

Strategic control of agro-industrial cooperatives: A strategic map proposal

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Abstract

Using the concepts of Balanced Scorecard and System Dynamics and considering the corporate features of agro-industrial cooperatives, this article proposes a strategic map, which presents up variables that represent critic processes in strategy management for agro-industrial cooperatives, as well as identifying hypothesis of causal relations among the variables.

Keywords: Strategic management, agro-industrial cooperatives, Dynamic Scorecard

Introduction

Cooperative societies present several differences comparatively with mercantile societies or investor owned firms – IOF, and so they demand the adaptation of specific management tools. Being constituted as societies of people instead of societies of capital, the strategic administration of cooperatives depends significantly on the relationship they maintain with their members. The members view a cooperative as an intermediary organization between their individual ventures and the market and are stimulated to maintain and strengthen their commercial relationships with the cooperatives through economical advantages for their own individual enterprises. In this context, it is important that strategic management of agro-industrial cooperatives is supported by models that might consider conciliation and balance among the distinct goals of cooperatives and members.

Cooperative societies show peculiarities in their legal constitution and adopt principles and doctrines that exert significant influence in their structuring and organizational governance, delegation and use of power and, consequently, in how decision process happens. Cooperatives are societies of people who unite themselves seeking for the satisfaction of common needs. In opposition of an IOF, where the power is proportional to the invested capital, in cooperatives the power is egalitarian, because of each member exerts the right of a single vote independently of the owned capital. In a cooperative the financial result is not the only objective. The decisions about re-

investment or distribution of the financial surpluses to members are taken in assembly formed by the peers. The financial surpluses share returns to the members proportionally to their work with the cooperative, instead of the amount of capital owned (Bialoskorski 2001).

In cooperative societies, an ambiguous relationship among the members happens. They are at the same time customers, suppliers and owners of the society. Due to that, the emergence of conflicting goals is verified, especially in the case of highly competitive markets. Among the causes of these conflicting goals, one of the most important are the difficulties to balance the pressure for decreasing the prices of final products, coming from market, with the pressure for increasing the price paid for supplies, coming from members – who are the suppliers of the cooperative (Bialoskorski 2001).

Cooperatives face different pressures influencing their decision process at a strategic level. On one hand, the internal environment is composed by members who seek their satisfaction and corporative goals that are barely convergent, due to the homogeneity of the social boards and the kind of relationship between members and cooperatives. On the other hand, cooperatives work in high competitive markets, including the more industrialized ones, demanding the need for development of effective management practices that can provide the necessary competitiveness for the business success. From the internal environment, corporative pressures, that may cause the political behavior of the decision makers emerge and, from the external environment emerges competitive pressures demanding a rational behavior of these decision makers (Barreiros 2005).

Hence, it is possible to imply that members of an agro-industrial cooperative, as independent economic agents, not always have a convergent behavior with the collective goals of the cooperative. In this sense, the development of a strategic management model for this type of organization depends on adaptations that adequately consider the effect and influences of the member's behavior in relation to the decision process of cooperatives – such as commitment, degree of capitalization acceptance and degree of technological innovations acceptance.

Based on the concepts of the Balanced Scorecard (Kaplan and Norton 2001) and System Dynamics (Sterman 2000), the purpose of this paper is to present a strategic map that provides conditions for future development of management strategy modeling in this type of organization.

In this paper, core concepts of strategic management and particular characteristics of agro-industrial cooperatives are discussed. A strategic map is proposed, based on the Balanced Scorecard concept and associated to the vision and resources of the Dynamic Systems. These tools have been applied aiming to improve the strategic analysis model proposed, considering the complexity inherent to cooperative management.

