

■ Research Paper

Diagnosing Failure in an Organizational Strategic Alliance for New Product Development

Lara Bartocci Liboni¹, Luciana Cezarino^{2*},
Adriana Cristina Ferreira Caldana¹ and Omar Sacilotto Donaires³

¹ Department of Business, FEARP-USP, Ribeirão Preto, São Paulo, Brazil

² Department of Business, UFU - Federal University of Uberlândia, Ribeirão Preto, São Paulo, Brazil

³ R&D, Smar Equipamentos Industriais Ltda, Sertãozinho, SP Brazil, 14170-480

The objective of the present study is to derive the lessons learned from an unsuccessful strategic alliance for new product development involving a Brazilian company and an international company. Organizational strategic alliances for new product development represent an alternative to the construction of competencies. This inter-organizational cooperation for complementing competencies has generated a learning process between the involved companies, thus enhancing innovation and competitiveness. The Soft Systems Methodology is suitable to address such subject given its learning feature, which is appropriate for exploring the soft problems inherent to alliances. In addition, the use of the Viable Systems Model seems to be appropriate as well, given its ability to cope with the complexity of the problem situation and diagnose the causes of eventual failure. It became clear that the application of these methodologies enabled the authors to organize the issues related to the problem situation, facilitate learning and derive recommendations regarding what could have been done to prevent failure. Such recommendations are expected to be useful in future similar situations. Copyright © 2014 John Wiley & Sons, Ltd.

Keywords Soft Systems Methodology; Viable System Model; Organisational Strategic Alliance for New Product Development

INTRODUCTION

In the current competitive context, companies face an increasingly complex organizational environment. This requires companies to develop a set of skills to manage multiple variables affecting their

strategic choices. At the core of these choices is the definition of an agenda to increase a company's competitiveness, which almost always corresponds to technological and innovative abilities. In fact, the concern regarding technological innovation has motivated vast political and academic debates, mainly because of its importance in terms of development and competitiveness among companies, regions and nations.

* Correspondence to: Luciana Cezarino, Department of Business, UFU - Federal University of Uberlândia, Ribeirão Preto, São Paulo, Brazil.
E-mail: lcezarino@gmail.com

Indeed, the innovative capacity of companies depends on a complex set of factors. The results of an innovative effort depend not only on the company's technological capacity but also on its organizational (internal environment) and relational (relationships between companies) competencies. Recent studies (Chung *et al.*, 2000) have focused on the problem of innovating to develop adequate competencies.

A way to develop innovations and competencies is through relationships between companies. Organizational strategic alliances for the development of new products are alternative approaches to building such competencies. This inter-organizational cooperation aims to complement competencies and produces inter-entrepreneurial learning, thus enhancing innovation and competitiveness for these companies.

At the same time, there are many cases of unsuccessful new product development alliances. It is important to study this phenomenon in companies to derive recommendations on how to address the problems that arise in these partnerships. The issues that are inherent to the complex social systems in the work environments of these companies can be seen as soft problem situations. Traditional theories are usually unsuitable for addressing such situations, and it becomes necessary to use epistemological methods to support the process of intervening in and redesigning these activities. Soft Systems Methodology (SSM) provides such a tool. It is an important instrument for analysing behavioral issues within the organizational systemic context. It supports exploration, debate, learning and intervention in human activity systems to address soft problems. It is a helpful tool to address the complexity and ambiguities that are inherent to human behavior.

Therefore, it is possible to realize that highly complex management phenomena, such as alliances for new product development, can be better assisted by a methodology capable of dealing with unstructured problems. This could allow for decisions in favour of building international partnerships to be made with more confidence because tools that are capable of helping to overcome the difficulties that certainly arise in this type of managerial model could be drawn upon.

Having conducted a case study of strategic alliance between a Brazilian company and an American company, the authors realized that it would be insightful to explore the outcome of such study by applying system thinking. The sections that follow describe the objectives of this paper and the methodology employed to derive conclusions and provide a quick review of the literature on strategy alliances, as well as a brief summary on the SSM and the Viable Systems Model (VSM). Then, the authors give an account of a real situation experienced by a Brazilian company and an American company of how they started a strategic alliance and how it ended up failing. The information gathered in the case study was then submitted to analysis by applying SSM and VSM concepts in an attempt to further explore the problem situation lived by those two companies. The main intent of the authors was to derive some learning by looking at that situation as a complex subjective experience and by trying to find out what might have gone wrong in the strategic alliance from a systemic-cybernetic standpoint. The conclusions are presented in the final section.

Objectives and Method

The objective of the present work is to contribute to the resolution of problems emerging in an organizational strategic alliance for new product development between two competing companies. That contribution is made in the form of recommendations derived from the application of systems methodologies to outcome of a case study of an organizational strategic alliance for new product development between two companies. In this work, the authors apply SSM in combination with the VSM to interpret the experience shared by those two companies.

Soft Systems Methodology suggests approaching unstructured problems by reflecting deeply on their origins and implications and allowing their complexity to be systematically addressed. It provides a more suitable approach for intervening in complex situations than the simplistic linear thinking underlying traditional methodologies. Checkland and Scholes (1990) describe the SSM as being an

operationalization of the infinite circuit of experiences for deliberate action.

