

TOWARDS AN AUTOPOIETIC MANAGEMENT OF HUMAN ACTIVITY SYSTEMS IN MEXICAN TOURISM SECTOR SMES

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ABSTRACT

This paper aims to contextualize the management of human activity systems (HAS) in lodging Mexican SMEs in the tourism environment, given that the management has been constrained in its ability to respond and adapt, this affects the operational dimension as well as the service provided to customers. Complementarity between methodologies and models of systems science allows to set the tourism SMEs concept through the of Warfield's domain science model. Due to complex interactions derived from the interrelationships among actors engaged in tourism services, it seeks to unify different views about problems faced by human activity system management and establish guidelines between the being and the should of it (Soft Systems Methodology), it is proposed that the adoption of the principles of autopoietic systems can lead management to a state of order and self-organization in the human activity system to influence the efficiency of the total system. Professors and actors with decision-making power within these organizations would benefit from a new perspective in the issues treatment of the human dimension of these companies.

Keywords: Systems Science, Autopoiesis, Human Capital Management, SMEs, Tourism.

INTRODUCTION

It is possible to study tourism at least from two perspectives: 1) as a social phenomenon; because cultural interactions are identified and addressed, as well as the impact of tourism in social groups and the human resources role in the development of authentic destinations and 2) as an industry, as it provides economic benefits to the area in which it take place.

Hall (2010) conceives tourism as the expression of a leisure and recreation lifestyle where an extensive system of interactions between people is observed, to cover the need of traveling outside the usual environment (WTO, 1995), using a set of services and products that have a certain level of quality. Tourism has transited from an elite practical to a mass tourism led by an industry that tries to provide all services and strengthening economic, political and social interests (Bukart, 1981; Mathieson & Wall, 1982), moreover, it is capable to overcome the revenue generated by other sectors (WTO, 2013). Aspects arising in a messy increase tourist offer. Implying an environment characterized

by high standardization and global competitiveness.

In Mexico, from the previous government, the sector it is considered a national priority for benefits in: income generation, contribute to balance the payments balance, increases government revenue and it promotes entrepreneurship. At the same time it is recognized first, as progress engine related with more over 50 productive activities. Second, as a catalyst for development that presents opportunities for micro, small and medium enterprises (MSMEs) by linking productive chains that contribute to the host communities wellbeing (SECTUR, 2013).

As an open system, the social kind, small and medium enterprises circumscribed to the tourism sector (tourism SMEs) are susceptible to changes and exhibit a tendency to entropy (Jiménez, 2005). For example, resource degradation result of accelerated and unplanned urbanization in the destinations, as well as the inconsistency between actions of tourism service providers to meet their users ' needs coupled with poor human activities management.

Therefore, it is considered relevant to study the SMEs (Small and Medium Enterprises) in the tourism sector as these integrates more than 99% of the industry (SE, 2013) and their performance impacts directly at a local level. An organization as a social structure, should be able to make temporary modifications necessary to survive in its complex environment, because since its creation is subject to entropy, state that can lead to a process of increasing deterioration, unless the system is self-organizing or autopoietic, with self-constructive properties (Maturana & Varela, 2003). Therefore, provide the autopoiesis properties to the human activity systems management (human capital management) propitiate an iterative state to SMEs which are constantly enriched and it provides an organization capable of adapting to the continuous disturbance of the environment, without losing its identity.

TOURISM SMEs CONCEPT AND ITS CONTEXT

In recent years, SMEs have been taken up at political and economic level as a development element for their communities (Rogerson, 2007; Nilsson, Petersen & Wanhill, 2005). In research field tourist SMEs have been addressed extensively trying to reach its conceptualization. In efforts to establish a common definition they have been categorized as abstract or analytical entities separated of context (Thomas *et al.*, 2011).

The lack of a common concept of tourism SME may have different consequences because, to be unable to define an object of study, the interventions aimed to influence positively in their reality will not have much impact. In addition Hall & Rusher (2005) consider that design and implementation policies to increase their participation and permanence in the market will not be easily adopted by these companies.