Management of Cooperatives

Georg Drahein in 1951 introduced the concept of dual nature of cooperative organization (Hanel 1994). On the one hand, the cooperative is primarily an association or a group in the sociological aspect, whose members are the owners and maintainers of the organization. On the other hand, the cooperative is also a joint company of the members' economic ventures and these members are the cooperatives' owners. To Staatz, until the 1960s the debate on cooperative organizations was focused on the discussion whether cooperatives would represent a form of vertical organization of farmers, being simply as an extension of individual members' ventures, or cooperatives could legitimately be analyzed as organizations with self-specific scope and with independent decision-making process, regardless the goals of farmers in their individual ventures (Staatz 1989). In this sense, the debate was focused on the discussion whether the cooperative administration might simply implement the wishes of members, guided by

their individual goals, or if they might look for the achievement of the cooperatives' objectives itself, as an independent organization, assuming the vision of collective goals, not always convergent with the goals of individuals. Staatz also states that Stephen Enke started a different discussion, but perfectly adherent to real conditions, when he said that on the day by day of a cooperative, its administration is faced with situations in which decisions must be made, based on alternative choices and often antagonistic of what should be maximized between the goals of members and the needs of the cooperative itself. From this discussion emerged the approach to study cooperatives as independent organizations, with their own objectives and as alternative economic firms in face to the conventional IOF.

Enke's model emphasized that to maximize the outcome of members, the cooperative's management had to balance the benefits received from two different sources. Initially, the benefits received by members, derived from their operations with the cooperative, to the extent that it can offer lower prices for purchased inputs and higher prices for products sold by the members. In addition to these primary benefits, as wished by the members when forming the cooperative, another type of benefit might be considered, derived from the cooperative's industrial adding value to the raw materials supplied by the members. That is, industrializing the products delivered by the members and operating under market conditions, the cooperative would offer financial returns derived from profitable business in different markets, that in medium and long terms, could be shared among the members in proportion of their respective financial movements with the cooperative (Staatz 1989).

Prioritizing benefits focusing only one of these sources on financial return would tend to reduce the overall returns of members. That is, focusing only on the returns derived from the operations of members with the cooperative, could limit the capitalization of the cooperative in the long run, with consequences on the competitiveness and future returns of their own members. On the other hand, focusing only on the strengthening of the cooperative, at the expense of short-term economic benefits, could significantly compromise the return of the individual members' ventures (Staatz 1989).

Reynolds reports that farmers establish and maintain a cooperative when they can reach their goals in a broader and more comprehensive way when compared to their alternative individual actions as separate economic agents (Reynolds 1997). Cooperatives are voluntary organizations and operate under democratic principles of corporate governance. This author considers that members of cooperatives usually have divergent economic goals, given the differences in size, technological level and type of individual businesses and that the maintenance of cohesion and the creation of incentives for cooperation is much more complex the more different the productive and technological processes are.

Machado Filho, in turn, argue that in the strategic field, the cooperative model is difficult to manage, due to the need to tend to very diverse demands, leading to a natural increase of the political weight in decision making (Machado Filho et al. 2003). Governance becomes very complex, and much of the management effort is concentrated on it. Besides, they reinforce that in Brazilian cooperatives, there usually is no separation between ownership and control, in that, in many organizations, managers come from the body of members, which can lead to management difficulties in that it increases the complexity and the competitive level of businesses. Lacking management professionals, cooperatives move away from the market, focusing on the operational aspect of production.

Emerging from these considerations is the problem of this research, embodied by the apparent need for adaptation of the BSC methodology and consequently of the Dynamic Scorecard for use in cooperative societies, thus possibly incorporating, beyond the four traditional perspectives

(financial, customer, internal processes as well as learning and growth), other perspectives, which are shown to be fundamental in this type of organization: the relationship of the cooperative with its body of members, which depends on transparent policies of incentives for the practice of cooperation, leading to fidelity of the members and strengthening of cooperative; and also the social perspective.

