historical network have requested the transfer of their membership to this network instead of a direct membership in the network of the COOPERFIC® tool held by the FRCA LR.

The reference tool (the tool that refers to institutions such as the Languedoc-Roussillon): The tool is a reference to the LR region in terms of knowledge of the regional agricultural cooperative perimeter. Here are some examples of facts: The tool has been requested by the region before the circulation of the LR region president in the cooperatives. To consolidate this reference tool, the FRCA LR has dedicated a statistical web portal COOPERFIC® to the LR Region. Although it is not yet effective at the moment, there was a real desire in the LR area to condition aids to cooperatives, to their membership in COOPERFIC®. The COOPERFIC® tool has become the informational platform of the LR observatory of agricultural cooperation, reflecting regional willingness.

The pretext tool (useful tool that becomes pretext tool)

The tool structures and legitimizes the role of the FRCA LR. The tool becomes structuring and legitimizing of its role in terms of steering economic projects. The tool enhances the positioning of the FRCA LR in relevance with the historical network of cooperatives.

The tool is holder of the FRCA LR as it is 80% funded by the LR region. The project of the COOPERFIC® tool draws much of these subsidies. Thus, the tool becomes vital and holder of its firm.

At the end, the interactions/results we have placed in the square of

collective intelligence show that the indeterminacy of the LR agricultural cooperative system (resistance, non-exhaustive acceptance of the tool, refusal, various issues), on which we have acted, was for us a source of opportunities to be exploited, to improve organizational intelligence. Indeed, we are exactly in competitive intelligence, where basically the best organizational performance will be that of one who knows how to exploit opportunities (the art of circumstance) [20]. These opportunities received by the interaction with the tool and by the contact with information, put us at the centre of competitive intelligence that marks the transition from management of information to management by information.

Sticking to competitive intelligence, and how living cells seek to regain balance (survival of the system) after an attack or disruption, our experience has shown us that when we have hit the initial and historic system of the LR agricultural cooperation (which has a purpose of keeping the same system), by introducing a tool of collective intelligence, we have created a disturbance that has destabilized the system. And since this system (since any living system) is autopoietic, it contains in itself the hidden re stabilization processes as its purpose is clearly identified (the survival of the system), and despite its vagueness, our decision to introduce the process tool was ultimately the stone of the decision angle that resulted a sequence of results favouring organizational performance of the LR agricultural cooperative system. Additionally, we did not expect our tool to be perfect in order to launch it afterwards in the cooperative network system, but we launched the tool without being sure of the results it will give. Therefore, the number of interactive cooperatives has doubled with the first online implementation, because we have provoked by the action, the reaction of the actors. Then the autopoietic nature of the LR agricultural cooperative system has permitted to generate by itself opportunities not originally intended (unintended results), which made the system powerful and intelligent. In other words, the collective intelligence tool, COOPERFIC®, created to meet the desired objectives of the FRCA LR, has favoured the production, circulation and reception of information. At this point, we are at the competitive intelligence level (or informational intelligence), internally speaking. Also, the external effects occur because we are in a system, and therefore in systemic effects on the context and the environment.

Finally, our methodology drove us to answer the research question. It is raised by the research-action in which we have taken a contextual and analytical look at the LR network of agricultural cooperatives.

The results highlighting the pre-operational phase of our research-action, and the construction of the COOPERFIC® tool constituted a facet of validation of the translation process according to the actor-network theory. Since the online launch of the tool (end of 2009) and until today, the number of cooperatives that we now call "interactive cooperatives" has increased from 39 to 89. There have also been developments in the tool's functionalities. This result is an extension of the translation process (which began in the pre-operational phase) according to the actor-network theory.

Also in the operational phase, the actor-network theory has shown us that the implementation of the COOPERFIC[®] tool in the LR network of agricultural cooperatives induced interactions, promoting organizational intelligence. We have called the systemic paradigm in which the structural aspect has facilitated observing interactions. This allowed us to get into illustration, in the sense of the actor-network theory, which is something new, namely the "square of collective intelligence" in which we placed four main results obtained by the observation. These effects/results are "unintentional" produced by the tool's presence in the agricultural cooperative network of the Languedoc. These unexpected results place us at the heart of the transverse field of competitive intelligence.

V. Conclusion

Implementing the COOPERFIC[®] tool, which, in addition to its belonging to ICT, has the particularity of being a tool of collective intelligence, had the opportunity to experience the creation and observation of interactions between the tool and the particular environment in which it was introduced (the agricultural cooperatives of LR).

Our objective was to answer the following research question:

“Could the implementation of a collective intelligence tool induce interactions that foster organizational intelligence, especially in a group of structures of a specific type?”

