

Proposal and sustentation of a network model which includes the consumer an active player

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SYNOPSIS: The article presents the logical, theoretical and methodological arguments supporting a proposal for a theory of networks which include the consumer as an active player, which is seldom considered in the literature on this theme, as found in a previous bibliographic analysis. Based on the theory of social network concepts as background of business relations, a model in the form of a system which includes the consumer in this network was presented. The model withstood logical, theoretical and methodological analysis. The logical analysis detected no fallacies. The analysis of theoretical coherence also did not reject the model. Field analysis of the test model showed its explanatory and application possibilities. Thus, the article shows a theoretical and methodological contribution with the inclusion of the consumer in the network, since the theory becomes more coherent and some research fields not yet fully researched in the area of business networks open up mainly in the services sector.

Keywords: Business networks; consumer as actor; model analysis.

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1. INTRODUCTION

The article presents the logical, theoretical and methodological arguments to support a proposal for a theory of networks that includes the consumer as an active player. The work continues proposals from authors who performed literature reviews about the place of the consumer in the networks (GIGLIO, 2002; GIGLIO, KWASNICKA, 2005; GIGLIO, KWASNICKA, SANTOS, 2006) and affirm the conclusion that there is a gap in networking concepts, when they refer to the consumer as a passive player. This situation causes a gap in understanding of networks dynamics, mainly in the service sector. To fill this gap it is stated that the inclusion of the consumer among the active players of the business network makes the theory more coherent and extends a research field not fully developed.

Using as a basis the theory of social networks (Castells, 2000), the model is presented as a system. The *node* is the unit of study and value to consumers is the main output measure.

Support of the model begins by logical analysis, followed by the analysis of theoretical and methodological coherence. Initially a summary of previously undertaken literature review is presented; the model and the definition of its variables are described, followed by the results of the logical, theoretical and methodological analysis. At the end we present the work's conclusions, implications and limits.

2. THEORETICAL REFERENCE

The proposal was born out of a previous work of literature research, originating from the National Association of Post Graduate Administration and Research (ANPAD - Associação Nacional de Pós Graduação e Pesquisa) database, the most representative source of the current studies in Administration; PROQUEST- ProQuest Information and Learning and EBSCO- Ebsco Information Service, both considered good sources of the international specialized literature, since they contain articles of qualified international scientific journals¹. The first selection criterion consisted of the search of articles containing two keywords in their title – networks and consumers – resulting in 1213 articles. The second criterion was the actual reading of the summary. The sample's objective was to select only those articles analyzing business networks aimed at discussing consumers, which yielded 432 articles. The third filter consisted in the selection of articles published in journals certified by the SJR Indicator - Scimago Journal & Country Rank or in the Qualis/Capes System. After this screening, 81 texts were left.

The articles were analyzed according to the technique of content analysis (Bardin, 1977), seeking convergence and amplitude on the subject. The results showed a clumping tendency in two paradigms, the social networks and the networks of economic rationales. The social paradigm states the existence of a network society, with its social relations making up a background for business relations, the latter grouped into relationships of production, consumption, power and experience. The unit of analysis is the *node*, the relationship between two or more actors, containing two variables which are the flows and the decisions. Even though the consumer is present in the definitions, in the fieldwork practices and in the articles' final discussions, he is placed as the last link in the network, or even outside it. The other paradigm of economic rationales networks states the existence of a rational and planned construction of the business network, aiming to solve competition problems on its own. Here the consumer does not appear.

We concluded that there is a gap in the theoretical and methodological research on networks, excluding the consumer. This conclusion leads to the guiding principle on the need and appropriateness of building a reasoning that takes into account the consumer's presence and actions, placing social variables in the background of the four forms of business relationships and that shine through in the *node* structure, which is the unit of analysis of a network.

2.1 Structure and basis for the model

A model for the understanding and analysis of business networks that includes the consumer and broadens the themes for research was created from the previously mentioned guiding principle. According to Mazzon (1978) a model is structured based on philosophical assumptions, a body of theory and a methodology. The philosophic assumption of this proposal is the contemporary social base in the shape of a network. The theory starts from the concept of relationship as the keyword for networks. Complexity is the keyword for methodology, in contrast to the positivist models. The operational part, i.e., the instruments allowing the practice of the theory (MAZZON, 1978), would be case studies and structural equations.