Within this context, SSM has been shown to be an appropriate alternative to address ill-defined behavioral issues that are full of uncertainties and subjectivity. It can be applied several times to the same situation until the issue is sufficiently clarified, and these iterative cycles will in fact be the force that drives change and adaptation.

The VSM, developed by Stafford Beer from cybernetic principles (1972, 1979, 1985), is a diagnostic and design tool. The contribution of the VSM to the application is to provide a reference model to understand an alliance as a viable system. A viable system, in the sense proposed by Beer in the VSM, is one that has a separate existence. The VSM applied to a strategic alliance allows diagnosing success and failure in terms of the adequacy or lack of adequacy of the organizational apparatus involved in the alliance.

Despite the criticism in the past about the inadequacy of hard systems thinking to cope with soft problems, or even soft systems thinking to deal with sociological aspects of human affairs, there is a strong appeal to putting SSM and VSM to work together to address a complex problem situation such as an strategic alliance. The work of Flood and Jackson on critical systems thinking (Jackson, 1991; Flood and Jackson, 1991) points out that different systems methodologies can be applied together if one of them is taken as a dominant methodology to that provide a consistent conceptual framework for the application. In addition, the underlying assumptions of the methodologies must be honoured.

In this paper, SSM is used as the framework for the application, whereas the VSM provides a conceptual model, as suggested by Checkland himself (1985). Thus, whereas the SSM provides a friendly and consistent epistemological approach to exploring reality, the VSM provides a sound ontological perspective to capturing findings about reality.

That combined methodology is applied to the outcome of a case study of failure in a strategic alliance between two companies in an attempt to come up with insights that may be documented as lessons learned for future experiences of such nature.

ORGANIZATIONAL STRATEGIC ALLIANCES: A CASE OF MALADAPTIVE RESPONSES TO COMPLEXITY

Forming strategic alliances is a current global trend, and the formation of alliances for new product development will follow in the near future, representing an important alternative in the development of R&D strategies (Sakakibara, 2002).

According to the organizational strategic view, there are many definitions of alliances.

They are used by independent organizations that stand together and collaborate to achieve common objectives on the basis of mutual needs. The allied companies possess joint resources that they otherwise would not have if they act in isolation, generating resistive and pro-active forces to tackle threats from the external environment so that they can survive in an increasingly competitive and aggressive market.

Organizational strategic alliances are organizational models used by companies to position themselves more competitively through relationships between two or more partners, thus allowing them to obtain sustainable competitive advantages (Sorensen and Reve, 1998).

For Lacombe and Heilborn (2003), a strategic alliance is an association with a business strategy that gives form and structure to the alliance while guiding management and the evolution of the company, including internal infrastructure. One can note a greater pragmatism in this concept regarding the way these strategic alliances are made.

Aaker (2001) defines a strategic alliance as a collaboration that enhances the forces of two or more organizations so that they can meet their strategic goals. He explains that what is in question in such associations is not simply a tactical way to solve a given problem in a short time but a long-term commitment.

Kanter (1994) shows that organizational strategic alliances are living systems for joint collaboration and the creation of new value. These systems, in turn, develop continuously and progressively and are not controlled by formal systems, although they require an intense network of interpersonal connections and efficient internal infrastructure in the involved companies.

However, alliances often represent risk injunctions full of problems and failures. Therefore, it is crucial to study this phenomenon to effectively contribute to the success and viability of such alliances.

It is essential to understand all the steps in the alliance formation process as well as the objectives and risks involved in these partnerships.

Companies are currently searching for tools to manage the following phases of the alliance life-cycle: studying the need for an alliance, selecting the partner, negotiating the alliance, managing the alliance and ending the partnership process (Kale *et al.*, 2002). There are numerous reasons for companies to form strategic alliances; among these, organizational learning is the most important (Hamel, 1991; Kogut and Singh, 1988; Kogut, 1991; Lyles and Salk, 1996; Parkhe, 1991; Lane *et al.*, 2001).

Alliances allow organizational learning platforms to be created, thus enabling access to the partner's abilities and competencies (Kogut, 1991). Nevertheless, strategic alliances do not always entail learning and exchanging knowledge because companies often do not succeed in carrying out this process.

Complementing one's competencies is the main reason for forming alliances. In fact, companies seek other companies on the basis of their complementary competencies so that they can learn from each other. However, this complementarity implies the possible existence of significant differences between the companies in terms of technologies, products, markets, structures and goals. These differences are precisely the obstacles that hinder the coordination of product development processes in an alliance.

Strategic alliances can be risky and dangerous. By considering that some authors consider this phenomenon to be a business strategy, one of the reasons for such risks and challenges is the lack of knowledge about the fundamentals of this type of strategy. One example is the contradiction of learning from partners while each protects its own information because they could become competitors in the future, if they are not already. Another example is that despite the trustful relationship emphasized by those defending inter-organizational alliances to reach success, the benefit of trust may not be sufficiently clear to the involved companies.