Strategic Control, Balanced Scorecard and Dynamic Scorecard

When studying performance assessment and control systems for implementation of business strategies, Simons conceived a model of strategic control levers that involve four dimensions (Simons 2000). These dimensions are partially related with the 5 P's of strategy (Mintzberg et al. 2000): strategy as perspective, strategy as positioning, strategy as plan and strategy as pattern. Only the fifth P of Mintzberg – strategy as ploy – is not considered in this model. The model of control levers developed by Simons took advantage of some concepts and formulations of strategy developed previously. The first one was the analysis of the Design's School (Andrews 1996), which establishes that the strategy formulation should be done according to the analytical study of threats and opportunities of the external environment and of strengths and weaknesses of the internal environment – SWOT analysis. In order to position the businesses in the external environment, the dynamic of market competition is also used – 5 strengths model of Porter (Porter 1998). In order to recognize and to develop resources and competences of the enterprise, the vision based on resources of Barney and on essential competences of Prahalad and Hamel have been considered as well (Barney 1991, Prahalad and Hamel 1998).

Strategy as perspective involves the consideration of values, beliefs and ideals as the organization's master guide. Strategy as positioning involves the consideration of boundaries that must guide behaviors and management decisions, according to the risks that must be avoided. After defining the mission and the strategic positioning, through the analysis of the competitive dynamics of the market, resources, competences and internal capabilities, the dimension of the strategy as plan emerges. In this phase, formally the goals are expressed, communicated and distributed for the whole organization, and also the necessary resources are estimated and coordinated in order to actually reach the goals.

The hierarchy “mission >> strategy >> goals >> measures of performance >> actions” defines a concept in a cascade way that begins at a general inspiring mission towards a specific quantitative measure of performance. This hierarchy is supported by strategic plans based on analytical techniques, such as SWOT. Complementing this process, Mintzberg and Quinn studied the emergent strategies that define the strategy as pattern and are the origin of the organizational learning process (Mintzberg and Quinn 2001). This strategy considers that ideas emerge from people, who are part of the organization, and those may become good strategies for the organization.

Simons considers that in the implementation of strategies, in order to reach the financial goals, managers must deal with the following tensions that are inherent to organizations seeking high performance: a) Tensions among profit, growing and control; b) Tensions among deliberate and emerging strategies; c) Tensions among unlimited opportunities to limited attention; d) Tensions among self-interest and the desire for contributing (Simons 2000). It is a managers' duty to know how to use the several techniques of measure of performance along with the four control levers, shown in figure 1, in order to cope with these tensions.

The way of converting strategy into practical actions throughout the firm, detailing guidelines and goals, creating tools for monitoring and for measurement of strategies' results and creating a favorable environment for strategic alignment and learning has been one of the greatest challenges for the strategic management field. Seeking this goal, several methods have been developed, such

as Tableaux of Board, Administration by Goals (developed by Peter Drucker), the Method of Management by Guidelines and, recently, the Balanced Scorecard method, created by Kaplan and Norton (2001). According to these authors, the BSC is structured as a set of indicators and is a system of strategic management aiming at: a) Clarifying and obtaining consensus about the strategy; b) Communicating the strategy throughout the firm; c) Aligning departmental and personal goals with the strategy; d) Connecting strategic objectives with long-term goals and budgets; e) Identifying and aligning initiatives, investment programs and strategic action; f) Accomplishing periodic and systematic revisions; g) Getting feedback in order to increase the knowledge about strategy, to improve it and to develop strategic learning.