Therefore, it is considered to pose that an alternative to raise the tourism SMEs concept is through the conceptual tissue provided for the Systems Science because they approaches

emerge from a broader view opposed to the centralized tendency in reductionist science. Therefore, tourist SMEs proposal concept takes the Warfield's (1987) Science Domain Model, this model proposes four basic components to provide necessary and sufficient knowledge about the study subject:

1. Subject of study or problem: rethink the tourism SME concept for use in the tourism research field.
2. To visualize concepts as a mental representation of reality, immersed in a psychological worldview: At this point it is possible to delve on the concept of study by an intellectual exercise that requires interaction and thinking to the mental construction of the concept looking relate it with the worldview that has. It is required to observe both within a SME, as distinguish the surroundings systems involved in its operation. The interrelations between the social system in its inside and outside are relevant to distinguish as its main objective to provide a service.
3. Importance or value to humanity: the relevance lies in proposing a SME concept of tourism which homologue their understanding to impact positively on their organizational context. In addition, companies that make up the SME conglomerate can cause positive effects at local level, their identity considers its limitations, the comprehension of their properties and capabilities to assist tourists.
4. Systemic worldview: the concept must be rethought in order to provide an approach with a holistic vision. One way to reconsider the concepts is through change of original properties of tourist SMEs and the human capital management which establish the quantitative essence, qualitative and reductionist in both. Tourism SMEs, depend on the effectiveness of their properties for the service presentation that give to tourists and their relationship with their environment, diminishing the dependence towards the last one to survive. Therefore, its definition must consider the characterization of a service, not only the actors but the interactions of different factors involved in its dynamics in systemic elements facilitates the holistic approach and the synthesis of his essence quantitative and qualitative.

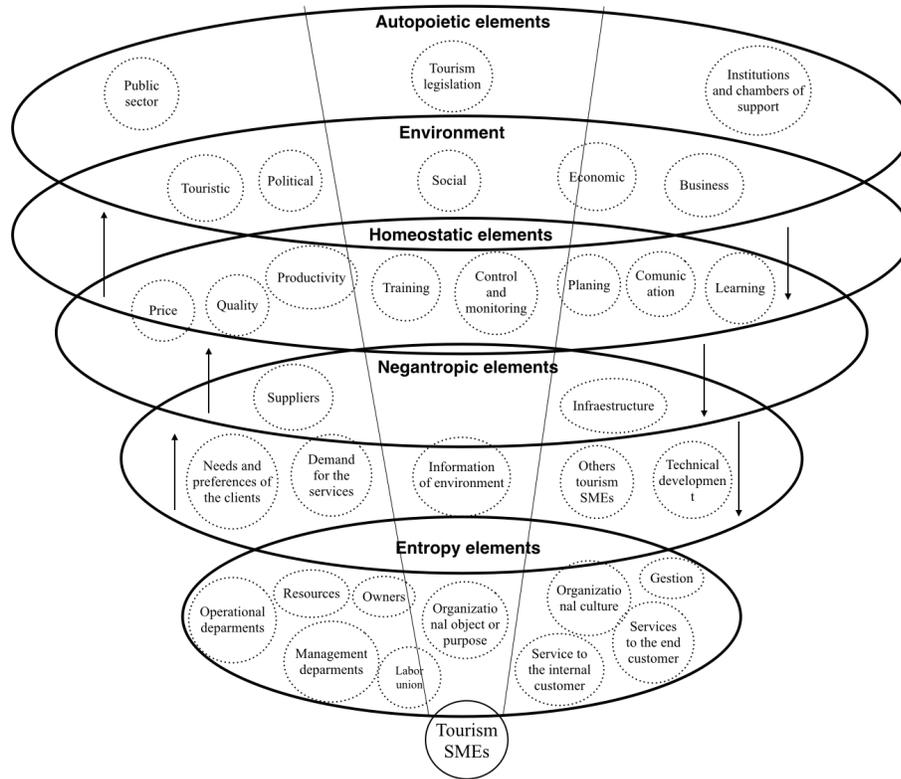


Figure 1. Tourism SMES Worldview

Due to the above, it is proposed to define the tourism SME as the economic unit, mostly family type, with a staff understood between 50 and 100 collaborators. Contained in a complex environment on which there converge tourist, political, economic and social factors, which it chases, across the rendering of service to the market, to obtain an economic benefit as well as the permanence in the sector. For that must recognize its systemic properties such as elements of: disorder (entropics), contribution to its equilibrium as a system (neguentropics), preservation of its morphology and internal state (homeostatic) as well as the field (environment) in which they operate.