The way a company enters into a relationship has a great influence on the development and future of the partnership. One of the main problems in strategic alliances for new product development is the dependence between companies that may result from the relationship. In fact, inequality in terms of power and technology can generate a harmful dependence on one of the partners (Pilkington, 1999).

There are numerous factors contributing to the breakup of alliances, such as lack of strategic fit in terms of complementary resources (Harrigan, 1985), lack of cultural compatibility (Kale *et al.*, 2000), lack of trust (Kale *et al.*, 2002), poor structure (Kale *et al.*, 2002), lack of ability to control conflicts (Hamel *et al.*, 1998), lack of formal processes for the efficient exchange of knowledge (Kale *et al.*, 2002), impact of crises and shocks on the alliance setting (Mitchell and Singh, 1996) and oversimplification resulting from relying on purely financial analysis and simplistic, episodic management processes rather than feedback or learning processes.

SSM AND VSM: EXPLORING, DIAGNOSING AND LEARNING IN A COMPLEX REALITY

The complexity of today's world requires companies to engage in introspection by jointly analysing and assessing their activities according to a systemic focus. In any company, upper managers are accountable for strategic planning to ensure long-term survival. However, they often do not know how to properly define or solve problem situations because they have a limited view of their own functions.

The idea of a system as a bounded set of interdependent elements that exhibits a number of properties is used to study and manage complex situations in organizations and society (Córdoba-Pachón, 2011). The aim of the systemic approach is to propose a new view and development of methodologies to achieve better results, mainly regarding soft problems. The entire system is formed by subsystems that are inserted into larger clusters, for example, the districts of a city and the houses within it. Although they constitute parts of the system, these elements have their own existence and identities.

Through interactions and dynamic relationships, the elements cooperate with each other to produce a system that has a purpose that its independent elements alone would not be able to fulfil. The systemic focus proposes the recurrent or recursive management of control and communication. The company's primary activities should be performed autonomously on the basis of functions rather than on decision-making posts.

The reductionist approach of scientific orthodoxy typically employs closed systems models and looks for causal relationships between phenomena. Closed systems do not establish any kind of exchange with the environment, and, abandoned to their fate, they enter a process of increasing entropy. Open systems, in contrast, establish exchange with the environment and can search for synergies through internal processes. Adaptability is the hallmark of open systems (Donaires, 2012). Although the environment is everything outside the system, this does not mean that systems are isolated; on the contrary, they interact among themselves and are affected by changes and turbulence.

Aiming for sustainability, open systems have regulatory mechanisms that allow them to maintain their internal balance despite environmental turbulence (Beer, 1979). Viability is the ability to exist in separation, that is, the potential of a system to overcome its own difficulties in interacting with its environment and other systems while preserving its autonomy. The resources, in turn, are inside the system and influence all the tools available to operate the activities (Churchman, 1971).

According to Martinelli (1995), system management involves two primary functions: planning and control. Controlling the system includes following up on the execution of plans and the planning of changes. It consists of viewing the company as an entity that relates to a complex and unknown environment, taking the worldviews of both the company and its partners into account and understanding the individual and organizational learning processes, thus supporting the idea that a system and its subsystems need to be viable.

The more autonomous the subsystems are, the easier it is for the system to face its environmental complexity. This occurs because the system will use its resources more efficiently if its subsystems achieve the variety of

responses needed to deal with the complexity at hand. In this way, information repetitiveness and coordination make the company more integrated and consequently more flexible in light of environmental changes. This is an inescapable consequence of the law of requisite variety formulated by Ross Ashby (1956) and honoured by Beer in the VSM (1979), which states that 'only variety can absorb variety'.

The VSM provides a way to cope with complexity in management that is compliant with the law of requisite variety. By systemically focusing on their management, organizational complexity and environmental changes can be addressed on the basis of a recursive management model that, according to Beer (1979), is necessary and sufficient to understand the company as a viable system, that is, as a system that can maintain a separate existence in a continuously changing and challenging environment.

Beer proposed the VSM is an abstract organizational model based on cybernetic principles (Beer, 1972, 1979, 1985). It consists of five basic subsystems, as depicted in Figure 1. They five subsystems are the following:

- (1) The implementation system (System One): an autonomous operation unit that produces the system by executing activities that are essential to accomplishing the purpose of the system.
- (2) The regulatory control system (System Two): an anti-oscillatory apparatus whose function is to coordinated decisions and actions among the autonomous units.
- (3) The operational control system (System Three): a tactical system that maintains homeostasis—the internal equilibrium—by monitoring and controlling internal and immediate activities.
- (4) The adaptive control system (System Four): an intelligence system that promotes the integration with the external environment, thus providing long-term viability to the organization.
- (5) The supervisory control system (System Five): a policy making system that sets the balance between System Three's short-term concerns and System Four's long-term concerns by establishing the purpose and values of the organization.

