

## PerfCuma: A framework to manage the sustainable development of small cooperatives

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### ABSTRACT

Agricultural cooperatives evolve in a context with complexity and changes of their legal, social and business environment. Strategic management could be a relevant approach to help cooperative members to improve the global performance and the social responsibility of their cooperatives. To formalize and to manage their strategy, we propose as an accompaniment a method entitled PerfCuma. The theoretical framework is based on the concept of systemic approach to change. The method is organized in four steps: i) an in-depth stakeholder's analysis of the cooperative situation (including sustainability) and the cooperative goals; ii) formalizing the strategy by defining strategic lines. We use the cognitive map approach to model the complexity to understand the strong drivers of the strategy; iii) drawing up the balanced scorecard and an action plan to manage the strategy; iv) monitoring the implementation of the strategy. A test of the method on five Cooperatives for the Use of Agricultural Equipment (Cuma) has been successful. The method is now unfolded in France.

**KEYWORDS:** strategic management; causal map; balanced scorecard; cooperative; systemic approach to change; Corporate social responsibility

### 1. Introduction

For 40 years in France, the prices of agricultural commodities have been falling at an annual rate of close to 2% in constant euros. At the same time, French farmers have produced more. Production has increased in volume by just under 25% (from 1980 to 2014) thanks to crop production (Insee.fr: Annual national accounts). But this growth has not been enough to stop the downward trend in French total agricultural income. There has been a downward trend in the value of farm production (from Index 100 in 1980 to Index 78 in 2013), whereas the value of farm expenditure has been constant (from Index 100 in 1980 to Index 100 in 2013). Nevertheless, the agricultural income per farmer has increased over this period (from Index 100 in 1980 to Index 160 in 2013). Farmers have succeeded in improving their income per worker because they have developed their competitive advantage through a cost leadership strategy (Porter, 2008). To reduce their production costs, farmers have developed numerous methods, such as specialization, extension, and modernization, to increase labour productivity (from Index 100 in 1980 to 306 in 2013). Their main objective has been to fight against the decreasing French total agricultural income. The number of farmers has dramatically decreased over the last 40 years. They have specialized their farms and organized regrouping

of land. In 40 years farm land per worker has risen by nearly three times. In this context agricultural production is becoming increasingly complex. Farm sizes have increased, and this phenomenon has been accompanied by a saturation of working capacity (Madelrieux and Dedieu, 2008). In order to produce more with fewer workers, farmers have continued to invest in their fixed assets over the last 40 years. The French gross fixed capital (GFCF) consists of fixed asset acquisitions and corresponds to an investment of about 10 billion euros a year. Because technologies and assets are costly, farmers try to pool their agricultural equipment to reduce their average production costs. In France, for a long time, many farmers have joined cooperatives to share use of agricultural equipment (Cuma). There are 13,000 Cumas in France, and one in two farmers is a member (225,000 farmers are involved in this kind of cooperative). The Cuma gathers farmers together to buy agricultural equipment, to obtain specific subsidies, to improve their competitiveness, and to organize their work for higher efficiency. Every type of farmer is involved in these cooperatives. However, the biggest farms, those which have chosen the legal status of company, and those whose managers are under 50 years of age, are more involved in Cumas.

Meanwhile, due to environmental, health, and economic crises, the supervision of agricultural production

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by the public authorities has intensified. Farms are facing rapid changes in the Common Agricultural Policy (CAP)<sup>1</sup> with the reorientation of first pillar subsidies to the second pillar, and the gradual disappearance of support mechanisms and market regulation. The supervision of farms by upstream and downstream actors<sup>2</sup> has also increased, especially with the strengthening of specifications and regulations in relation to production, and the consolidation of contractual relationships between producers and collectors/processors. Farmers are operating in an increasingly competitive environment, one from which they had previously been relatively protected. Just as happened in the industrial sector, farms may be forced to progressively improve their technical, economic, environmental, and social performance in order to maintain their activity (Pretty, 2008); (Darnhofer *et al.*, 2010). Cooperatives for the use of agricultural equipment (Cuma) can help them to meet these challenges. The complex competitive environment poses a number of issues for both cooperative members and the advisors supporting them: how to obtain and maintain competitive advantage; how to integrate new developments into every day business activities; and how to develop the capacity to guarantee a response to downstream demand while maintaining or improving the performance level, especially in the case of a Cuma and its member farms. The specific issue faced by Cumas is to define and implement a collective, shared, and structured strategy. The challenge is to create new collective capabilities to help cooperative members to remain viable and sustainable, i.e. to be able to cope with their changing and complex environment.

These issues are typically addressed by business management specialists in terms of strategic management and strategy of the firm. The challenge is to have a common approach and a management tool to implement and to control the strategy (Freeman, 2010); (Kaplan and Norton, 1996); (Stacey, 2007). The strategic management approach remains marginal and is poorly developed in farms and Cumas in France. Often, if it exists, it is not organized and not formalized. The Cuma is a specific cooperative, generally without professional staff because it is small: from 4 to 60 members (average 25 members) with a turnover of between €10,000 and €200,000 (average €49,000). Although marginal from an economic point of view, Cumas have major implications for the competitiveness of farms. We assume that strategic management could be a relevant approach to help farmers to manage their Cuma, to improve its overall performance, and thus the overall performance of the Cuma.

In France, few original studies of farm management and Cuma management have been carried out in the area of management science (Jeanneaux and Blasquet-Revol, 2012), while a large body of literature exists in the English language on strategic management as it applies to farming: For example, 15 handbooks dealing with farm management have been published since the early 1980s

<sup>1</sup> The EU's Common Agricultural Policy (CAP) is the system of agricultural subsidies and programmes. It covers farming, environmental measures and rural development, and controls EU agricultural markets. It is the EU's single largest common policy and accounts for over 40% of the entire EU budget. Since 2003, the CAP has been divided into two 'Pillars': production support and rural development.

<sup>2</sup> Upstream actors correspond to agricultural input (fertilizers, pesticides, concentrates...) suppliers. Downstream actors correspond to agricultural commodities processors and/or purchasers (dairy and cheese processors, millers, slaughterers...). Upstream and downstream actors are often the same and have a lot of influence on farmers' decision.