Models to manage human activity systems and its limitations

The problematic situations in the management of human activity systems, in the tourist industry, can be treated through rigid or flexible models. Rigid models, are generally considered utilitarian since it perceives the employee as a resource, therefore, one of its purposes is to control and maintain low operating costs through the incorporation of little qualified personnel to the organization, low payment and high demands in workplaces in order to achieve organizational goals. In contrast, the flexible way tends to be homocentric (Page & Connell, 2009) it not only takes people as an asset in the organization but pursues its development and emphasizes other aspects such as quality, flexibility to work, knowledge, communication and motivation. In addition, it seeks to include the staff in the objectives design process. Therefore, this vision is considered

relevant to apply it in tourist SMEs due to the people's role in providing services.

Some established models for human activity systems management used in the business context are:

1. Model management and human resources based on business: focuses on the possible relationships among resources, strategies, and performance within the company. In addition, intend to capitalize the employees' skills (Boxall, 1996). However, it does not address the emergent properties of people relations and the influence of the environment.
2. The human resources management model: Anthony *et al.*, (1993), takes the unification of functional business strategies concept and integrates it into a global one. According to the model threats and opportunities that a business can face affect their overall strategy and that determines the orientation of the operational strategies. However, it does not take into account both the strategy for management human activity systems nor the competencies and skills of the employees to assess the effectiveness with which a global strategy would be implemented taking into account the changing environment.
3. The Harvard HRM model: It recognizes the relevance of the information derived from the interaction between human factor with the environment and other internal factors of the company. One of its main points is that it incorporates the collaborators into the decision-making processes and encourage their participation in the organizational objectives, without neglecting their development and well-being. This model is not easily accessible to SMEs in tourism sector and does not specify the positive impacts in the long term for the human factor as well as the options for increasing the organizational performance.
4. Contextual and dynamic framework for strategic human resource management: brings together various factors of impact for the organizations. Takes into account the global environment, which includes local, national and international aspects. The organizational environment, formed by leadership, strategy, organizational structure and organizational culture (Jackson & Schuler, 2003). The model looks for the satisfaction of investors, clients, nevertheless, it leaves aside the human dimension and does not raise a tendency it was doing to the adaptation and to the emergency of the state of viability in the company.
5. Corporate and social responsibility based model for human capital management: According to Rok & Mulej (2014), the model generates interdependencies through variables such as human capital planning, recruitment, selection, training, performance, motivation, career plan, reward system, stress management as well as security, conflict management, equal opportunities and the communication system within the organization. However, it does not indicate the way in which the model will be integrated into the organizational structure or how will bring a viable balance to support adaptation to the environment.

Difficulties in human activity systems management in lodging SMEs

Addressing the management of human activity systems in lodging SMEs it turns complex because requires to try with various elements, such as the dynamics of people who interact with the rest of the elements of the system, interrelation between departments and workstations as well as an organizational model. The previous thing without ignore the importance of this element in stages like the start-up of organizational strategies.

Mexico has an approximate of 4 million 15 thousand business, of which 99% are classified as SMEs and they contribute with the 52% of the Gross Domestic Product (GDP) and 72% of employment in the country. Nevertheless, approximately 20% of these have difficulties to operate after two years, and only the remaining 10% reaches to be profitable and successful (SE, 2013).

According to Velázquez (2013), some of the main problems in SMEs are related to aspects of operation and management, representing 45% of their causes of closure. Regarding tourism SMEs, it highlights the low level of association and membership of the workers to the organization, elevated levels of negative rotation, candidates with low education levels, training poorly focused because is not always related to the real needs of training. Another recurring problem is that human activity system management does not generate synergy to contribute to fulfill the system objectives or to keep it on the market (Fernández *et al.*, 2006; CDCE, 2013).

In the tourism SMEs context, and their organizational strategy, people is more than one variable to control, because its management requires different treatments of the other components of the system, since it is characterized by being a complex element, dynamic and ever changing.