The most important theoretical and philosophical assumption in the proposal is that society is organized in a new culture of connectivity (CASTELLS, 2000) reaching all forms of organization, so that the wide and the narrow social reach of the companies in a network are cross-sections of the same phenomenon. Texts such as Castells (1999), Brito (2001) and Parente (2004) approach the understanding of the players' behavior in the *nodes* from a social

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background perspective. Figure 1 depicts the proposal of a network with the inclusion of the consumer. The unit of study is the *node* subsystem, i.e., the relationship between two or among more actors.

The variables utilized are the ones converging from the previous bibliographical analysis, according to content analysis rules (BARDIN, 1977). The supporting theory is the concept of social network according to Castells (1999), since the social paradigm was the most significant in the definition of the consumer as a possible participant. The first subsystem is made up of the social variables of trust, commitment, social representations and expectations. The second is the subsystem of commercial relationships in terms of power, consumption, production and experience. The third subsystem is the *node*, the smallest relation structure between two players, with its decisions and flows. We set two output variables in the system: value to the consumer, signaling its presence and importance; and the reconfiguration of the network, in step with the convergence of the analyzed texts.

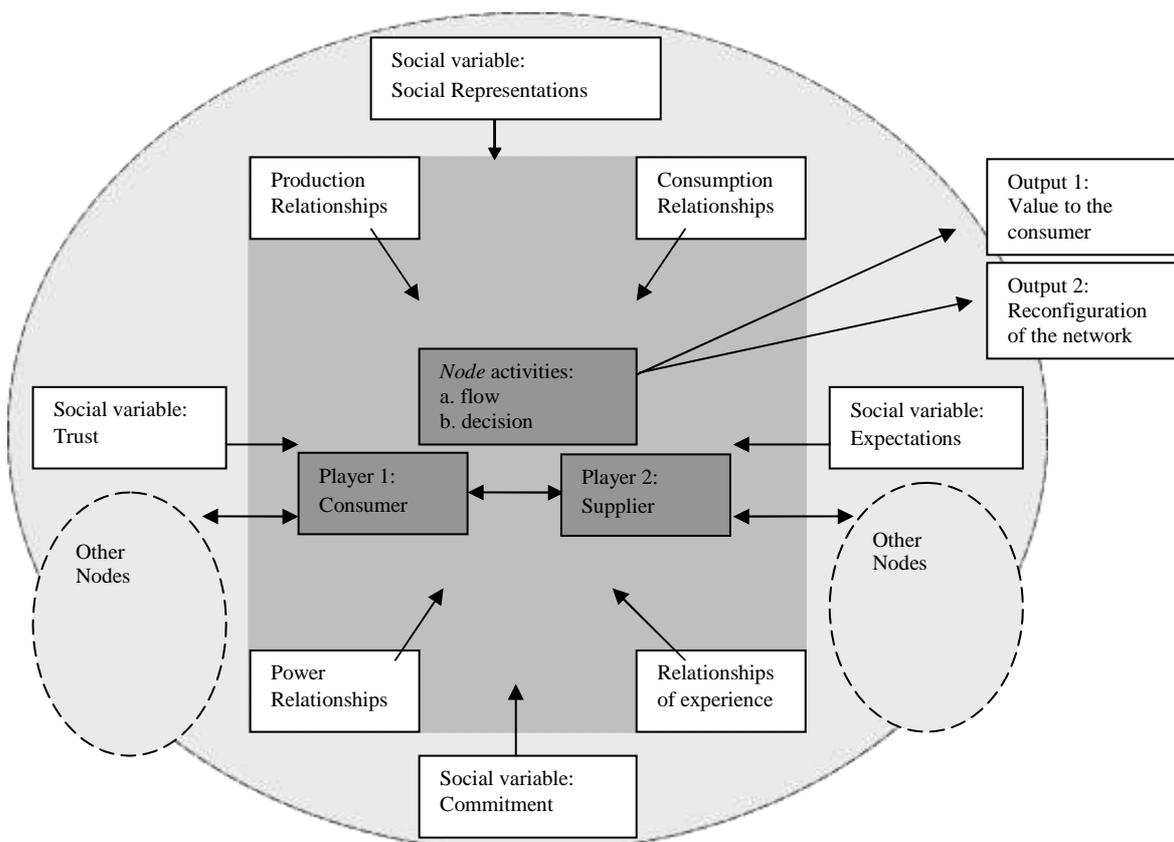


Figure 1. The inclusion of the consumer in the network in the shape of a system containing social variables, commercial relationship variable and the *node* variables in the center.