A question to which the answer must remove ambiguities from the existing relationship between organizational intelligence and ICT:

Two axes of theoretical reflections were mobilized to respond to the research question: the actor-network approach as well as the levels of informational intelligence or the SVP model that refers to the cross-disciplinary field of competitive intelligence. Using the translation operation of the actor-network approach has driven interactions that can be summed in four main results. On a theoretical level, these results validate the idea that it is appropriate to use the sociology of translation in the field of management. In other words, the demonstration of our study shows that in order to understand what is specifically happening, which is difficult to apprehend, the classical theories in management science that rely on linear logic of cause and effect, (if I accept a tool or if I appropriate it, I would have to take advantage of it and subsequently improve organizational intelligence), are not sufficient by themselves to bring all elements of answers to research questions. Accordingly, in our research case, the actor-network theory showed us that it was appropriate in order to understand the link between ICT and organizational intelligence.

Eventually, the main theoretical contribution of our research is the interdisciplinary and transversal theoretical crossing we did; by calling both the actor-network approach and the SVP model concerning the levels of informational intelligence to answer the research question. This theoretical crossover showed us that it is thanks to the use of the translation process that we were able to achieve our results that touch the heart of informational intelligence. In other words, we would not have

been able to answer our research question without linking these axes of theoretical thinking by apprehending all of them on our research field.

A research-action, which falls from the creation and observation of interactions between the COOPERFIC[®] tool and the LR network of agricultural cooperatives, has been made. This environment which has specific properties, particular characteristics, and where relationships are composite and complex, is indeed a methodological choice. The experience we had, according to the method chosen, answered our research question. The results of this experiment appeared in two phases. The pre-operational phase that covers the period of the tool's implementation, between late 2006 and late 2009, and the operational phase for the period when the tool was usable online between late 2009 until late 2011.

Pre-operational phase: Mobilization of a number of people, objects and resources: Identifying needs of cooperatives, difficulties, stances, etc.

Despite the strong resistance from the historical actors of the LR agricultural cooperation, and after questioning the project many times, both with respect to political issues and technical-economical pretexts, the COOPERFIC[®] tool was finally built. The results of this construction match with the initial intended goals (intentional). This construction reflects the illustration of the translation-operation's validation according to the actor-network theory.

Operational Phase: The presence of the tool has led to create interactions with its environment. Observing these interactions has led us to identify four main results - the unintended effects produced by this tool. We illustrate these results of interactions in a square that we called **“The Square of collective intelligence”**.

Finally we can say that beyond the planned objectives (or intentional), interactions lead to strategic unintended effects (surprise effects, unplanned).

As part of our research work, we managed to achieve practical results expected by the FRCA LR. We were also able to answer our research question since the answer is illustrated in unexpected results. In other words, we answered the theoretical question, with a practical response whose declination went beyond the intentions initially formulated, in order to directly and instantly benefit the FRCA LR and the entire agricultural cooperative network of LR. At the managerial level, these results carry important lessons, particularly in strategic decision-making terms. Indeed, in specific organizational contexts and systems of composite and multifaceted relations, the decision followed by action in the indeterminacy is an action with two facets. One is fraught with risks, and the other carries opportunities.

However, to access opportunities, one must still go through the risks. Our experience is the proof. Despite the imperfection of our tool at various levels, we had it launched in the LR agricultural cooperative system, which was disturbed by its presence. Surprisingly, the system interacts with the tool to induce results beyond those expected, and somehow affect organizational performance. The decision we first took to launch the tool

inside the LR agricultural cooperative system, and the translation of intentionality and actors have been useful, and the putting actors in networks initiated an autopoietic and creative process illustrated in "the square of the collective intelligence."

Therefore, we can say that in specific organizational systems, facing uncertainty, what really counts is the decision, that's because if we wait to be sure of the effects of our decisions, we would do nothing. So we are exactly at the bottom of collective intelligence, where the best performance is that of one who knows how to exploit opportunities.

To conclude, this research shows that the use of ICT can enhance organizational intelligence insofar as it allows a focus on both the Human and Information in all its subjectivity. Our research field assembles a specific type of business, namely agricultural cooperatives in the Languedoc-Roussillon. Indeed, our results answer the research question that examines the link between organizational intelligence and the use of ICT in the contextual framework of agricultural cooperatives in the Languedoc-Roussillon.

Therefore, it seems very important to expand the future territorial scopes of our experiment to compare the results obtained in the context of LR to the results we have obtained in other regions where agricultural cooperatives differ both in terms of size, culture and issues, etc...

Beyond the scope of agricultural cooperatives, there are other sets of specific types of companies even within the cooperative sector, such as bank cooperatives, user cooperatives, etc.. It would be interesting to make trial experiments and observations studying the difference or similarity in terms of results between these cooperatives, maybe different in terms of activities, which nevertheless share the same values.

Accordingly, we will test our collective intelligence square in different fields of research, in order to consolidate it as a conceptual model that contributes to research in competitive intelligence.

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