To the foregoing, it indicates that the systemic complexity to influence the human activity systems management in tourism SMEs requires an understanding of external and internal variables that influence the process in order to be able to analyze the whole system by relying on a model that allows to understand the management of the organization, as well as set and explain the recursion levels between the subsystems. With which seeks to raise a logical order between the social and technical system to develop employees capacities, based on the knowledge generated in the company (Tejeida *et al.*, 2010), key elements to propose a human activity system management strategy that contributes to the sustained organizational transformation.

According to Baum (2007), Harkison *et al.* (2011) and Rok (2012) the tourism industry at international level, in specific the lodging sector, shows negative working features such as extended and irregular schedules, low wages, few opportunities for growth, high pressure levels as well as little satisfaction towards the employer. Aspects that present difficulties to human activity system management to attract personnel with greater degree of studies, specialized in the area of services, as well as qualified labor force.

In accordance with Page & Connell (2009) to improve these issues, the key points that human activity systems management should include are:

1. Education and training to provide employees with necessary skills to do the job.
2. To create of a good reputation or work in the tourism and hospitality industry.
3. Consider globalization.
4. Ability to maintain the employees number of regardless the season fluctuation.
5. Suitable salary, compensations and facilities.
6. Consider the regulatory framework and measures by the government.
7. Search for competitiveness.

These characteristics lead to consider the treatment of the human activity systems management issues require a more robust approach. To enable the self-organization in the company through the management.

SYSTEMS APPROACH TO IMPROVE THE HUMAN ACTIVITY SYSTEMS

In accordance with Rosenblueth (2005) in the classical posture of science, phenomena are dealt with through two positions. On one hand the observation, where the study is carried out without affectations given the passive contemplation of the facts. On the other hand, in experimentation, facts suffer the active intervention from the observer under planned and controlled conditions. However, it should not be overlooked that, social phenomena have multiple interrelations that turns into a complex behavior, so that your approach cannot be taken in linear terms.

From the systemic, a study is performed with a variety of purposes, such as understanding the structure of the system or identify their interrelationships to plan and to influence some of their dimensions. In this regard, Morin (2005) mentions that human cognitive capacity to conceive and comprehend the complexity of a phenomena in its multiple dimensions, tends to simplification which leads to limited analysis and predictions. This can be countered by using the theoretical and methodological body provided by the System Science, in order to address the multidimensionality of social phenomena.

The purpose of management science lies in improving the operation of the organizations which is accomplished, generally, through the construction and use of systems models, by which is attempted to represent the main features of a set of operations or dimensions of the system (Pidd, 2004). Therefore, the idea is to use a model as a vehicle for experiment and study reality, which allows to take into account the context of tourism SMEs, because the actors with managerial functions do not face isolated problems, but changing complex situations, therefore they must not focus on solving problems but managing of complexity (Meadows, 2008).

Autopoietic Management in Mexican Tourism Sector SMEs

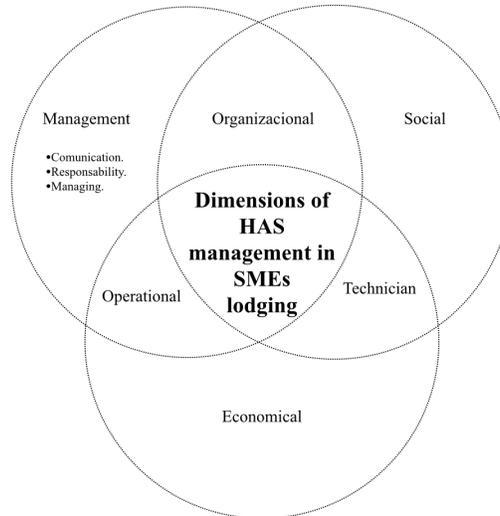


Figure 2. Dimensions of HAS management in SMEs lodging Tourism

Systems thinking can support the management in complex situations. Therefore, the dimensions to study the human activity systems in tourism SMEs are: social, economic, technical, organizational, operational and management. In this regard, grid of problem contexts (Jackson, 2003) allows us to recognize and characterize the contexts that are problematic and identify the methodology that should be used to solve a problem located within a given context (table 1). The ideas throughout the work allow us to recognize the problem described in this article as complex-coercive, which makes it necessary to use a system of methodologies for intervention in an appropriate manner to the problem situation.