Source: The author, from literature review, 2008.

2.2 Social relationships subsystem

The network concept is old. Before the paradigms of competition and economic models became fashionable, several articles already referred to it (GRANOVETTER, 1973; TICHY, TUSHMAN and FOMBRUN, 1979). In the social paradigm the social relationship network is the background of business relationships in constant dynamics. The main advantages derived from taking part in a network are knowledge, innovation and the reduction of uncertainties, which are quite close from what sociologists define as the advantages of belonging to a group and following its rules (FROMM, 1987; BAUDRILLARD, 1995).

As agreed upon by authors on social networks, one of the advantages of this theory is to solve the question of network structure, since the same is defined as the set of connections or *nodes* (MITCHEL, 1974). The network structure is therefore functional and changeable. Each player's behavior can be understood from its position in the network, i.e., the number of connections in which this actor takes part and from the content of the flow. This transactional principle is interesting because it eliminates discussions about structure.

Within this line of social networks, Castells (2000) states that current relationships occur in networks. The network is understood as a specific form of social structure of the information age, different from previous decades where the influence of small groups predominated. The consumer now has his identity created and developed in the complex social interactions in which he is involved, including commercial interactions in a dynamic of roles and relationships without uniformity or pattern. Thus, a theory of networks based on social relationships supporting business relationships needs to consider this network society, including the consumer as active player in the relationship modes.

These statements support the model's first subsystem, the set of social relationships. It is basically made up of the expectations, social representations, trust and commitment.

According to Olson and Dover (1976) *expectation* is the cognitive construct about what a product or service will offer, utilized as a reference to judge the product after consumption. Parasuraman, Zeithaml and Berry (1985) extended the concept to what is expected from the delivery of the product or service. Expectations constructed by two or more actors influence the four modes of relationships and in the flows and decisions of each one. As cognitive constructions, the expectations are conscious and can be directly researched, being therefore operational.

According to Moscovici (1988), *social relationships* are social elaborations over social phenomena. Each person sets special characteristics in the representations according to this person's experience, leaving the social content in place. Social representations are created, maintained and changed by the communication networks. The important point is their presence in the relationships game. Social representations are images, attitudes, conscious judgments which can be directly obtained asking the persons, which makes them operational. Morgan e Hunt (1994) state that social representations are important for network dynamics, giving support to the output response of network reconfiguration.

Trust is conceptualized in several fields in Applied Social Sciences as a willingness of oneself to be in the dependence of someone else. Trust sets up interfaces with the expectations and social representations, since it is only possible to put oneself at the dependency of someone else when the former has a positive image of the latter and believes that the expectations will be met (MORGAN, HUNT, 1994; HERNANDEZ, MAZZON, 2005). Confidence can be researched by questioning the players or watching their activities in the network, therefore being operational.

According to Granovetter (1985), a network features a grid of economic and social influences compromising the actor's engagement and limiting actions. Commitment can be understood as the result of the combination of the three previous variables – the positive expectations of relationships, the social representations and the presence of trust. Commitment therefore would be a behavioral result from the three previous factors and can be directly researched. *Commitment* means the willingness of someone to execute what is expected of self, i.e., the relationship is so important that the effort to maintain it is worth the effort (MORGAN, HUNT, 1994). Commitment implies in obligations and limitations to the network actor.

The three variables were operationally conceptualized and a fourth variable was set up as the qualitative result of the three previous ones, allowing the research of this subsystem.

2.3 Subsystem of business relationships

According to Castells (1999) there are four forms of relationships in business: production, consumption, power and experience.

Production relationships are understood as activities aimed at creating a product or service. The players' flows and decisions (the *nodes*) become meaningful according to the output objective of this subsystem, namely, the creation, development and the delivery of a

product or service. We propose to include the consumer in the production, which is defended in texts dealing with services (PRAHALAD, RAMASWAMY, 2004).

Consumption relationships are understood as activities aimed at the execution of an exchange. We state, based on texts dealing with services and quality (PARASURAMAN, ZEITHAML, BERRY, 1985; SHAPIRO, SVIOKLA, 1995; LOVELOCK, WRIGHT, 2001), that the relationships of production and consumption can occur at the same time and that the final result depends in part on the consumer's quality of the participation in the production of the service.