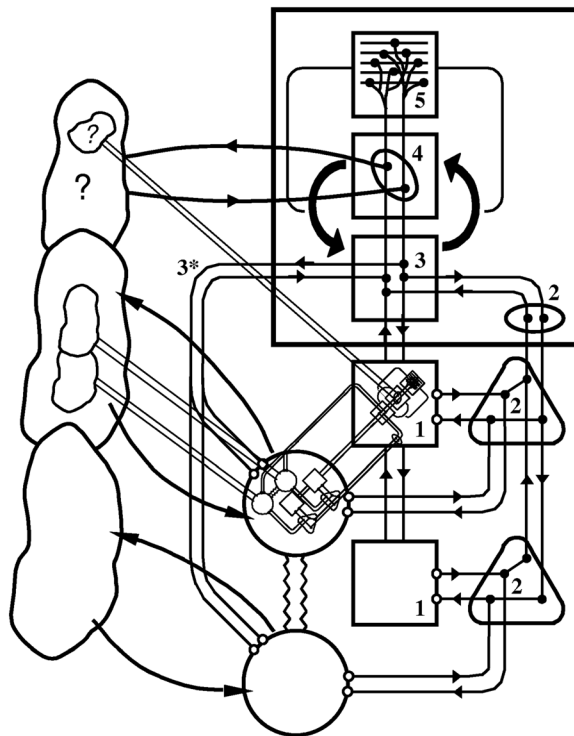


Figure 1 Viable Systems Model of two recursions (the diagonal part of the figure is used as the second dimension). Source: *The Heart of Enterprise*. S. Beer. Chichester: Wiley, 1979. Reproduced by permission of John Wiley & Sons, Ltd

Those five subsystems are necessary and sufficient to guarantee the viability.

Finally, for the whole system to be viable, each of its subsystems (operational units) must be a viable system itself. Because all five subsystems are necessary for viability, the very same structure of five functions is recursively reproduced in the subsystems.

Checkland (1985), in contrast, suggests a different approach to facing reality and managing its complexity. He proposes the SSM as a learning system to investigate and intervene in a messy, complex reality that challenges management by posing unstructured problems.

The methodology is targeted at ill-defined problems that are typical of the systems that Checkland (1985) distinguishes as human activity systems. It consists in promoting a structured debate among participants, encouraging them to contribute their respective views on what is perceived as a

problematic situation until a consensus is reached about what interventions could improve the situation, thus attenuating the problem condition.

In its initial version, Checkland describes the SSM as having seven stages, as depicted in Figure 2. The seven stages do not need to be followed sequentially. Actually, they consist of the following activities that are performed in a recursive learning process:

- (1) Express the perceptions of a problem situation without imposing a particular framework on it.
- (2) Consider elements of structure, elements of process, the relationship between structure and process, and the *Weltanschauung* of the participants.
- (3) Elaborate root definitions of systems that seem to be relevant to the problem situation.
- (4) From the root definitions, create a conceptual model.
- (5) Compare the conceptual models with the problem situation.
- (6) Generate a debate about systemically desirable and culturally feasible changes that could be made within the perceived problem situation.
- (7) Once changes have been agreed on, act to improve the problem situation.

Because ill-defined situations in complex systems are involved, there is no guarantee of improvement, and a new problem situation may evolve from the original one. Improvement is expected as the stages are performed repeatedly and better conceptual models are built on the basis of a better shared understanding of reality. Learning occurs as the process is repeatedly performed.

These systemic methodologies are not social theories; rather, they attempt to define the form of systemic approach that researchers should adopt when they want to learn about or intervene in the real world (Jackson, 1991).

ORGANIZATIONAL STRATEGIC ALLIANCE FOR NEW PRODUCT DEVELOPMENT AND THE APPLICATION OF SSM AND VSM

This section presents an account of an unsuccessful strategic alliance between a Brazilian company and an American company. The authors, then,

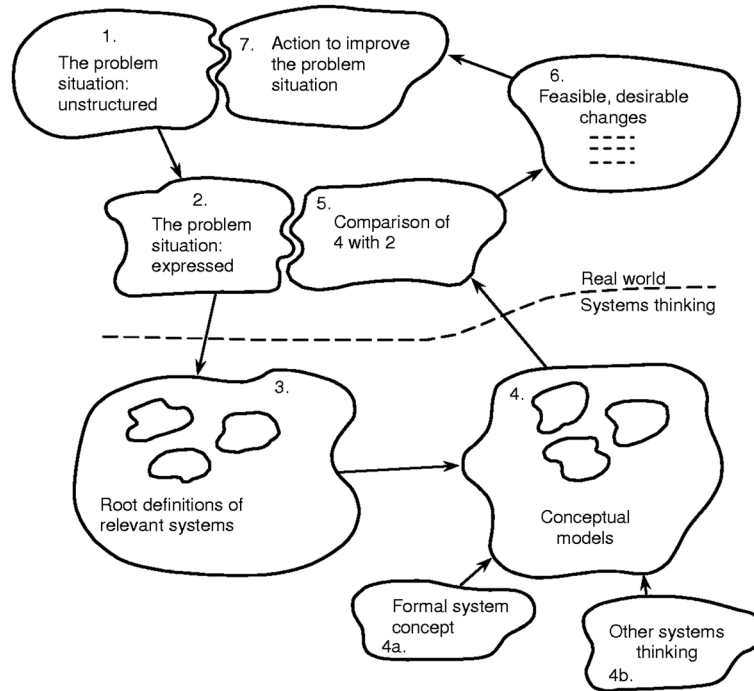


Figure 2 The methodology in summary. Source: *System Thinking, System Practice*. P.B. Checkland. Chichester: Wiley, 1985. Reproduced by permission of John Wiley & Sons, Ltd

undertake an effort to derive some lessons by applying systems thinking, specifically SSM and VSM concepts, to the information gathered from that experience.