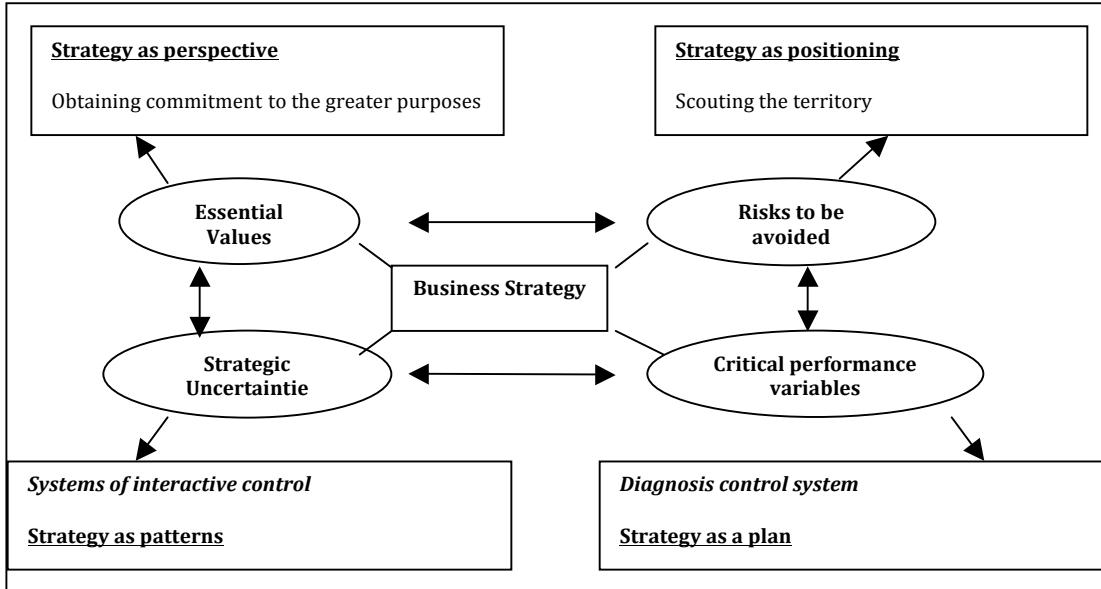


Figure 1 – Strategic Control Levers (Source: Simons 2000)

The BSC seeks to translate the vision and the strategy of a firm into a broad set of goals and performance measures, having as structure a modeling based on four basic perspectives of a firm: financial, customers, internal processes and also growth and learning. This modeling is expressed through a map, known as strategic map, that must tell the history of the firm's strategy.

Despite the improvement caused by BSC on the strategic management field, there are some criticisms regarding BSC's limitations: a) The relations of cause and effect are one way, or, in other words, feedback among goals is not made explicit; b) The map is not operational, because it does not consider delays among relations of cause and effect; c) The map cannot be experimented with, in other words, it is impossible to use the map in a reliable simulation.

In order to solve these limitations, the use of System Dynamics in association with BSC has been developed by some authors. To Richmond the deficiencies regarding the BSC's strategic map might be solved by using the language of flows and stocks provided by the System Dynamics method (Richmond 1999). Due to this, the concept of Dynamic Scorecard was developed, where a simulation of the relations of cause and effect is possible, creating strategic learning.

By studying the viability of conjugation of BSC with System Dynamics, Schoeneborn showed that the relations of cause and effect of the various elements described in literature about the BSC are not suitable enough for the identification of indicators that bring successful results in the long run (Schoeneborn 2003). Being based on simple views that ignore the delays and possible feedbacks, the strategic maps only show a part of the effects. Overcoming such limitations is

possible through the conjugation of the BSC with System Dynamics, in a way that the delays and feedbacks between variables start being considered and set into parameters, so that model simulation and subsequent strategic learning are made possible.

The conjugation of System Dynamics with the BSC is interesting because it gives possibilities for overcoming the limitations of the BSC method, as previously reported. By enabling the consideration of delays and feedbacks between different variables of the BSC strategic map, the model overcomes the initial limitations of unidirectionality and operational difficulties. The model then enables more reliable simulations and consequent strategic learning (Schoeneborn 2003). Fernandes has contributed for the combination of BSC with System Dynamics in his studies and named the concept as Dynamic Scorecard (Fernandes 2003).

Methodology

The main purpose of this research is how to insert two particular perspectives (Social and Relationship with members) in a new Balanced Scorecard model for agro-industrial cooperatives that considers dynamic relations among its four traditional perspectives (financial, customers, internal processes and growth). In this Dynamic Scorecard Model it is considered the need for conciliating and balancing the members' goals - which seek for economic outcomes in their own individual ventures - with the goals of the cooperative itself – which needs capitalization, professionalization and investments to ensure its competitiveness.