Table 1. Grid problem context of Jackson & Keys

		Participants		
		Unitary	Pluralist	Coercive
Systems	Simple	Simple-Unitary Hard Systems Thinking	Simple-Pluralist Soft systems approaches	Simple-Coercive Emancipatory Systems Thinking
	Complex	Complex-Unitary System Dynamics Organizational Cybernetics Complexity Theory	Complex-Pluralist Soft systems approaches	Complex-Coercive Postmodern Systems Thinking

Soft System Methodology

The Soft Systems Methodology (SSM) is suitable for work with the imbalances that may occur in the human activity systems (Skyttner, 2006). In addition, allows analyzing situations within organizations and proposing feasible improvements. This methodology consists of seven stages and the activities can be divided into two large stages: a) those relating to the real world, stages 1,2,5,6 and 7 and b) activities relating to systems thinking, stages 3 and 4 (figure 1).

In addition, this methodology provides guidelines to try to manage, in a broad sense, problem situations of the real world and helps to managers in resolving tasks successfully. It is an organized way of dealing with disordered situations in real world and it's based on systems thinking, providing the robustness and wide spectrum of application (Checkland & Scholes, 1990). It is worth noting, that learning is a core part because it seeks to understand and join optimally the perception or vision that actors have both on the problematic situation and the expected improvements.

Viable System Model

In concordance with Espejo & Reyes (2011), in the tourism SMEs context, the system term is recurrently used with different and even erroneous purposes, especially to refer to the relationship between a set of elements and a purpose. Nevertheless there are omitted elements such as complexity, recursion, and organization. In that sense the Viable System Model (VSM) is taken as support, because it allows to observe the phenomena within a system and identify the structures and mechanisms that influence its behavior.

Within the most important features of the VSM stand out: i) recognizes the recursive nature of complex systems, that is to say, the fact that the systems exist in hierarchies, and the way in which are organized at a higher level can be found consistently and repeated in the parts; ii) from a cybernetic perspective, all viable systems show the same organizational characteristics (Jackson, 2003). Such characteristics of the aforementioned model, and that can be applied at various levels, allows to generate clear representations of the systems to be designed, in addition, of acting like an excellent control element as to introduce certain degree of order that reduces to uncertainty to zero, since the existence of information tends to eliminate the variation in the system by giving away a state of regulation.

To treat the human activity system management in tourism SMEs, the implementation of the VSM must follow the guidelines dictated by Beer (1985):

1. To identify and to define the organization to be shaped.
2. To specify the viable parts and the general system to which it belongs, that is to say, of which one is a viable part, without neglecting that the viable systems are characterized by self-referentiality and that feature enables its identity, ease of self-repair, recursive and self-awareness.
3. Choose the viable systems between those that are not taken into consideration with regard the importance and implications of the functions inherent in the system.

4. Distinguish between the viable systems involved in the production process of the system and the homeostatic system that plays the regulatory function as it weaves together the first into the second.

It is important to justify the use of the VSM because it considers the interaction between the system in focus and the environment, in addition, it allows to manage organizational complexity. What becomes relevant in the treatment of living systems in which are observed situations consisting in a high number of items that change rapidly and unpredictable. Therefore, it is intended to strengthen the process management of human activity systems through a viable organization design and introducing control measures allowing efficiency and ensuring the adaptation in the operations changes of tourism SMEs.

DISCUSSION

The openness to invest in tourism sector has modified its dynamic, changes that request to understand the SMEs stratus in services provision. Thus besides to distinguish the number of employees and sales quantitative parameters requires an understanding that these organizations depend on a complex structure. Tourist services, not only must assert their technical systems, but their systems of human activity and the optimal execution of processes; because different from manufacturing industry, the performance of the human activity system guarantees that the service features are tangible for the costumer.

Specifically tourism SMEs under a fordist approach, limits the management to think only in the short term and not on its importance for the environment. Some efforts to define tourism SMEs, list shortcomings and problems that became them more susceptible to their environment, including those emanating from management and operation. Unfortunately, little unification of their understanding and knowing its limitations does not provide enough and sufficient knowledge to achieve intelligence concerning this conglomerate, as the accumulation of knowledge may involve lack of understanding of our study subject.