The Companies

Company X (name not revealed) is a Brazilian industrial goods manufacturer with production expertise in electric systems, construction, oil and gas. It operates the largest heavy equipment plant in Latin America, supplying the energy production, oil and petrochemicals, metallurgy, mining, paper and cellulose, cement, machining, material movement, heavy boiler-works and metro-railway transportation markets.

The main differential of Company X is the synergy between its industrial capacity and high technology, aggregated by its engineering and other strategic partners. Accustomed to strategic alliances, Company X is able to report numerous successful and unsuccessful cases, the learnings

from which have been very beneficial for the company’s growth.

One of Company X’s activities, as noted earlier, is serving the oil and petrochemical sector. In a given period, it developed a type of oil-extraction instrument called a ‘Christmas tree’ that controls the flow of oil and gas. In 1992, deep water oil extraction was performed at a depth of 500 m, and the company had the technology needed for manufacturing Christmas tree equipment for these pressure conditions. In 1994, however, there was a demand for equipment and technologies that would allow oil to be extracted at depths of 1000 m.

Despite its technical and scientific know-how, Company X lacked the necessary technology to adjust to the change from 500 to 1000 m in extraction depth. Incapable of developing the new product on its own, Company X had to find a strategic partner to meet the needs of its clients in the Gulf of Mexico.

Organizational Strategic Alliance Process

An American company, ‘Y’, had the necessary technology to improve its product to operate at

depths of 1000 m. Company Y is a large organization operating in different sectors, with Christmas tree production representing a small percentage of its total sales. Because oil extraction in the Gulf of Mexico is performed at depths of 600 m, Company Y was able to develop the product needed by the market.

Therefore, a strategic alliance between both companies was established to develop the new product, with Company X needing technology and Company Y being interested in entering the Brazilian market. No effort was spent on product planning or prototype models, and both companies understood that the technological innovation was incremental.

The process of new product development occurred very simply and naturally. In fact, no great changes or adjustments to the process were needed. Culturally, the companies did not have problems or divergences, with their engineers demonstrating technical compatibility and cultivating excellent relationships with each other. Fifty engineers were specifically allocated to work on the development of the new Christmas tree equipment, which would include the presence of American engineers and regular visits by Brazilian engineers to Company Y in the USA.

A total of \$2m was invested in equipment so that new technology and technical know-how could be used to develop the new product. Six generations of Christmas tree equipment were jointly developed by companies X and Y over approximately 22 projects. Each product was sold for \$300m.

The new product was successfully developed. However, after some time, Company Y found itself in disadvantageous situation in relation to Company X, in terms of sharing the economical results from the partnership. Only 5% of the value of every Christmas tree sold was passed on to the American company. The Brazilian company justified that fact by alleging that most of the effort and work was concentrated in Brazil.

Therefore, Company Y decided to propose narrowing the gap between itself and Company X to strengthen the partnership by developing other projects, including a possible presence in other Company X business in Brazil. In addition, the final objective of the proposal was to create a new company to enter new markets, with

American and Brazilian ownership of 60% and 40%, respectively.

Company X, on the other hand, was extremely comfortable with the terms of the existing partnership, and because it had experienced tremendous technological growth, it was becoming increasingly independent of Company Y. Brazilian executives refused to improve the partnership and eventually cut ties with Company Y. Today, Company X recognizes that it was a mistake based on opportunism. Company Y, in turn, ended up coming to Brazil with an investment of 30 million dollars and became the leader in the manufacture and sale of Christmas tree equipment. After some time, Company X withdrew from this market and began to focus on platform integration.

ORGANIZATIONAL COMPETENCIES, LEARNING AND RESULTS

Both companies accessed learning opportunities during the alliance process. Brazilian engineers were provided with training at Company Y's research centre, allowing them to accumulate and bring new technological knowledge into Company X. Meanwhile, Company Y learned about the Brazilian market, which eventually enabled the company's American executives to enter this market. In addition, there was an invaluable exchange of scientific and technical knowledge.

An analysis of individual competencies in the product development process shows that Company X's market orientation and technical-scientific know-how was its primary competency, whereas the American company was highly technologically oriented and agile in product development. The partnership emerged on the basis of these competencies.

The companies have assessed the alliance as being successful and performing well because this could be measured according to the number of developed projects and revenues obtained from their sales. What becomes clear, however, is that such an alliance might have lasted longer. The fact that it did not last longer can be understood as resulting from opportunism and a lack of trust and vision on the part of Company X, which did not recognize the alliance as a way to explore new technological possibilities.

In this case, it can be concluded that the partnership between these two companies was guided by the complementarity of competencies. This is also a legitimate example of how a strategic partnership for new product development can be a way of internationalizing a given company, allowing it to reach new markets as well as acquiring different and innovative technologies.