Power relationships are understood as activities aimed at dominating a given actor's ideas and processes over others (JONES, HESTERLY, BORGATTI, 1997). We propose that there is a power relationship that is not yet discussed in the networks, when one includes the consumer. The complaint made by a consumer would be an example that could be possibly understood in paradigm of networks.

Experience relationships can be understood as activities aiming at the experimentation of alternatives in the production, consumption and power relationships, with an exchange of roles. Prahalad e Ramaswamy (2004) utilize the term "co-experience" to tag these exchanges aimed at creating value. In these exchanges the consumer is invested with the power and capacity of participating in the production, coherent with the proposal.

The interface between the two systems occurs because the variables shaping the social relationships of the first subsystem are also present in the relationship modes among people, including the commercial relationships of production, consumption, power and experience. The first one is the background for the second one. Therefore, the content of the predominant commercial relationship may be understood as the content of social variables among the actors becomes known.

2.4 Subsystem of the node structure

The *node* is made up of flows and decisions. The flows refer to what is being traded, such as things, money and information. Decisions refer to the transformation and transmission each actor executes on the flow received by same (MADHAVAN, KOKA, PRESCOTT, 1998). Thus, a consumer who gives a false telephone number to a broker (transmission is the flow and the option to provide false content constitutes the decision) establishes a power relationship in control and displays social variables of mistrust and negative representation to the brokers.

2.5 Output responses

The mode is presented in the form of a system according to precepts of Luhmann (2006). To the author, a model based on a system should make a difference and the output response should be coherent with the parts' unit. Thus, this proposal of a model of networks in the form of a system has as its difference the consumer's inclusion in the processes. The output responses are known in management theories providing meaning and coherence to the parts of the subsystems.

According to Capra (1996), Luhmann (2006) and Bertalanffy (2008), the major assumptions of a system are:

1. The systems deal with wholes.
2. The society is the totality of relationships among people.
3. Systems should be understood within a context.

The subsystem of the social relationships of the model follows these three principles.

4. A network structure is the set of its connections, bounded by the object being investigated. In the model, the primary object of research is the flows and decisions which make up the *node*.

5. All parties in the existing network relationships are important.

This principle supports the inclusion of the consumer.

6. The systems are self organizing.

This principle supports the output response of network reconfiguration according to its processes.

The assumption about the relationships among people and the insertion in a context converge with the principles of social networks. The bridge between the systems' theory and the networks' theory is developed by Raak and Paulus (2001), as they proposed the sociology of relationships as the base for the development of social networks and by Provan and Milward (1995) who proposed client satisfaction as one of the criteria to measure the effectiveness of networks.

The output response of *value to the consumer* is coherent with stating the existence of a link between this actor and the other actors in the network. The other output response is the *network reconfiguration* which occurs as a consequence of network dynamics. These two

outputs are coherent with the purpose of including the customer and support their power to influence the system.

3. METHODOLOGY

Here logical, theoretical and methodological analyses are presented. Logical analysis of a model is rare in management articles, but very useful as will be shown below.

3.1 Logical analysis of the system

When a model is proposed it is necessary to evaluate if there is logical coherence in its arguments, i.e., if there is no internal contradiction between the statements and the established relationships, which would be a fallacy. According to Copi (1978), the fallacies may be of relevance or of ambiguities. In fallacies of relevance the assumptions are irrelevant or illogical to support the conclusions. When the analysis is applied to the proposed model, no fallacies are found:

1. Use of power: because there is no use of force of the author's experience.
2. Use of a person of authority: because the model is not based on any famous person.
3. Attacks on those who state the opposite: because no theory was criticized in particular.
4. Relations between one person's convictions and the circumstances: since the author is a researcher, same is not exposed to circumstantial pressures to defend theories.
5. Argument by ignorance: because no proof or assertions were found about the need to exclude the consumer.
6. Forcing the acceptance by the public opinion domain: because the theoretical bases of business networks are new in Brazil and the management of networks is still not known by the public.
7. Application of a general rule to a particular case whose circumstances cause the application to be unacceptable: because the model was born out of a literature review which included several cases.
8. Conclusion of generalities from exceptional cases: because the literature and the field test deal with routine cases of business networks.
9. Repetition of principle, because the output responses are not repeated in the premises.

We can affirm that there is no logical fault in these nine possibilities of fallacies. Two, however, deserve attention.

10. False cause: Figure 1 shows causal relationships, but its assumptions indicate systemic relations, which require a clarification.

11. Complex question, which involves other implied questions: The model uses terms such as social representations, trust and commitment, which require other models of sociology and psychology in complex unfoldings. The variables must be clearly defined.