PerfCuma: A framework to manage small cooperatives (Barnard and Nix, 1979, Kay, 1986, Turner and Taylor, 1998, Casavant and Infanger, 1999, Olson, 2004), but no French farm management handbook has addressed farm management as a continuous process (planning, implementation, control, action). French farm management academics have ignored this literature for the last 30 years and have not published in the English language. Agricultural economics is more developed in France than Farm management science, especially because the French National Institute for Agricultural Research (INRA) has paid less attention to this subject. In France, farm management has been largely influenced by economic concepts. Even today, farm management methods are based on an economic diagnosis using a comparative benchmarking analysis between farms. The best farms are considered to be those which are the most profitable, based on the assumption that farmers are only motivated by profit with a substantive rationality (Simon, 1982). The objective of the present French system is to identify the factors which explain how to be more profitable, and to give advice to use these levers (Chombart de Lauwe *et al.*, 1969). Of course, other approaches consider farmers as agents with bounded rationality who try to obtain a situation that is not Pareto optimal (Simon, 1982). In reality farmers can have numerous goals, which are in competition with each other, and the advisor in a systemic approach has to make a diagnosis of the whole farm to understand how to help the farmer to be satisfied (Marshall *et al.*, 1994). These approaches based on diagnosis are static, use historical and obsolete data, and are not designed to help farmers to be more adaptive. A notable exception in France is Hémidy *et al.*, (1996) who, in the mid-1990s, proposed the implementation of a strategic management approach in farming.

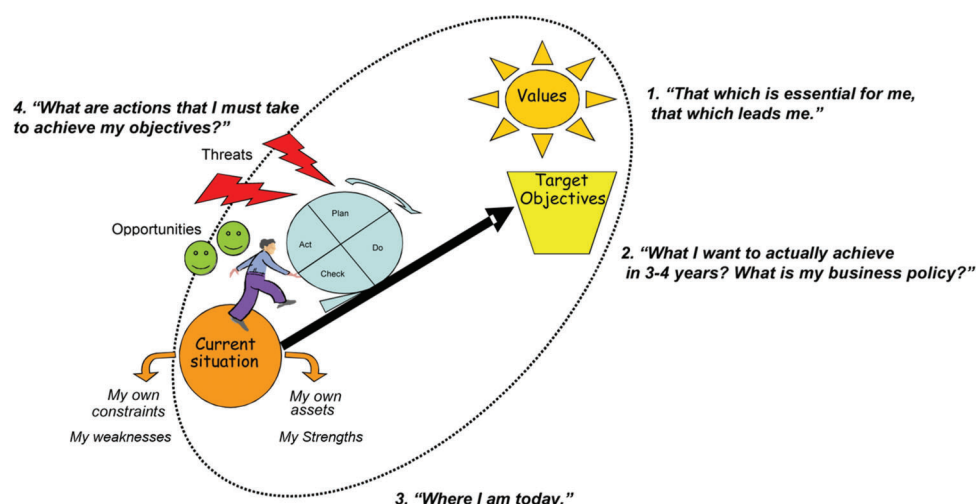
To develop strategic management in farming, the challenge is to be able to give advisors the ability to initiate and support farmers in their development of strategy.

The objective and originality of this paper is to present the outline of a methodological framework to assist in the implementation of strategic management within Cumas in a complex world where sustainable development is a main issue; in other words, to help cooperative members to formalize and to manage a strategy in order to be more sustainable and more resilient.

As Bossel and the Balaton group consider (Bossel, 1999; Bossel 2000): *"Human society is a complex adaptive system embedded in another complex adaptive system - the natural environment - on which it depends for support. These systems coevolve in mutual interaction, and they each consist of a myriad of subsystems that coevolve in mutual interaction. There is permanent change and evolution. Moreover, this ability for change and evolution must be maintained if the systems are to remain viable (able to cope with their changing system environment) and sustainable. The sustainability goal translates more accurately into a goal of sustainable development"*.

Sustainability is a dynamic concept. Societies and their environments change, technologies and cultures change, values and aspirations change, and a sustainable society must allow and sustain such change, i.e. it must allow continuous, viable, and vigorous development, which is what we mean by sustainable development.

This methodological framework has been developed as part of 2 research projects named PerfEA (i.e. overall



**Figure 1:** The strategy is the overall approach which allows the achievement of cooperative members' objectives

farm performance), and more recently, PerfCuma (i.e. overall performance of Cuma)<sup>3</sup>.

Before presenting this research, we review the conceptual framework that governs the project in section 2. Then we present the research system in section 3 and the methodological framework in section 4. Finally, we review the implications that such a study can have for farming advisory services in section 5.

## 2. Analytical framework of the strategic management approach

### 2.1. The conceptual framework underlying the project

We chose to build on a framework that is well known in management science: a continuous improvement cycle (Deming or Shewhart cycle). We used this cycle in order to organize the thinking around the building of our methodological framework to support strategic management. The concept of continuous improvement involves a number of sequential steps:

- (1) Planning the strategy requires the definition and formalization of a general policy, broken down into strategic objectives and action areas, and then the construction of an action plan;
- (2) *Implementing* the action plan brings the “as is” or current situation to the “to be” or future situation;
- (3) *Monitoring* the results allows the assessment of the desired performance and the action plan;
- (4) *The examination* of the strategy as part of this assessment should include the adjustment of strategic objectives as necessary and the modification of the action plan. Based on the analysis that the members of the cooperative perform of their specific situation and the changes in their environment, the strategic management approach allows them to establish and implement a cooperative management project. It is a question of being able to build a strategy and obtain

the necessary elements to make choices and adjust the priorities of the different objectives. The approach must be able to give members the means to manage their activity and to engage them in a process of continuous improvement (Figure 1).

### 2.2. Two conditions for acceptance by the decision makers in cooperatives

We chose to use the strategic management approach and took into account two extra requirements. The first requirement is the desire not to produce normative recommendations, but to work within a methodological framework that produces an appropriate and relevant strategy taking into account the specific situation of each cooperative and its specific environment. The second is to go beyond the definition of strategic objectives and to give members the opportunity to develop management tools and performance indicators that are relevant to a continuous assessment approach. This approach allows the members to build tools that can help them take stock of their strategy and their ability to achieve the defined objectives.