Lessons Learned by Applying SSM and VSM

This section provides an account of the application of SSM and VSM concepts to the problem situation. The subsections are organized according to the SSM activities.

The Problem Situation

The problem situation under consideration is related to the discomfort caused by the failure of the partnership because of lack of trust and

strategic vision. The picture in Figure 3 presents some relevant elements of the problem situation and how they are related. It highlights the fact that the failure has its origin in the human aspects of the relationship rather than the technological ones, including poor negotiation, opportunistic behavior, lack of long-term vision and lack of trust.

The most relevant element of structure that can be named seems to be the alliance established as an agreement between the Brazilian and American companies. As significant elements of process, one can mention the successful exchange of technical and market information and the fruitful new product development process. The relationship between structures and processes consists of the activities and relationships unfolded as a direct result of the alliance, including the excellent relationship developed among the technical staff of both companies.

The prevailing Weltanschauung seems to be characterized by an emphasis on tactical activities, such as technical work and market exploitation, and permeated by a lack of strategic vision.

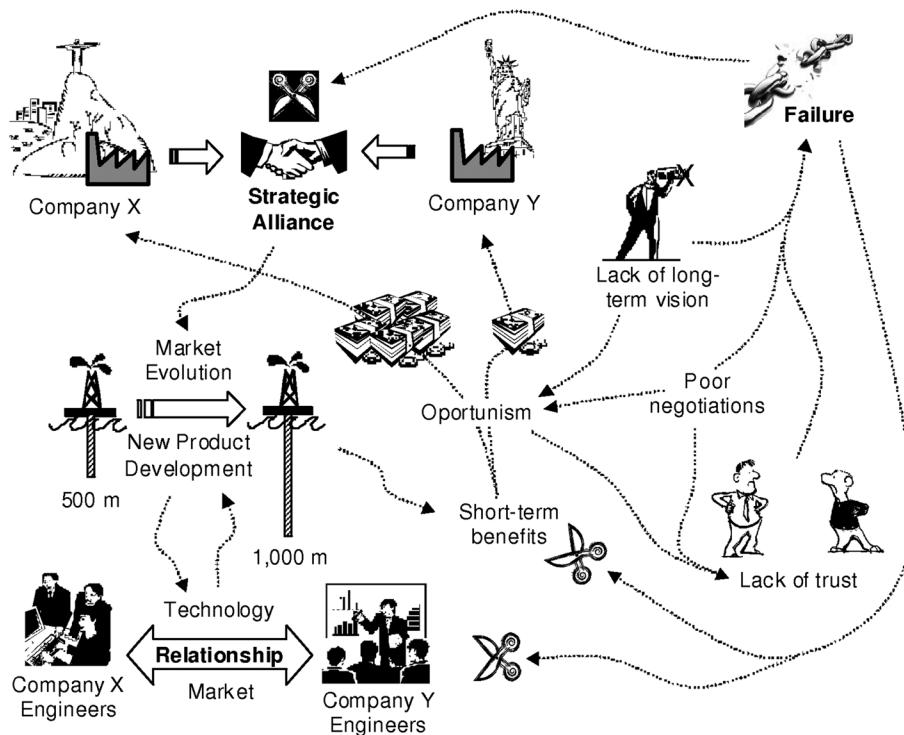


Figure 3 Rich picture showing interesting aspects of the problem situation and their relationships

Apparently, the alliance was established on the basis of short-term concerns and rapid returns related to the initial objectives of both companies. They failed to consider the dynamic changes in the complex environment and the emerging influences of the success of the new product. This structure was proven to be poor at the beginning of the alliance, showing that both companies had underestimated the partnership process. In addition, the process was conducted erroneously because each company centralized the planning of activities, which affected the maintenance of exchanges supporting the partnership. Although the companies had communicated their own interests, they did not communicate about the joint interests that would result from the partnership. Within this context, the overall negotiation was ineffective because the problem was addressed superficially.

Root Definitions of Relevant Systems

The authors suggest that the following root definition provides a better orientation to the alliance between companies X and Y:

A long-term partnership between companies X and Y to develop innovative high technology products targeted at the oil extraction market, so as to take advantage of the combined technical and marketing competencies of both companies.

Conceptual Models

The adjective 'long-term' suggests an alliance as a viable system. The authors elaborated the conceptual model in Figure 4 on the basis of the VSM, in an attempt to show the partnership as a viable system.