To emerge from a worldview that does not invalidate knowledge generated from different disciplines gives an entity near to reality of touristic small enterprises, amplifying its range of application avoiding ambiguities and variables exclusion, which positively influences the organizational context, by not establishing conceptual hierarchies, but as a holarquic one through the properties of a system.

Human activity systems, invariably have a crucial role in the operation of offered services by tourism SMEs, management models of these systems proposed under administrative efficiency, focus management as an area which promotes the performance of these systems to assist goals of economic nature, which later must rethink failing to recognize and balancing other relevant dimensions to establish model's viability. Intervention in these types of systems cannot be understood without considering their contexts, same they delineate the border to achieve understanding sufficient and relevantly.

The first two stages of the SSM allow to identify different actors immersed in different relationships exposed by different realities proposed with respect to the management of

HAS. The stage called problem situation unstructured (figure 3) identifies elements that affect directly and indirectly management of HAS in tourism SMEs. First of all, there levels of recursion are set, intermediate level identifies the business entity, and the elements that express its borders as a system are: organizational structure, company, purpose services and influence of trade unions. Which has management personnel troubles as well as to adapt to their environment and subsist. The second level of recursion is directly related to the environment, that is to say, the first level because exhibits the changing conditions that system in focus must adapt constantly. On the other hand, relates to the third level constituted by the operations and management of HAS. It should be noted, the aim is to create learning to guide the adaptation through the logical arrangement of the interrelationships between the management and operations systems.

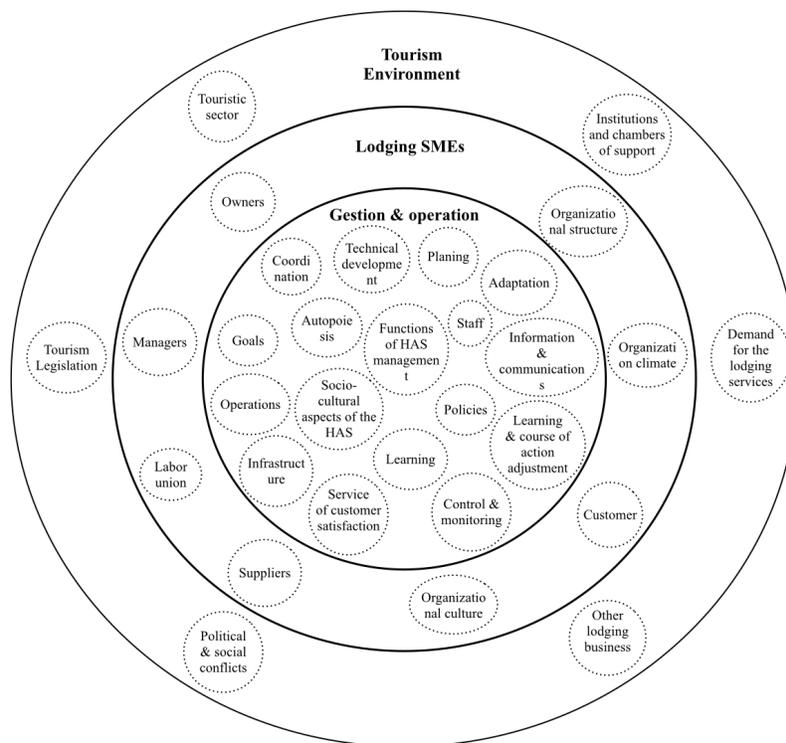


Figure 3. Elements of problem situation unstructured: HAS Management in lodging SMEs.

In second stage, the problem situation expressed (figure 4), shows in diagrammatic way the interrelationships arrangement between human or operations systems, management system, the components of tourism SMEs and tourism environment, with the objective of determining relevant systems and using them to pose possible transformations that detract the problems of the system.