## 3. Research with public agricultural school farms and ahe cuma

We chose to work with 7 farms owned by public agricultural education institutions based in the Massif Central region (central France) to create the PerfEA method. These farms play an experimental and developmental role which is an appropriate framework for our research. They also enable an initial design activity that would not be supported by private farms (risk-taking and freeing-up time for design activities). Farms owned by agricultural education institutions are complex structures. In addition to the need to ensure economic balance, they must be a powerful teaching aid. These farms are dependent on the institutional environment and local agricultural policy, and may at times be caught in the middle of power games. There are often many stakeholders associated with what currently happens in the Cuma. To build a farm management project therefore requires real strategic thinking. Indeed, farm managers are faced with methodological difficulties in relation to the successful

<sup>3</sup> PerfEA is a research project about the issues surrounding farm management carried out from 2009 to 2012. PerfEA is centered on the commitment and participation of numerous and different stakeholders to co-construct a method to help farmers to plan and to implement and to monitor their strategy. PerfEA was supported through European Regional Development Fund, French National Development Fund, Auvergne Regional Fund and Ademe funds. PerfCuma, based on PerfEA but dedicated to Cuma was conducted in 2014/2015.



management and control of the farm: how to mobilize employees, manage the processes, facilitate discussion, prioritize objectives and actions, and define the evaluation process.

We carried out the PerfCuma research program in 2014 and 2015, with the 4 following aims. 2 main criteria for success for the PerfCuma project were stated: (1) the first was to educate Regional Cuma Federation advisors so that they could help Cumas to implement a strategic management process based on PerfCuma. (2) The second was to adapt the PerfEA methodological approach for Cumas using the PerfCuma research project in the Auvergne region (central France). 3 advisors were trained and the methodological process adapted to Cumas is now operational, and numerous Cumas have benefited from this scheme.

To adapt the PerfEA methodological approach to Cuma, 5 Cumas and their cooperative federations were involved in the project. A third objective (3) was, for the Cuma members, to define their strategy themselves and to have a balanced scorecard (BSC) to implement and manage the strategy for the next 5 years (cf. section 4. and Appendix to get an overview of the BSC). The Cumas were volunteers and had to respect 2 conditions: They had to want to take part in collective strategic thinking by including, if possible, all their members; due to the financial support they had to be located in the Auvergne Region. The implementation was successful. PerfCuma is a success story because Cuma members are satisfied. Participant satisfaction surveys were organized. The members appreciated having the opportunity to express their opinions and to have been listened to. They also appreciated the advisor's behavior, because the atmosphere was respectful, sympathetic, and constructive. They felt that everybody was at the same level. They appreciated the quality of the discussions, and enjoyed the originality and the wide range of the topics covered. Finally, they appreciated deciding their own strategy, and having a Balanced Scorecard to manage it. Both the PerfEA and the PerfCuma approaches are now used by numerous stakeholders: farms owned by public agricultural education institutions, private farms, and Cumas all over France. A new educational program within Agricultural High Schools has implemented PerfEA and PerfCuma, and an ongoing training for agricultural teachers, Cuma advisors, and agricultural advisors was created 3 years ago.

The final objective (4) was stated by the funding authorities who financed the PerfCuma research project and who allocate subsidies to help Cumas to be more efficient, related to the new part of regional policy dedicated to supporting Cumas. The regional political authorities wanted to take into account new criteria related to management (without knowing exactly what kind of criteria). At the end of the PerfCuma research programme, the regional authorities, in agreement with the Regional Federation of Cuma decided, starting in 2016, to make their financial assistance (to fund equipment) dependent on the implementation of a strategic management process like PerfCuma. Since 2016, the same strategy has been implemented by the French ministry of agriculture in collaboration with the French National Federation of Cumas.

The Cuma methodology uses specific tools to collect the individual point of view of each cooperative member. This method helps the group to decide collectively in

PerfCuma: A framework to manage small cooperatives a participative and consensual way. The aim is to have a project shared by all the stakeholders in the Cuma. The framework is now formalized as a guidebook, and 3 cooperative advisors were trained in the PerfCuma method. They can use it to respond to the needs of Cumas. The guidebook helps them to integrate social innovation and strategic management to improve overall performance in their business models. The method can be deployed in other cooperative federations because we have developed a curriculum to train cooperative advisors.

## 4. A methodology for the implementation of strategic management in a cuma

### 4.1. Three successive steps

The methodology has to support cooperative members in a process that is broken down into three successive steps.

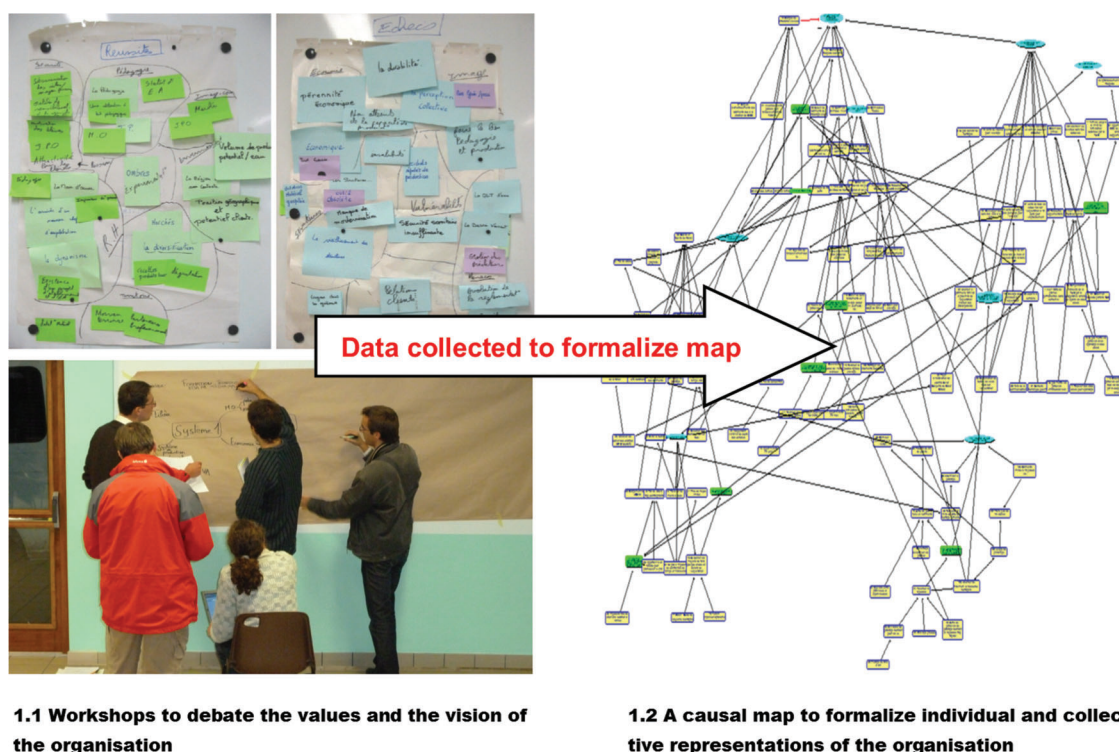
The first step (Figure 2) is based on an analysis of the future of agriculture, the environment, and the motivation of the cooperative's members. This strategic thinking approach typically involves several areas for consideration, each representing different goals. A review of past successes and failures, the expression of a vision by projecting into the future (4 to 5 years), and the expression of the values that drive the organization. Cooperative members must also discuss missions. The internal and external analysis is necessary for the strategic approach, because it allows the organization to agree on the goals to be achieved and actions to be implemented.