The model thus presents two problems of fallacies of relevance to be solved: the causal relationships and the use of terms that create models within models. The solution will be presented in the next item.

Another analysis of fallacies refers to ambiguities. No fallacies were found:

1. Of amphibology, because there is no words game.
2. Of emphasis because what is valued is the consumer's inclusion and not the consumer as the main *node* of the network.
3. Of composition, because an isolated part is not described as defining the whole. The three subsystems connect to each other, and have no meaning in isolation.

However, two fallacies of ambiguity were found:

4. Of division, because it is stated that each *node* represents and acquires the characteristics of the whole network.
5. Of misunderstanding, because terms such as networks, business relationships, *nodes* and ties are placed with different meanings, forcing an effort at definition. Again we find the problem of clear definition of terms.

Logical analysis showed three problems: The fallacy of the false cause (clarification of the systemic relationships or dominant causes); the fallacies of a complex question and misunderstanding (clear definition of the component terms) and the fallacy of division (representation of the whole from a part).

3.2 Solution of the fallacies

The fallacy of false cause criticizes the presence of systemic relationships, requiring a definite meaning. In the case of social networks, however, the logic of strict causal relationship is not appropriate. According to Ackof (1983), interdependence requires a certain

abandonment of causal relationships. According to Checkland (1981), the analytical method assumes the existence of two fundamental conditions: A. That the interactions among the other elements, except the two being considered, do not exist, or may be disregarded; B. The relations that describing the processes must be linear. As noted by the theoretical base exposed, these conditions are not present. Capra (1996) states that it can find systems within other systems and that the properties of the parts can only be understand in a context. This network of interconnections, according to Capra, involves thinking in a different form of positivism. Maruyama (1963) raises the question of self-regulation, in which the system is fed back through information. Thus, the randomness of social phenomena, as expressed by Morin (1991), is a characteristic of complex systems, again indicating the inadequacy of restricted causal schemes. These statements advocate and support the model which proposed a given direction of relationships, but made clear that there are other possibilities, including the reverse.

On the fallacy of division, it was clear that social relationships constitute the background of business relationships. According to Halinen, Salmi and Ávila (1999), changes in one *node* can have an effect on other *nodes*. This principle supports the asset that a *node* represents and influences the whole network, which is consistent with the reasoning of complexity, especially on the whole being again featured in the part. Gersick (1991) states that it is possible to analyze network's rearrangements from revolutionary changes, which start in one *node* and spread to others, according to the flows and decisions of the actors. For Morin (1991) complex systems have the characteristic of holography, in which one part contains the whole, even though it is not the whole. These statements support the point about the validity of the *node* as a unit of study of the network and the affirmative that the part and the whole are intertwined and inseparable, rebutting the criticism of the division fallacy. The solution of the fallacies of complex question and misunderstanding require a clear definition of terms. In this study we were able to conceptualize the variables operationally, avoiding the psychological definitions of relationships and the concepts of culture as symbolic artifacts. The conclusion is that the model is logically supported.

4. ANALYSIS OF THE MODEL'S THEORETICAL COHERENCE

We examine the theoretical principles, considering their validity and acceptance in scientific circles. Validity means that these principles are defined conceptually and operationally, and there are no contradictions between them.

Since the theoretical basis used in the proposed model refers to the relationship between the actors and the network being defined and limited according to the objectives to be attained, it is acceptable to include the consumer as an actor. In some cases, such as in small networks of services and spice products (GOMES, PERSON, FARIA, 2008) his inclusion is necessary to understand the networks' business processes. The solidarity networks (ALEXANDER, NICHOLLS, 2006) are an example of adaptation and enrichment of understanding, when the consumer is included as actor. The consumer's inclusion was also defended by Jansen and Jager (2003), who argued about the importance of some consumers called *centrals* in shaping the behavior of others. The inclusion of consumers in the network, therefore, is not a theoretical contradiction.

About the relationships established in the social variables subsystem, studies (FESTINGER, 1957; AJZEN, FISHBEIN, 1977; MOSCOVICI, 1988) consider it to be acceptable to affirm that trust, commitment, expectations and social representations are important parts of the social variables that regulate the behavior and relationships among persons. These authors sought the interfaces between personal relationships and social content.