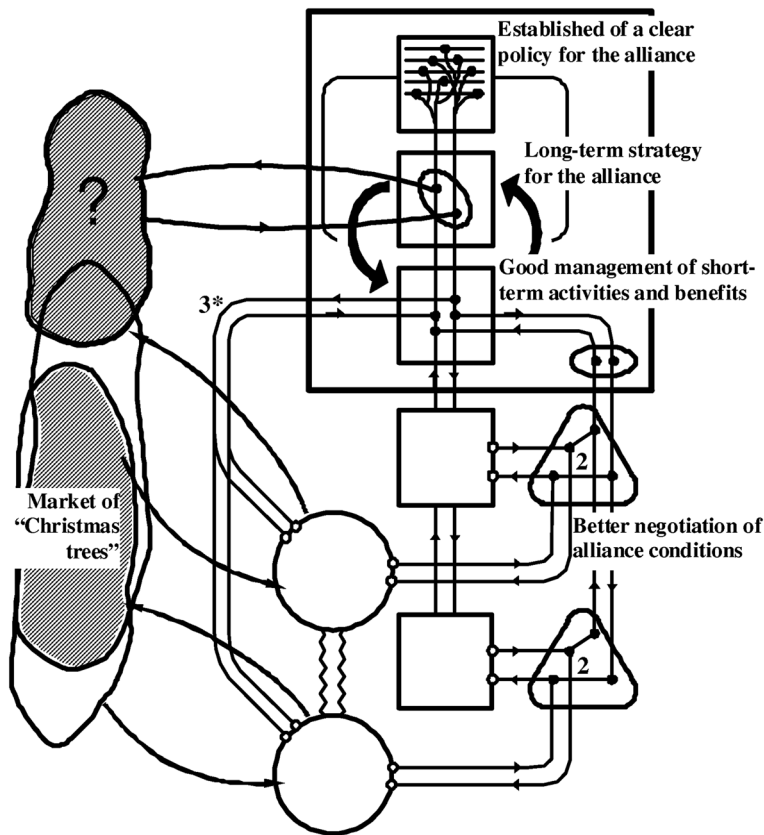


Figure 4 Viable Systems Model of the partnership showing the concurrency

The contributions of each company to the alliance are shown as System One of the viable system and denoted as partners X and Y.

The VSM highlights the overlap of the markets of both partners. Together, they can enjoy some synergy by uniting their competencies and cooperating to exploit that market. As separate companies, however, they automatically become competitors in that market. The VSM's System Two emphasizes the importance of coordinating their actions towards that market because the actions taken by one are very likely to impact the other. In cybernetic terms, the failure to do this may result in instability, for example, one partner being surprised by the inadvertent actions of the other.

The VSM reveals that for an alliance to be a viable system, it needs a metasytem to promote cohesion and synergy. System Three in the metasytem is responsible for the control, coordination and monitoring of the activities that are immediately related to the alliance. The immediate activities include the exchange of information, the development of new products and decisions that affect the shared market. Without this operational control, the alliance can lose the conditions that guarantee the viability of the partnership in the short term.

Another interesting insight derived from the VSM analysis concerns the future environment. The alliance needs a System Four to manage the future of the partnership in terms of the shared market. Without this adaptive control, the alliance loses its long-term viability, and as previously mentioned, the shared market automatically becomes a battlefield between competitors.

System Five establishes the overall purpose of the alliance. It establishes a balance between the most legitimate interests in terms of quick returns and the most sincere efforts to develop a prosperous long-term relationship between the partners.

Comparison of the Conceptual Model with Reality

Analysing the real situation of the alliance between companies X and Y, considering the insights provided by the VSM, it is not difficult to suspect that the partners had never thought of it as a viable system. In this sense, it is not

surprising that the alliance had a limited life span and ended with frustration and regret.

The partners seem to have done a great job with the coordination and control of technical concerns. This explains the clear success of the new products that were created and the profits that were achieved. However, this only means that they performed well in terms of project management, that is, they managed 'a temporary endeavour' well (PMI, 2008).

By comparing the alliance with the VSM, the partnership had a System One that was exclusively dedicated to technical considerations under the supervision of an atrophied metasytem. This metasytem provided effective coordination (System Two) and operational control of immediate concerns (System Three) but lacked other functions, including System Three*, System Four and System Five.

First, the organizational arrangement lacked a System Five function. The partnership seemed to be weak regarding its common objectives. Both companies failed in clearly defining the objectives of the alliance. It is notable that the size and depth of their alliance were clearly overlooked by both companies.

In fact, they were only prepared to start the alliance without understanding that market performance and revenues to be obtained should have been analysed during the new product development process. In other words, System One occupied itself only with technical considerations when it should also have included marketing concerns. By ignoring this, one partner may have negatively impacted the other. This indicates the lack of coordination of interests. Even though System Two functioned effectively in terms of technical considerations, it failed to coordinate between the marketing interests of the partners because System One did not introduce these concerns. The resulting instability may have manifested itself in the form of lack of trust.

The partners failed in clearly defining their possible gains and how the partnership would be monitored and assessed. This indicates a failure of the functions of System Three*. In fact, there was difficulty in rewarding both companies on an egalitarian basis, which contributed to the lack of trust between the partners.

Another significant failure was the lack of planning and vision based on the analysis of the business tendencies and opportunities that emerged of the new product. This is usually the function of System Four, which was apparently absent in the partnership.

In conclusion, in the absence of a proper metasystem for the organizational arrangement related to the alliance, the missing functions were probably provided by the management of the respective companies, regardless of the alliance. Metaphorically, this seems to have resulted in an organizational monster with two heads that ended up tearing apart its body, which consisted solely of excellent technical cooperation.