Initially a model represented by a generic strategic map applicable to agro-industrial cooperatives was developed. For the development of this model, which shows the hypothesis of relations of cause and effect of the critical success factors in a qualitative and dynamic way, the Vensim Software has been used. In order to evaluate the consistency of the hypothesis of causal relationships among the variables of the generic strategic map some interviews and questionnaires were conducted. The interviews were conducted with five experts of OCEPAR - Organization and Trade Union of Cooperatives of the State of Paraná, followed by content analysis of these interviews (thematic analysis). Regarding the questionnaires, twenty-five agronomic engineers of six cooperatives of Paraná State have answered them.

Besides, a case study was carried out in a large agro-industrial cooperative of Paraná. During this phase it was possible to define control indicators, in the different perspectives of the Dynamic Scorecard, that adequately express the critical strategic factors in agro-industrial cooperatives. For a next phase it is intended to carry out a practical application of the proposed model in other agro-industrial cooperatives, through the action-research method.

The strategic model was developed using the soft modeling language of Dynamic Systems. This language considers variables (enclosed in polygons), relation between variables (arrows) and, delays (double lines across arrows). The whole map is a set of sequential and progressive loops of causal diagrams that represent reinforcement (loops type R) and equilibrium (loops type B) among variables.

Results

The proposed strategic map in looping format is illustrated in Figure 2. The reinforcing loop R1 designed refers to the hypothesis of positive effect of technical assistance over the member's capacity, efficiency, production, gross margin and profits. And as a reinforcement loop, the higher the member's profits, the greater the feedback of spending resources in more technical assistance, closing the loop R1. This feedback is a result of members' awareness in relation to the benefits brought by technical assistance.