On the relations of the business variables subsystem, Castells (1999) states that the contemporary society is organized into networks and business relationships are developing under this standard. Castells brought together the range of relationships in four basic types: the relationships of production, consumption, power and experience, already explained. The author is accepted in the scientific community, being cited in studies of social networks and business networks. The contribution here was to draw this interconnected system of relationship with the social system in its main variables. On the relationships established in the *node* subsystem, we found studies stating that the relationship between two actors is the object of network research (ROWLEY, 1997). The contribution here was to establish a connection between this system and the other two. Thus, the principle of inclusion of the consumer in the network and the established connections is valid and has scientific acceptance, as they start from principles known and researched in Administration.

4.1 Analysis of methodological validity

This analysis implies checking whether the proposal is able to generate topics of research and new knowledge.

In presenting the inclusion of consumers as a differential, the model creates a range of research topics. The construction in a system format provides a range of topics at the crossroads of variables of the first subsystem with those of the second and third subsystems. Thus, the model is methodologically valid, because it creates new research themes and beacons with contributions of knowledge to the area.

Another issue is to be examined is the possibility of a field survey. Since the variables were operationally defined, it was possible to build instruments and use them in a test survey in the field of tourism, showing the model's applicability. Data were collected through documents, interviews and monitoring, according to the technique of source triangulation (FLICK, 2004) and the results certified the use of these collection procedures. We applied the technique of content analysis (BARDIN, 1977) and critical incident analysis (FLANAGAN, 1973). With the results we came up with some additional knowledge about network dynamics in this business, giving support to the methodology applied to the model. The test is detailed below.

4.2 Empirical test of the model

To perform the test we followed the procedures for qualitative research, which, according to Miles and Snow (1992), are suitable for networks of relationships and of complex production and dynamics, using observation, monitoring and relationships between behavior and context. In this case, the data came from bibliographical sources of articles in scientific journals, bibliographical sources of databases of complaints, follow-up reports and analysis of interviews with industry experts.

Output Response Number 1 from the system was related to consumer participation in the three subsystems. At first, about the *node*, consumer participation consists of the flows and in unplanned decisions, whereby this consumer suggests changes and participates in decisions. In the subsystem of business relationships, the consumption relationship predominated, but there was participation in the other relationships. In the third subsystem, social variables, data converged in the sense of a positive relationship between more commitment and higher value as perceived by the consumer. In some situation expectations were not met; there was trust and there was a sharing of values, as for example, when consumers lamented the lack of cultural habits among Brazilians, such as respect to property. In these situations satisfaction and the perception of value were present.

One instance showed a negative of the presence of consumer satisfaction in rigid networks, where the consumer did not participate, such as in the events of SESC (Commerce Employees' Social Service). Even in this case, realization of expectations, trust, commitment and environmental conservation values were present. Not many data items were found about Output Response Number 2 from the system network reconfiguration, with the most significant resulting from strong consumer complaints. The tourism business shows a certain degree of rigidity, even when the signs point to the need for change. These data suggest that the managers could think of more flexible response mechanisms.

Nevertheless, it was possible to do the research starting from the model and to find suggestions of managerial actions. This practical capacity of theories was underlined by Popper (2001) as an important way to validate a proposal. Completing this item of methodological validity, one can say that the model holds ground in the aspects of research generation, application of instruments and practical results. Considering the three performed analyses, logical, theoretical, and methodological one can state that the model is valid, even with some inconsistencies, such as an event of consumer lack of participation, of the SESC institution which generated a value perception as output response.

5. CONCLUSIONS

The aim of this paper was to present a model of networks that includes the consumer as a player and validates this model based on logical, theoretical and methodological analysis. The overall result is that the model is valid based on its logic, as long as the principles of theory of systems and complexity are assumed; it is supported by theory as there is no contradiction in the inclusion of the consumer as a actor in the network processes and it is methodologically supported, since it was possible to conduct a field survey, to apply standard instruments in the data collection in tourism networks, analyze the data and to draw conclusions about the model and the business dynamics.

The proposal is relevant since the network theory has been gaining relevance in scientific and managerial forums, with articles about cooperation, learned capacities, alternative organizational formats and an environmental consciousness, resulting in areas such as reverse logistics (LEITE, 2003) and sustainability (CRUZ, PEDROZO, ESTIVALET, 2006). In this development, however, the consumer does not figure as an important actor. The model tries to fill this gap and is in line with the current trend of management theories to look for explanations beyond economic paradigm in the discussion about networks.