Feasible and Desirable Changes

This analysis reveals that more than just localized changes are required to improve the situation. The way the partners conceived of the cooperation seems to be essentially incorrect. Lasting cooperation requires more than merely good project management. It requires the establishment of the organizational arrangement of a viable system, with a separate existence.

Actions to Improve the Problem Situation

Judging by the diagnostics provided by the application of the VSM to the problem situation, creating a new company seems to be a reasonable recommendation. This would be a way to promote the viability of the cooperation by giving the alliance a separate existence, perhaps even in legal terms.

It seems that Company Y has realized what Company X failed to do, perhaps because of its comfortable situation. Unfortunately, the partners failed to negotiate the conditions that would bring them to an agreement. As a result, the cooperation between them eventually lost its viability. All the investments made by both partners until that point were consequently lost.

Had they reached the earlier conclusions derived from our application of the SSM and VSM, the outcome could have been different. This demonstrates

the value of systems thinking and of the application of systems methodologies in complex situations such as strategic alliances. If the authors can make recommendations on the basis of the lessons learned, the most significant is probably to approach such situations through systems thinking and apply systems methodologies to inform negotiations and the decision-making process in complex situations.

CONCLUSION

In this article, the authors make an effort to apply systems thinking to derive the lessons learned from an unsuccessful strategic alliance for new product development involving a Brazilian company and an American company. The concepts of two methodologies are taken into consideration: the VSM and the SSM.

In one hand, the exercise of the application of the soft approach implied in the SSM demonstrates its ability to structure the discussion and the reflection on the part of the authors, to tackle an ill-defined problem in a human activity system such as a strategic alliance for new product development. On the other hand, the exercise of the application of cybernetic principles embedded in the VSM to the case of a strategic alliance between two companies demonstrates its power to diagnose failure in complex organizational system.

By combining those two methodologies, it is possible to address complex unstructured problem situations. The SSM provided the full theoretical support needed to unravel the complexity and understand the systemic whole and to operationalize the application of the VSM. The VSM provides the conceptual apparatus to analyse complex organizational arrangements and diagnose flaws from the perspective of cybernetics.

It is notable that when a company has a culture of easy adaptation and flexibility with respect to changes, the process of accepting solutions and their implementation is tremendously facilitated, thus making the organization more viable in the long term. Two distinct aspects of adaptation and flexibility can be appreciated in two distinctive features of the applied methodologies: (i) in the learning feature of the SSM, which allows it

to deal with changes in a complex situation through repeated and persistent explorations, debates and interventions; and (ii) in the concept of autonomy suggested by the VSM.

This is a case of a forensic application of SSM and VSM from which the companies were unable to benefit because their alliance had already been undone. However, the authors used these methodologies to explore and diagnose a specific problem that is inherent to strategic alliances. It became clear that these methodologies were very insightful in dealing with the identified problem situation, which suggests their use for companies intending to build future strategic alliances with the aim of complementing their competencies and seeking learning opportunities.

The failure of the organizational strategic alliance in this case can be related to many reasons that were listed in the theoretical argument section of the paper, such as lack of trust (Kale *et al.*, 2002), poor structure (Kale *et al.*, 2002), lack of ability to control conflicts (Hamel *et al.*, 1998), lack of formal processes for efficient knowledge exchange (Kale *et al.*, 2002) and oversimplification resulting from relying on purely financial analysis and simplistic, episodic management processes rather than feedback and learning processes. The last reason seems to be the most relevant factor of alliance failure in this case.

One important lesson that has been learned with the application of systems thinking is that a strategic alliance needs to be conceived as a viable system if it is to endure. The fact that each partner organization in the strategic alliance is a viable system does not guarantee the success of the partnership. The alliance itself needs to enjoy a separate existence in some sense, which allows to distinguish it from its environment, specially perhaps the environment comprised by the organizations that engage in the alliance. It means that the alliance, as a distinct organizational entity, needs to have appropriate policies, long-term vision, and coordination and control mechanisms established.

The key question is whether a systemic methodology framework as the one presented here would have helped to prevent the failure of this strategic alliance. Systemic methodologies indeed work on mutual learning processes and require

long-term perceptions; in theory, it would fit perfectly to prevent failure. SSM and VSM together could be an approach used to understand ambiguous situations, orchestrate conflict resolutions and promote consensus. The Weltanschauung of American and Brazilian executives could be explored to develop both companies' results from the alliance by attempting to characterize the complexity of the situation and modelling a systemic methodology for the required case variety. For systems thinkers, all the benefits that the application of systems methodologies such as the SSM and the VSM might have brought to both companies are clear.

However, this is less clear to organizational strategists. Although company executives are aware of the consequences of traditional methodologies and the limits of their power in terms of organizational learning and conflict resolution, it is difficult for them to develop cybernetics models within organizational processes and challenges. Cases like this failed strategic alliance demonstrate the SSM and VSM's power to diagnose system disturbances but also indicate the need for organizational executives to more often and more deeply employ cybernetic model approaches.

For future studies, it would be recommended that other cases of companies that participate in strategic alliances could be studied using the systemic thinking. It might be possible, after analysing these experiences, to build a framework for guiding such alliances, increasing the chances of success.

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