Structuring different actors and processes in systems, gives an order and distinction from those that affect in a direct way with the performance of human resources management in

SMEs lodging. As holon, identifies the human holons that affect its dynamic core, distinguishing all departments running different services offered to tourists inside and outside, those who do not participate in the execution of such services but their performance transcends the dynamics in internal systems. Bifurcation of this holon are operations systems and management. The first encompasses elements of the human system and organizational structure. Meanwhile, the second joint actions that leads to the ability of making decisions that operationalizes in the execution of the processes that affect and determine the permanence of tourist small enterprise in the tourism system.

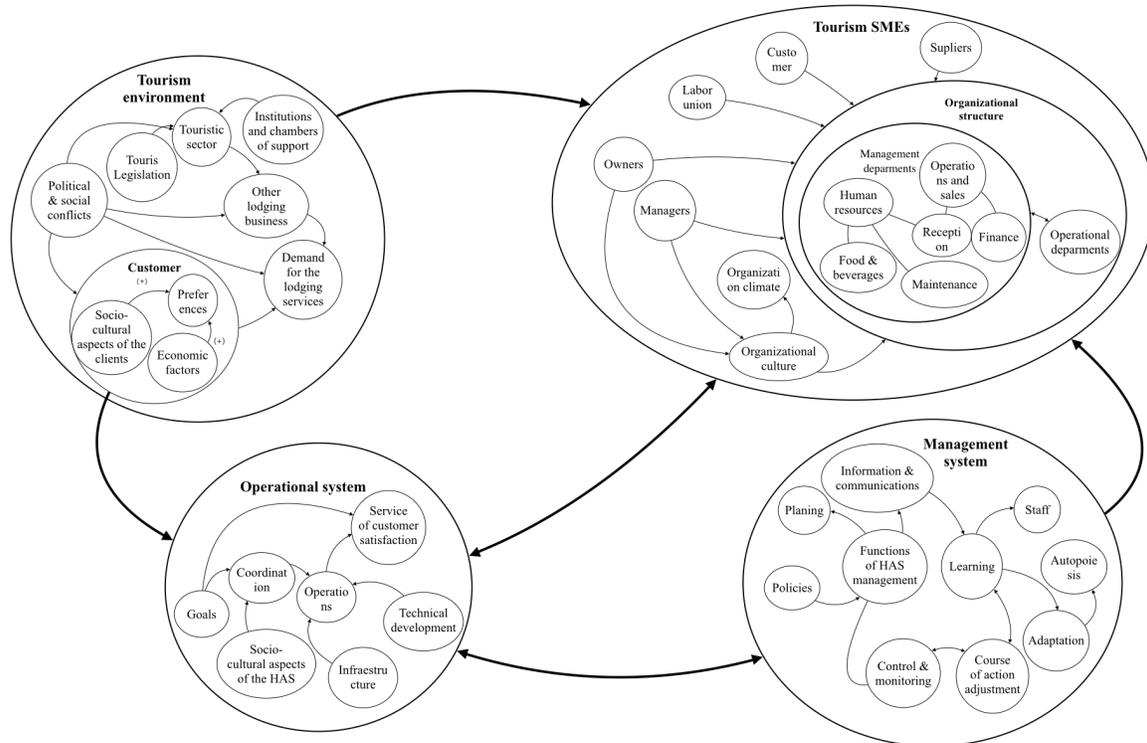


Figure 4. Problem situation expressed: HAS management in lodging SMEs.

Application of autopoiesis theory on small hosting enterprises and managing human capital is relevant, as it has stated they are open structures with great stimulation from their environment, with defined proposes that operate and maintain their identity, and may or not contribute to the self-organization of structures in which they reside. These subsystems can be autonomous and free or they can be transferred from an organization to another without loss of identity, its loss may be a gain for their old host (Robb, 1985).

The theory is projected to systems with a high degree of complexity, provided with properties like autonomy, operational closure, emergency, self-estructuración and autopoietic identity (Rodríguez and Torres, 2003). In this regard, Maturana & Varela (2003) defined them as follows:

1. The autonomy problem of the living is central and must be sift it in its minimal form, on the characterization of the living unit. Only from the perspective of the living unit can be finished what is relevant and, above all, what is it different.

2. Operational or organizational closing, the operation is closed and its components are produced inside a recursive process that takes place within a closed grid. In this sense, lock must not be understood as the opposite to opening, but as the condition of its possibility. What is closed at autopoiesis is the same control by which elements are organized in an emergent way. The operational closure of autopoiesis makes direct relationship to the level of stability that reaches an operation, under certain conditions, and in which necessarily operation tends to form a recursive calculation that must always return on itself (self-referential).