Networks can be understood as forms of communication, of organization, of power, as metaphors of connection between organizations, as a normative configuration of a set of data, or as an expression of relations (DIAS, 1995). Literature reviews on the subject (TICHY, TUSHMAN, FOMBRUM, 1979; GIGLIO, KWASNICKA, 2005) have emphasized a dualistic division between an economic paradigm and a social paradigm. In the latter approach, contemporary society is characterized by its network relationships (CASTELLS, 1999). In the management field, Tichy, Tushman and Fombrun (1979) have affirmed the maturity of an organizational format in business networks, representing a change of restricted trade patterns, characteristic of a paradigm of competition, such as in Porter (1989). The discourses about new organizational formats in scientific events in Management Sciences have been using the terms cooperation, interdependence and commitment. These signs led to the development of this paper.

5.1 The path to the development of the model

The literature review initially conducted, concluded that the network concepts merging into two not mutually exclusive paradigms. On one hand is the paradigm of the economic advantages of associating with some partners, with articles dealing with governance, negotiation advantages, learning and innovation. On the other hand is the paradigm of social networks, where these papers state that business decisions are influenced by social relationships among the actors. The assertion that the social element is present in the commercial environment is quite old, dating back to seed papers on Social Psychology (HASTORF, SCHNEIDER, POLFKA, 1973). The conceptual novelty is the assertion that is now placed in the theory of networks, broadening the field of social relationships whereby it is accepted that the content of these social relationships influences the actor's behavior in the network, differently from the old pattern, where personal characteristics such as leadership dominated social relationships.

According to Larson (1992), Halinen and Tahtinen (2002) there are few studies about the changes in the networks, with some authors more frequently cited, such as Ring and Van den Ven (1994), Hakanson and Snehota (1995). Articles placing the consumer as a participating and influencing factor in the networks are also rare, since the tendency is to analyze the relationship among companies. There was, therefore, a gap to be resolved by placing the consumer as an important actor. Thus, the model is located within themes that are not much explored in the literature, which is network dynamics starting from social

relationships and the consumer's place in the networks, which resulted in some difficulties of theoretical and methodological grounding.

5.2 About the model structure and the unit of study

As shown in Figure 1, the model was presented as a system consisting of three interconnected subsystems, with two output responses. We define the object of study as the *node*, which is the basic unit of relationship.

The proposal is in line with others, like Halinen, Salmi and Avila (1999), who claimed that it is necessary to study the dynamics of networks going beyond economics and that changes in one *node* can have an effect on other network *nodes* and that the forces of change lie in the intentions and expectations in relationships. These statements reach close to the point whereby a *node* represents and influences the whole network. The difference between the proposals lies in the forces of change, since in this article we put them in the social variables, while those authors put them in the psychological variables

The ARA model - Actor, Resources, Activities, of Hakansson and Snehota (1995) places two sides, actors and resources, connected by activities and relationships, as responsible for the changes. The model is basically applied to industrial relationships, which is not our proposal, but presents the common point of relationships influencing the network structure.

About changes in the networks, Gersick (1991) presented a three-level model, with the third one dealing with revolutionary changes, where a network reconfiguration takes place, similar to the *connected changes* concept of Halinen, Salmi, Ávila (1999). This reconfiguration begins with a critical event in one *node* and propagates throughout the whole network. These statements support the proposal about the importance of studying the *node* in network's research, and the force of critical events to begin a reconfiguration. The *node* events that spread throughout the network show that the part and the whole are intertwined and inseparable, in line with the concepts of complexity. The model's structural-functional principle and its unit of study are, therefore, coherent with the other approaches with referred authors.

5.3 Logical analysis

The logical analysis that was performed is a rare contribution in Management Science, since a model's pattern of support is a collection of data, with a statistical analysis that reaffirms its principles.

Logical analysis investigates the relationships between the principles and content of statements, looking for fallacies of relevance and of ambiguity (COPI, 1978). The analysis of the possible fallacies of relevance did not show any problems of: use of force, authority, attack on critics, personal convictions, argument by ignorance, forcing public acceptance, the application of a general rule to a particular case, concluding generalities from exceptional cases and repetition of the principle. In looking for fallacies of ambiguities no problems in the use of amphibology, emphasis or composition were found. Three fallacies were found: about false cause, about clear definition of the component terms and about representation of the whole starting from the part. The analysis of these fallacies revealed that their strictly following would result in giving up complex thought and in adopting the positivist reasoning of strict causal relationships, leading to problems and incoherencies in the model. Thus, a defense of the model was undertaken, with the conclusion that the model held its ground in the logical analysis.