To illustrate it, we give below an example based on the Cuma Smith. Cuma Smith is one of the largest in France. The cooperative has 60 members with 16,500 acres and 5,900 Livestock Units (See Appendix 1). The main collective value defined by Cuma Smith members is mutual assistance and solidarity. A mission is to provide low operating cost equipment, and the vision is to stay on course: to always move forward in satisfying members by keeping a good atmosphere in the Cuma, and by the development of the equipment. The simplistic measure of success is to succeed in growing, which would mean the members are satisfied. But the main issue is to maintain a good atmosphere, low cost, and commitment.

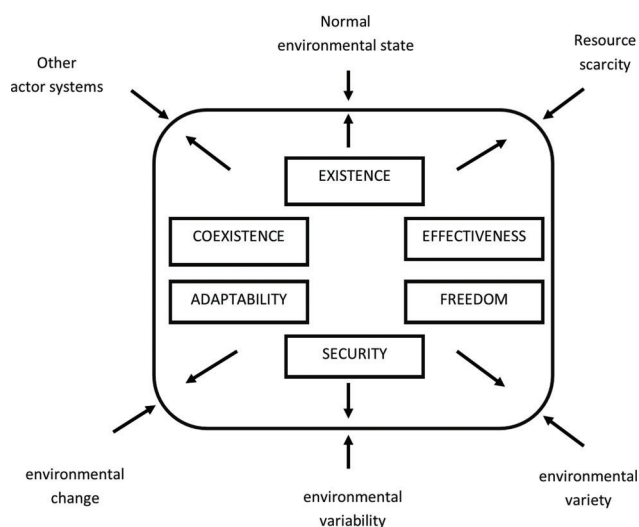
Because the challenge is to help cooperative members to deal with complexity, we carried out a theoretical methodology based on the concept of a systemic approach to change. The discussion with cooperative members is based on the capacity of the cooperative to deal with its environment and unforeseen circumstances.

We use the framework from Bossel and the Balaton Group (1999) to encourage cooperative members to discuss the overall performance of the cooperative. This methodology is based on the systemic approach and considers the Cuma as a system which has to deal with its environment (Figure 3). We postulate that sustainable systems necessarily meet certain conditions as determined by the relationship between the system and its environment. From this perspective, the framework defines a set of 6 basic features which characterize the various types of relationships that define the sustainability of a system in its environment: existence, effectiveness, security, adaptability, freedom of action, and co-existence.

Cooperative members have to discuss the sustainable development of the Cuma. Several indicators are



**Figure 2:** First step: From the workshops to a causal map



**Figure 3:** Fundamental properties of system environments and their basic orientor (Source: Bossel 1999)

scrutinized. For each basic feature, questions are posed to members (Figure 4).

For example, for the security of the Cuma, we ask members if they think their Cuma is secure, safe and stable, what shocks could drastically affect the Cuma, and what members can imagine as actions to become more resilient. We ask members to bring together their perceptions about resource scarcity in order to discuss the effectiveness of the cooperative. Figure 5 presents an overview for Cuma Smith of all answers the members gave in a collective workshop.

This first step needs an advisor, a facilitator (Schuman, 2005), to organize the discussion in such a way as to collect the information necessary for the next step, a causal map.

The causal map formalizes individual and collective representations about what members want to do together. The causal map is presented below (section 4).

From an epistemological point of view, this method takes its roots in the socio-constructivist paradigm (Vygotsky, 1978). The interactions between the actors and the tools used to help to design a collective representation of the behaviour of the system are also articulated in order to support individual and collective learning. Following Kaplan and Norton (1996), we consider that there are some central ideas linked to various causal idea chains, and the challenge is to identify them, and to focus the farm management on what has become a specific strategic target. This is the objective of the next step (2).

The second step (Figure 6) is to formalize the strategy, and to support the strategic management and the evaluation of the performance obtained. This step involves supporting cooperative members in the definition of strategic areas, and the selection and prioritization of business objectives. It is based on the creation of a balanced scorecard as a primary tool (Chabin, 2008). This scorecard can be multi-dimensional, integrating criteria that are financial and non-financial, short and long term, qualitative and quantitative, retrospective and prospective. Using the measurements produced, the Balanced Scorecard reflects the degree of success of the strategy. It also aims to integrate non-financial indicators that are expected to provide a prospective overview of the company and its environment, which explains why we talk about a balanced scorecard (Kaplan and Norton, 2004); (Noell and Lund, 2002).

Following Kaplan and Norton (2004)'s point of view, we consider that measurement is fundamental to managers. If companies try to improve the management of their intangible assets, they have to integrate the

Basic orientor	Viability of affecting system	Contribution to affected system
<b>Existence</b>	Is the system compatible with and can exist in its particular environment?	Does the system contribute its part to the existence of the affected system?
<b>Effectiveness</b>	Is it effective and efficient?	Does it contribute to the efficient and effective operation of the total system
<b>Freedom of action</b>	Does it have the necessary freedom to respond and react as needed?	Does it contribute to the freedom of action of the total system?
<b>Security</b>	Is it secure, safe and stable?	Does it contribute to the security, safety and stability of the total system?
<b>Adaptability</b>	Can it adapt to new challenges?	Does it contribute to the flexibility and adaptability of the total system?
<b>Coexistence</b>	Is it compatible with interacting subsystems?	Does it contribute to the compatibility of the total system with its partner systems?
<b>Psychological needs*</b>	Is it compatible with psychological needs and culture?	Does it contribute to the psychological well-being of people?
<b>Responsability*</b>	Does it take into account its impacts on the futures and current generations in the decision making?	Does it contribute to the durability of the total system?
<b>Reproductibility*</b>	Is it able to be self-produced and be passed?	Does it contribute to help others by using or saving it in the total system?