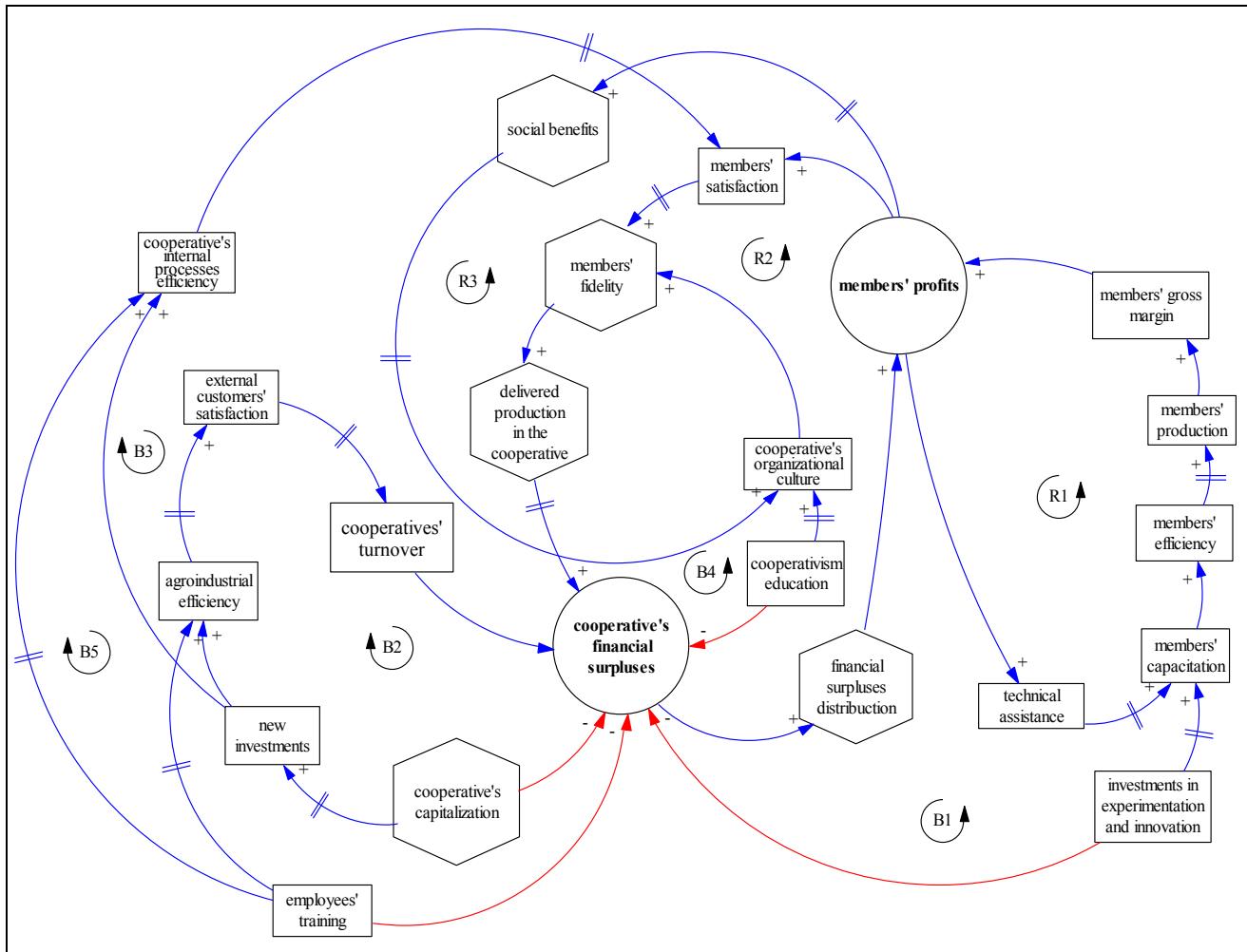


Figure 2 – Proposed Strategic Map in Looping Format

The reinforcing loop R2 designed refers to the hypothesis of the positive effect that the commitment of the members with the cooperative - expressed by the indicator fidelity, influenced by their profits, exert over the financial surpluses of the cooperative, which in turn, increase the profits of the members through the possibility of surpluses distribution. The hypotheses are that member's profits increases their satisfaction, and so their fidelity, the production delivered to the cooperative and the financial surpluses of the cooperative, which can be distributed back, increasing as a feedback the profit for members, closing the reinforcement loop R2.

The balance loop B1 is the first loop of the model. It refers to the hypothesis of the positive effect that investment in innovation and experimentation exerts over the member's capacity and consequently over their efficiency, production, gross margin and profits, but at the cost of reducing the financial surpluses of the cooperative itself. Instead of reversing all the potential surpluses to the members, the cooperative can alternatively invest a part in agricultural innovation and experimentation, improving the technology employed by the members in their farms, with positive effects in the medium and long term, over the capacity and consequently over the member's profits.

The balance loop B2 is also designed as a balancing one. It considers the hypothesis of the positive effect that the capitalization of the cooperative exerts over its ability to make new investments, required to preserve its competitiveness in the agribusiness markets, with consequent

increase of the cooperative's financial surpluses in the medium and long term. The cooperative operates in competitive markets and needs equity for new investments that preserve or expand its competitiveness, with positive effects over agro-industrial efficiency, consequently over the satisfaction of external customers, sales and revenues, providing the increase in the financial surpluses of the cooperative. These investments, however, compete in the short term with the same surpluses that could alternatively be reversed to the members, closing the balancing loop B2.

The balance loop B3 is also designed as a balancing one. It considers the hypothesis of the positive effect that new investments may also exert over the efficiency of internal processes of the cooperative and consequently over the member's satisfaction, and then with positive effect over their fidelity, yet with sacrifice, in the short term, of the cooperative's surpluses distribution.

The balance loop B4 considers the hypothesis of the positive effect that cooperative education exerts over the commitment and fidelity of members, and consequently, in the medium and long terms, over the financial surpluses of the cooperative. The cooperative education increases member's awareness about the benefits of cooperativism, with positive effects on the organizational climate of the cooperative. The member's awareness about the collective objectives of the cooperative associated with the belonging perception to the organization, leads to increased commitment and consequently the increase of the cooperative surpluses in the medium and long term. In the short term, however, there is a cost decreasing the financial surpluses of the cooperative.