3. Emergency, the emergence of qualitative order of living things. Emergency indicates precisely the emergence of a new order, whose characteristics may be induced once the new order is already constituted. The communication that originates the new order through management of human resources, includes chains of selective events using information attributed to other systems.

4. Self-structuration, there is a membrane between the human resources which makes possible the existence of the same network, such fundamental circularity is, therefore, a self production of dimensions of human resources management. The link between the dimensions of management in the model, operating with closure and are specified by a network of dynamic processes whose effects do not leave the network that gives them their autonomy and individuality.

5. Autopoietic identity, evolution is made possible through reproductive series with structural variation with preservation of identity. The Constitution of identity of a living unit precedes empirical and logically the process of evolution. Self-observation mechanisms provide management to inquire about capabilities, competences, strengths and potentials of human resources (Arnold, 2006), that the Organization needs, is required that this knowledge does not lead to an immediate transformation and it must be given in the five subsystems of the model, supporting redefinition and ensures the coherence of operation with proposed operation models. SMEs autopoietic identity is guaranteed to act from inside and not from the environment.

Not considering the development of a model on management of human activity systems, inhibits the management of a worldview that allows self-organization of their human activity systems and their interrelationships. Also the increase of entropy as is a lack of control of appropriate information for the organization. It is distinguished the VSM, as the isomorphic system that makes it easy to maintain a constant interaction of human activity systems, in order to keep the system in a homeostatic balance State, the same as under control. The regulation process is intended to ensure the survival of the system, both in the short and long term, by processes of learning, adaptation and evolution. In addition, such systems cannot be isolated each from another holding operational continuities, which together constitute an entity in constant interaction.

CONCLUSIONS

The susceptibility of tourist SMEs to entropy is very high, so far they have not developed a structure that allows them to transcend the environment in which they operate. A transdisciplinary conceptualization favors the description of this conglomerate from an abstraction of the internal and external scope and facilitating the identification of actors and relevant systems for their understanding, eliminating existing ambiguity in the different proposals made by various disciplines.

Assessment of partners can provide the tourist SMEs efficiency to establish its autonomy, since cognitive processes, from employees, give the overall system knowledge about the world in which it operates, relying on aspects such as the quality of the service, satisfactory to the customer, faction and loyalty, competitive advantage, and organizational performance. Therefore, prepare a model of management autopoietics for these systems, regulates the organizational communications, the ways to point out jobs, tasks and processes, and competences of its members.

The management on human activity systems must provide feedback for tourist SMEs to reduce levels of uncertainty at all levels of the Organization, also, must be constituted as a strategic element that contributes to the development and sustained organizational structure transformation.

The viability of tourism SMEs must be obtained through operationalization of the VSM. It is necessary to generate a close interaction between operating systems and management systems, so that they resume information about the environment, services, resulting from this part of the business. In this regard, coordination must enable the exchange of relationships among the elements of the first system in order to stop possible imbalances and at the same time increasing self-regulatory capacity.

Second stage should be aimed to combine the organizational mechanisms, such as communication, groups of making decision, task forces as well as data derived from the interaction between departments with the intention of enabling functions of monitoring. This situation should occur without leaving obtaining development and viable balance of the system aside. Therefore, system four must provide relevant data that lead to the understanding of the interrelationships with the environment and, at the same time, provide accurate elements about the possible strengthens and weaknesses of the system to rethink the courses of action. This must be run in a policy framework that should propose five system to adjust the organizational culture, values, operational standards and develop the autopoietic capacities of the human activity system.

The management of human capital in these organizations should not be seen as an element whose only function is to provide personnel to the company or address money issues. Human capital management must be conceived as a node capable of influencing the autopoietic state of the total system, since its through people that is provided, or not, optimal services to users.

As described up to this point seeks lodging SMEs improve in areas that have difficulties its operation as the identification of anomalies and correction of the same by co-workers, establish suitable interdependencies, generate autonomy on decisions, to form teams that will prevent the reprocesses and adapt to internal and external changes.

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