\*only for systems with sentient beings

Figure 4: General scheme for identifying indicators of viability (Source: Bossel 1999)

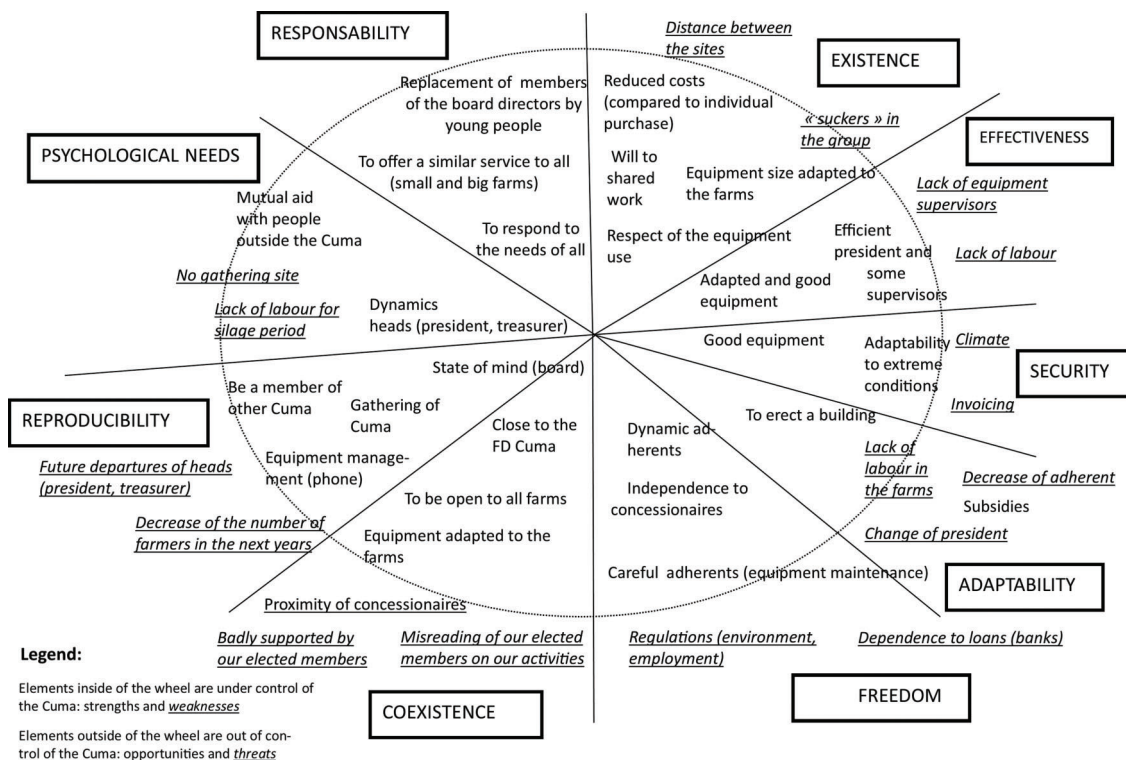
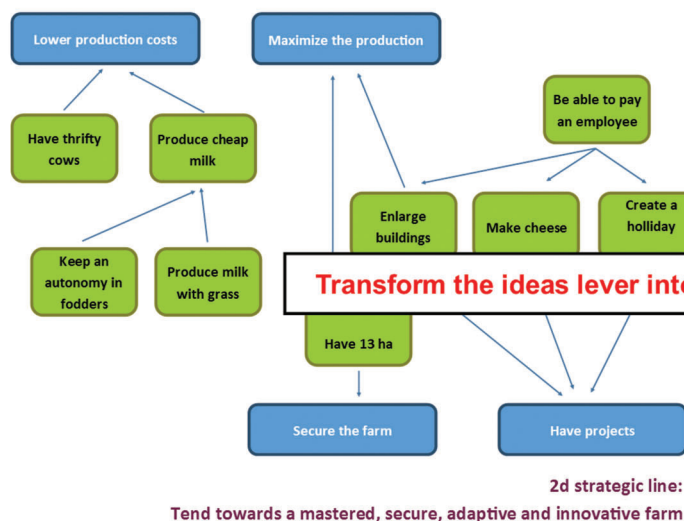


Figure 5: Analysis of the Cuma Smith by its members using Bossel indicators

measurement of intangible assets into their management systems. The first step helps us to take into account these strategic intangible assets. But contrary to Kaplan and Norton, we do not impose the 4 topics raised by them, because PerfCuma is not a normative approach.

Bossel and the Balaton group (1999) propose to consider that sustainable development requires systems of information. It needs indicators are needed to provide comprehensive information about the systems which shape sustainable development.



**1st strategic line:****Produce of the wealth to keep the capacity to adapt the farm****2d strategic line:**  
**Tend towards a mastered, secure, adaptive and innovative farm**

Strategic line	Strategic target	Indicator
Produce of the wealth to keep the capacity to adapt the farm	Have thrifty cows	Veterinary average cost by cow
	Produce cheap milk	Variable costs by 1.000 l milk
	Keep an autonomy in fodders	500 bales of hay
	Produce milk with grass	2.500 to 3.000 l milk for 2 summer days
	Have 13 ha furthermore	150 ha UAA
	Enlarge buildings	43 cubicles furthermore

**2.1 Causal map treatment to define the strategic lines and identify several strategic targets (green boxes)****2.2 To obtain a balanced scorecard to drive the strategy****Figure 6:** Second step: From the causal map to a balanced scorecard

Balanced scorecard				Action plan	
Strategic target	indicator	Target value	Frequency of control	Actions	Means of action
Produce cheap milk	Operating costs per 1.000 l milk	Not upper than 120 €	Every dairy campaign	Improve forage quality	Re-sow with a mixture grasses/legumes
				Add drinking troughs	
				Limit tue concen- trate by daidy cow	Define a ration with 700 kg of concen- trate/cow/year

**Figure 7:** Third step: Implementation of the strategy

Thus, indicators of sustainable development are needed to guide strategy and decisions, and they are chosen by the members. Each selected measure must be an element of the causal relationship string, expressing the strategic direction chosen by the Cuma. The number of indicators based on the central ideas should be as small as possible, but with as wide a coverage as possible.