The balance loop B5 considers the hypothesis of the positive effect that employee training exerts over the efficiency of internal processes of the cooperative, both the agro-industrial efficiency, with positive effects in the external environment (customers), and the efficiency of internal processes, with positive effects in the internal environment (members). The staff better trained, aware and able to perform their tasks better, with positive consequences both internally and externally, lead to economic benefits in the medium and long terms, but decreasing the financial surpluses in the short term, in proportion to the cost of training.

The last reinforce loop R3 considers the hypothesis of positive effect that profits of member's ventures exerts over social benefits, which in turn feeds the system positively, improving, in the medium and long terms, the organizational culture, the member's commitment and fidelity and also the cooperative's financial surpluses, closing the reinforcement loop R3. This last loop integrated to the other ones result in the proposed strategic map, adapted to agro-industrial cooperatives.

In the perception of the experts interviewed, this strategic map presents a very high degree of adherence with the reality of agro-industrial cooperatives in Province of Paraná – Brazil. The same strategic map developed is illustrated in Figure 3, but now in the frame of the BSC and considering six basic perspectives. In other words, in addition to the traditional four BSC perspectives of Growth and Learning, Internal Processes, Customers and Financial, are also considered the perspective of Relationship with Members and the Social perspective. These six perspectives include two distinct structures. The first one represented by cooperative and the second by the individual venture of members, each one with its own goal of economic income. In the case of cooperative structure, the strategic map considers the relations within the internal environment, composed by the members and employees, and also relations with the external environment, composed by the customers. The essence of the map lies in the systemic balance between goals and objectives of the members and the cooperative itself.

In the perspective Relationship with Members of the proposed strategic map it is considered key variables for the balance of goals of cooperative and its members. These variables are represented by hexagons in the axis of the map, such as members' fidelity, delivered production in

the cooperative, cooperative's capitalization and distribution of the cooperative's financial surpluses.