5.4 The analysis of theoretical and methodological consistency

This analysis examines whether there is a theoretical coherence and whether the variables are operational. The response was positive. There is no incoherence in placing the consumer as an important actor in the network when the response to the consumer's satisfaction is placed as the expected output. On the contrary, this inclusion makes the social approach of networks more integrated, since an important principle in this theme is the connection between the actors and the design of a spiral structure, extending to the infinite. There is also coherence and acceptance in the unit of study, the *node*, as a proxy of the network, even with some discussions about the whole and the dyad and variations about the term, such as *node*, dyadic, tie, graph (ROWLEY, 1997; HALINEN, SALMI, AVILA, 1999)

About the methodology, Carrington, Scott and Wasserman (2003) showed that qualitative approaches are capable to describe and analyze the links between the actors anywhere within the network. Its force lies in demonstrating that the flow of information from instances of failure and success throughout the whole network changes the field of the following interactions. There is, therefore, coherence and validity in the concepts of *node* and its components, the flows and the decisions.

5.5 The analysis of the model's operational capability

We applied the model in the tourism business, where one would expect consumer participation. Analyzing data from multiple sources, following the triangulation proposed by Flick (2004), we reached the following conclusions:

a. Triangulation was considered important when discussing the phenomenon of networks, consistent with a philosophical view of the complexity of arrangements and multiplicity of events.

b. The model proved capable of generating research and to contribute to the understanding of the characteristics of this business.

c. The model proved resilient and consistent with data from the business of tourism, according to the concept of truth in Tarski (1944), whereby a theory is so much better when it is most able to come close to reality.

d. The data show a gain in knowledge and opportunities to manage customer satisfaction in the measure of its participation in the network.

e. The model was able to show the difference between the expected and actual in the field of tourism, since the mechanisms of inclusion of the consumer in production were not found, revealing inflexibility, even in the presence of complaints. The model is therefore able to indicate process improvements.

The test research, therefore, supported the model.

5.6 Contributions and limits of the model

The proposal brings a theoretical contribution to the network theme, as it tries to fill a gap of the consumer's participation as an active actor. This gap is a result of the tendency among researchers to solely use criteria of economics and isolated competition. Starting from the notion of social networks as background of business networks, a model including the consumer was built, as shown in Figure 1. The model held its ground logically, theoretically and methodologically, including an empirical test.

The paper's methodological contribution consists in the evidence of the importance of triangulation in the collection of data about networks, as well as the adequacy of qualitative approaches. Research possibilities, still rare, are created such as different perceptions about the same event. The proposal also raises discussions about methodologies in networks' research, which is not usual in the literature.

As a managerial contribution the model has proven capable of pointing actions, including the collection of more accurate information about the consumer's social variables during his first contact in the network and monitoring the consumer's activities and flows when the consumer is using these services.

It is stated that the proposal creates themes of specific research in its three subsystems. In the *node* subsystem, as an example, it is possible to research the conflicting flows during a service and its consequences in the network. In the relationships subsystem, a possible research theme could be the investigation of the actor's positions and how their changes line up with changes in the flows of the *node*. In the social variables subsystem one could research each one of these variables as social representations of the consumer actors about the suppliers.

The range of research originating from the intersection of variables has social importance, since business relationships are organized in networks and authors who have addressed the issue of sustainability (CRUZ, PEDROZO, ESTIVALETE, 2006) claim that organizations should include the interests of the community, i.e., the various actors in society.

The paper's limits refer basically to the fact that the proposal was born from two themes that are not well developed, i.e., the consumer's participation in business networks and the reconfiguration of networks, which could result in a scientifically immature proposal. The utilization of social network concepts in Management Science where the positivist view of the economic rationale (REYES, CARDOSO, 2006) predominates, also weighs in. As defense we present a literature review showing that there is a gap that should and must be filled and a model that is logically, theoretically and methodologically consistent.

¹The goal at this point is to highlight the completion of the research, without the need of methodological details. A person can read this analysis in detail in the text that appears in the Minutes of the Enanpad 2006 Congress (GIGLIO, KWASNICKA and SANTOS, 2006). This detailed analysis will also be included in a paper accepted but not yet published in a national journal, in which the model presented here is also defended, but where this defense rests solely on its literature review. The two papers are therefore complementary.

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