The third step (Figure 7) is to define an action plan which presents the means (financial, technical, human, etc.) necessary to implement the strategy, and then to support the monitoring of the implementation of the strategy. The balanced scorecard includes the action plan and helps the monitoring of the roadmap over a 4–5 years period (see Appendix 2 for an example of such a balanced scorecard).

The balanced scorecard focuses on less than 10 indicators, to allow Cuma staff members to monitor clearly the implementation of the strategy. For each strategic target based on the central ideas of the causal map, there is a SMART strategic indicator (Doran, 1981): Specific; Measurable; Assignable; Realistic; Time-related. And for each indicator, there are between 1 and 3 actions to complete.

For Cuma Smith, a central point concerns the ability to stay a step ahead. After discussion, Cuma members chose collectively a “Regular investment” indicator. In fact, they decided that it should be to spend 100,000€/year to finance equipment, and they wanted to maintain this effort for the next 4 years (it is a SMART indicator),

so the action plan includes both “to renew equipment as soon as it is amortized” and “to keep a watchful eye on robustness of the equipment at purchase”.

#### 4.2. A causal map ensures the link between steps

The link between the first two steps is ensured by a tool used to build, represent, and negotiate strategy: the causal map. This is a tool which has not been used in France previously to define strategic choices in relation to farming. The use of a causal map to explore the cognitive structures of an organization is now widespread in management research (Huff, 1990; Laukkanen, 1998). Particularly suitable for strategic approaches (Eden, 1988; Cossette 2003), a causal map helps to formalize individual and collective ideas. The cognitive approach allows company management to gain a greater understanding of their strategic situation, and facilitates the identification of problems and their interrelationships. It also helps to develop new ideas for possible directions for the company, in order to facilitate decision-making in relation to strategic choices. The causal map has been used to study the cognitive representations of different actors in various different contexts, some similar to those studied here, such as the performance of cooperative wine makers, or the modelling of perception with regard to the socio-ecosystem of farming among farmers (Fairweather, 2010), or with the Strategic Options Development and Analysis framework (SODA) which has been used extensively with organizations public and private, large and small (Ackermann and Eden, 2010). In practical terms, it is a graphical representation of defined concepts based on causality links which are identifiable by the statements that unite them. The causal map is relevant for representing the complexity of a system by creating links between all the concepts which are involved in the context studied.

The representation of elements in a map can help to clarify meaning. It shows the causal relationships and the reasoning behind the decisions taken. The causal map is both a tool for communication, and an analysis tool (Cossette, 2003). The causal map is a mediation support tool that clarifies thinking and decision making, and facilitates agreement on a strategy and the creation of a vision.

The structure of the map is an analytical support. It identifies causal links between different ideas and thus facilitates the identification of the processes represented by the map. It is possible to identify multiple links (more or less interdependent, more or less competitive, more or less contradictory, more or less important) that lead to the achievement of the same objective. These links form part of different coherent sets from which the strategy can be developed. In a Cuma, coherent sets of goals emerge that are focused around economic, social, and local development themes. The links can also identify the strategic areas that form the basis for the implementation of the cooperative's management project.

In practical terms, in our project, a causal map is iteratively established with the assistance of a data processing software expert, experienced in the use of suitable software (Decision Explorer® – Banxia® Software), based on the elements provided by each of the tools used in the first step. The different maps produced are presented for discussion, amended, and validated by the stakeholders of the strategic approach. For a Cuma involved in the project, the stakeholders are, for example, farmer members,

PerfCuma: A framework to manage small cooperatives

employees, members of other Cuma, members of administrative boards. The final map obtained is used to support the definition of the strategic objectives, the actions agreed, and the indicators to be used to assess performance.

In addition, the causal map provides multiple analyses that can be used as part of a strategic approach. Therefore, it is possible to perform statistical analysis based on the map. One possible analysis can highlight the concepts that are essential to the strategy. The software helps the analyst and the cooperative members to identify the goals, the key ideas, the driving forces, and the performance measures from the mass of ideas (Figure 8). We accept that the causal map is unreadable, but our objective is to show how we represent complexity. Complexity comes from the Latin word “*Complexus*” that means “*what is weaved*”.

Next the analysis indicates strategic targets, and cooperative members have to select 8 to 10 key issues on the causal map. They are key because they are nodes at the heart of the map and, as a result, they are the relevant strategic issues. If any of these issues is magnified it has an impact on the whole system. Then Cuma members have to define an indicator for each of the 8 to 10 selected key issues to drive the strategy, and they have to define the goal for each indicator to build the balanced scorecard.

Causal mapping takes a central place in the proposed methodological journey because it is:

- (1) a support tool that acts as an intermediary, facilitating the cognitive process (Vinck, 2000);
- (2) an aid that provides a representation of the processes implemented in an organization, and facilitates the identification of the core elements of the strategy;
- (3) a tool that takes complexity into account without removing it (Axelrod, 2015);
- (4) a mediation tool that helps to ensure that a group has a shared vision of a given strategy (Eden, 1988).

### 5. The place of advice and the conditions of transferring the approach to the cuma

The effectiveness of the strategic thinking is dependent on the relevance of the processes involved. Strategic thinking cannot be satisfied with a single individual thought; it requires an external, distanced, and independent perspective. This observation is not new (Hémidy *et al.* 1996); it requires the involvement of an advisor. The advisor plays an important role in ensuring that all participants understand the thought processes involved, and in facilitating communication (Von Korff and Guetta, 2005); (Schuman, 2005).

The implementation of strategic management requires the support of an advisor, and requires some consideration as to the organizational arrangement for such advice. Starting with the idea that a successful strategy is not only defined by the degree of achievement of the objectives set, but also that it is the result of a collective vision that has its foundations in individual propositions which each person develops from his own organization and strategy, we suggest that structuring advice around groups of farmers and collective groupings will help to achieve the required results (Pervanchon *et al.*, 2007, Compagnone, 2009).