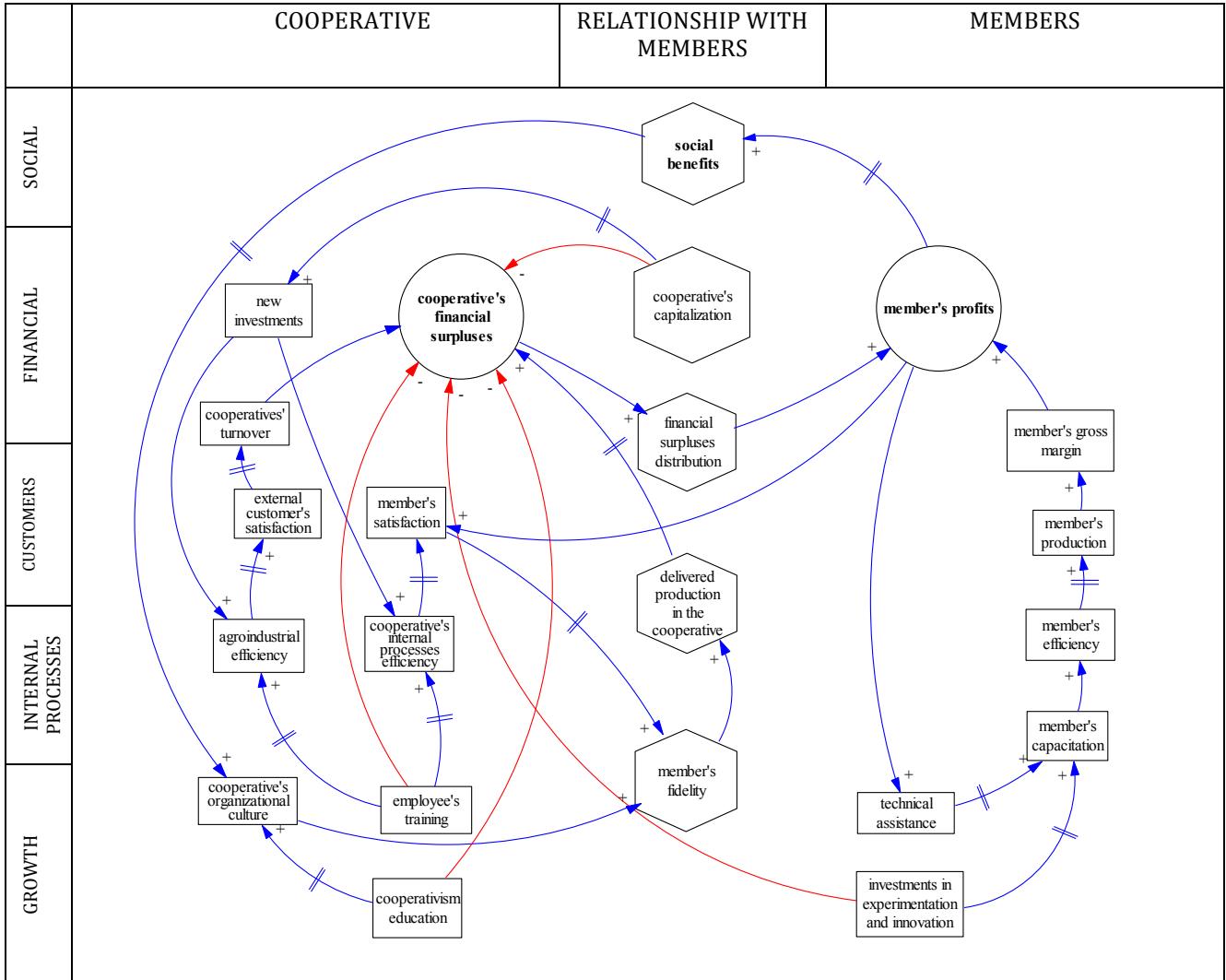


Figure 3 – Proposed Strategic Map in BSC Format

The strategic map also provides one important issue: how the capitalization of cooperative may aid the generation of resources for new investment in agribusiness. The agro-industrial cooperatives act in competitive markets, including large competitors with high economic power. To maintain their competitiveness in these markets, agro-industrial cooperatives depend on investments in new industries, distribution structures, and selling and marketing channels. Another important aspect of the proposed strategic map is its potential for explanation of an important core competence of agro-industrial cooperatives: the ability to develop strong structure of suppliers of raw materials for agro-industrialization.

Final considerations

In this article a strategic map adapted for agro-industrial cooperatives and based on the concepts of BSC and System Dynamics is proposed. This is a generic map, which considers critical processes in this type of organization, such as the balance of goals between cooperatives and its members –

which are not always convergent. Besides, it is also critic the fact that members who operate with the cooperatives usually attempt to increase the economic result of their individual ventures while cooperatives depend on the accumulation of surpluses for their capitalization, aiming to make further investments that will provide the maintenance of their competitiveness in the markets where they operate. This relationship is complex and ambiguous because if members worry only about the success of their ventures, the cooperative will suffer from lack of resources, since it will have to distribute more surpluses.

These considerations among others are well regarded in the strategic map proposed specially because in the map dynamic interactions are deeply regarded. A better understanding of the causal relationships between the variables proposed in the strategic map becomes crucial, and its application as a strategy management tool in the agro-industrial cooperatives may prove to be an important management tool, as it makes use of important and well-regarded concepts of strategy management provided by the BSC jointly with System Dynamics.

The possibility of applying the proposed strategic map depends on the deepening of more studies, further development and evaluation of indicators to properly assess each variable envisioned in the proposed strategic map, as well as the adaptation and application to other real cases of agro-industrial cooperatives using, for example, the action-research method.

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