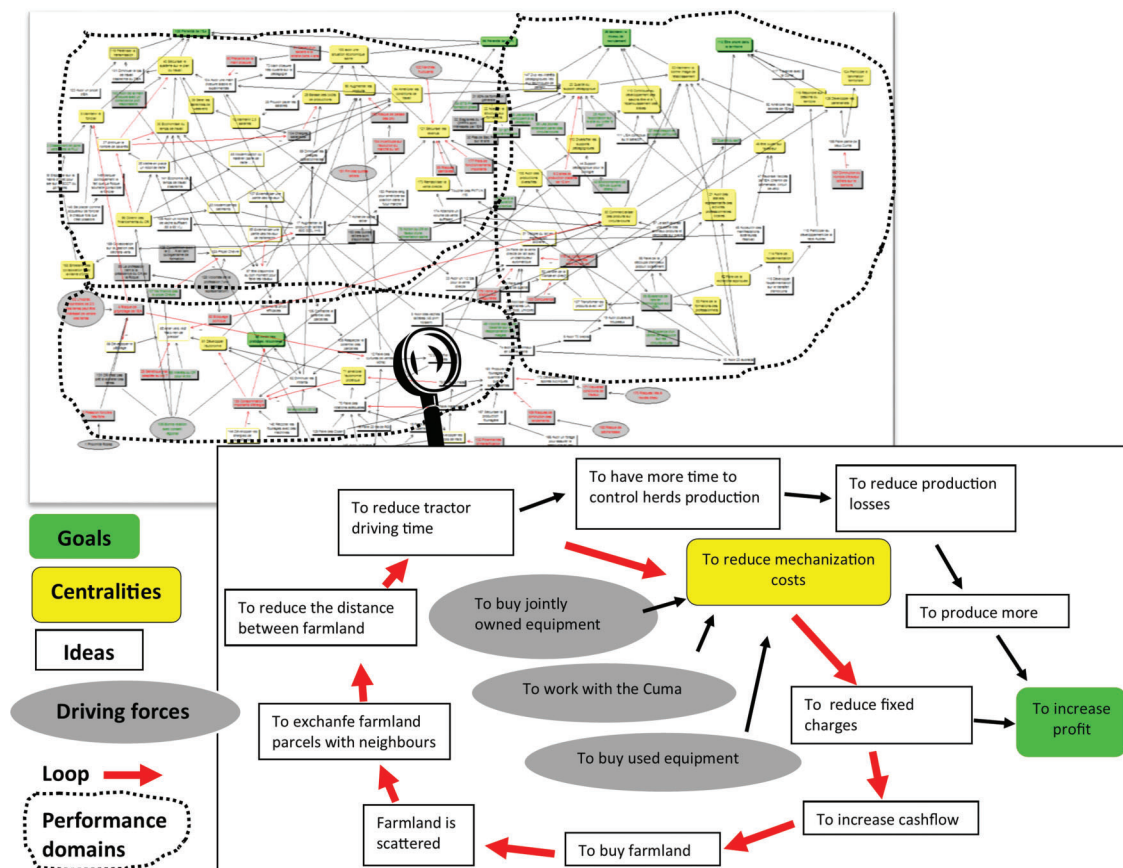


Figure 8: The causal map of the Cuma Smith

At the beginning of our research project, by taking into account academic literature (Jermann *et al.*, 2001), we postulate that the advisor is responsible for guiding the participant in the process toward effective collaboration and learning. He is a facilitator who is able to address collaboration issues as well as task-oriented issues. Collaboration issues include the distribution of roles among members, equality of participation, and reaching a common understanding and a shared point of view without neglecting divergent opinions, while task-oriented issues involve the understanding and application of key domain concepts. Based on this definition of the advisor position, we have built our ongoing counselling methodology to implement management strategy for farms and cooperatives (Cuma).

After numerous experiences of PerfEa and PerfCuma, the following lessons were learned: The function of the advisor is to ensure the smooth implementation and efficiency of strategic processes. The advisor relies on the methodological itinerary to identify the content and performs a synthesis and analysis function. His only intervention in relation to content is to reformulate or summarize it. The advisor should have a good knowledge of the tools used in the methodological journey in order to be able to adapt them at any time according to the group's outputs. Collective and individual expectations are not the same; some participants already have established strategic thinking abilities, others do not. This is where the advisor's role is essential: he must be able to immediately adapt the processes he wishes to implement with the group to support its thought processes, adjusting them to the group's specific stage of development.

The relevance of the proposed methodological framework relies heavily on the capacity of the advisor to create satisfactory conditions for its use, and the advisor's capacity to mobilize actors according to the different stakeholders involved in the operations of each cooperative. That is why one of the objectives of our research was to train advisors to deploy the method.

## 6. Conclusion

Based on the view that cooperative members can identify their own situation with the help of a third party, the strategic management approach we propose allows farmers to establish a cooperative management project, and set up the continuous improvement of their projects. The methodology is suitable for any kind of cooperative. The test on the Cuma was successful and we think that the framework is flexible enough to be adapted to other contexts and to other cooperatives. It is currently formalized as a guidebook, and we have developed a curriculum to train advisors in Cuma and farm management strategy.

This paper is a contribution to the discussion about the support of the strategic management process in agriculture. We discuss how the ongoing counselling methodology, as exemplified by PerfEa and PerfCuma to implement management strategy and its tools, is a learning support to facilitate the transition towards sustainable development. This learning is individual, collective, and organizational. According to loop-learning theories, this learning addresses, to different extents, improvements in practices, revisiting assumptions, and reconsidering values and beliefs.

This work might be extended to the expected development in the environmental certification of farms, or the increased focus on sustainable development and corporate social responsibility. The strategic management approach could emerge as a lever for action with regard to public agricultural and environmental policy, both in terms of the adaptation of farmers to changing public policies, and in terms of the conditionality of public support.

The approach of providing advice to farmers and agricultural cooperatives in the area of strategic management should be considered as a learning aid that will strengthen the capacity for the strategic thinking of individuals and collective groupings, as well as strengthening their ability to integrate sustainable development issues into their activity.

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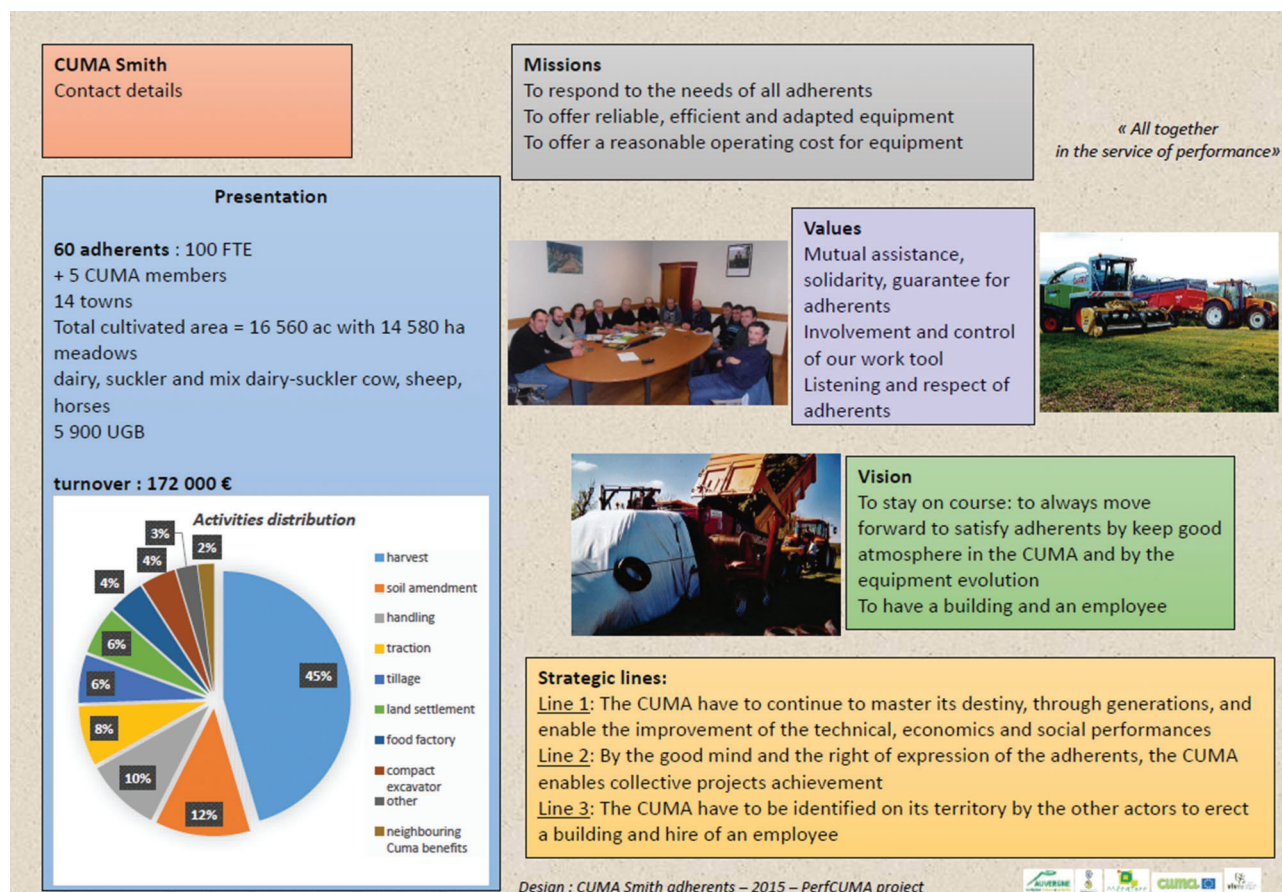
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## Appendix 1: Strategic paper (recto) of the cuma smith





## Appendix 2: Strategic paper (verso) with the balanced scorecard of the cuma smith

STRATEGY		BALANCED SCORECARD			ACTION PLAN
Line	Strategic target	Indicator	Present state of indicator	Wished state and deadline	Main actions
1	The equipment respond to the adherents needs	-Global activity of the CUMA -Activity /tool	-turnover = 170 000€ -turnover/tool (refer to accounting)	To preserve	A1. To deal with the variations of turnover/tool and identify the meanings in case of decrease, every years in December during the invoicing A2. To ensure the respect of starting commitments until the end of tool amortisation
	To stay on course (to stay a step ahead)	Regular investments	100 000€/year	To preserve	A3. To renew equipment as soon as it is amortized and there are costs A4. To be watchful on the tool robustness at the time of purchase
	To decrease the production costs of the adherents	-Adherents number -Unities number	-65 adherents - Unities number (refer to accounting)	To preserve	A5. To let adherents know when a tool is under-employed and encourage them to use it A6. The maintenance is made by the adherent after each operation A7. The tool responsible checks the maintenance of the tool after each à return A8. To raise awareness among adherent to they feel actors of their CUMA (meeting with adherents, communication in meeting)
	To master the control and the management of the CUMA	The board is dynamic	-5 to 10 meetings /year -All the attendees are here	To preserve	A9. To keep the frequency of the meetings A10. To plan the next meeting at the end of the last meeting A11. To be vigilant on the dialogue in meeting A12. To keep the motivation of the board members
2	To have a good mind in the CUMA	Participation rate to the meeting	80%	100% Now	A13. To have 2 general assembly/year : in spring and in autumn with a meal A14. To organise a yearly meal outside general assembly, < 2 years A15. The executive board is vigilant on the good mind in the CUMA
	All adherents have an opportunity to express themselves	To have moments of exchange	2 general assembly /year	To preserve	A16. The president goes around the table during each meeting A17. To invite each new comer to a meeting of the executive board before to integrate him in the CUMA
3	To have a building	To have the plot (2400 to 3600 sq. yd.)	The spot is located (0,6 mi around Soubizergues)	Municipal decision is taken to acquire the plot < 5 years	A18. To meet the mayor and invite him to the general assembly of May 2015 A19. To meet the president of the federation of municipalities during 2015 A20. To put a figure on the project during 2015 A21. To evaluate the financial impact for the CUMA and its adherents during 2015
	To hire an employee	An enough hours number	Nothing	An enough hours number for an FTE <5 years	A22. To acquire the plot for the building as soon as possible A23. To conduct a survey of adherents to estimate the needs of labour (hours number) after the erecting of the building A24. To define precisely the skills of the employee when the hiring decision is taken