

# **VIABLE SYSTEMS MODEL AND QUALITY OF HOSPITALITY SERVICES**

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## **ABSTRACT**

This paper discusses the design of a model for service quality in hospitality concepts and proposals using the Viable System Model (VSM) of S, Beer. The object of study is a human activity system whose complexity must be addressed through systemic methods. The study identifies the elements to be considered for a system design approach (with emphasis on quality of service) through the establishment of internal and external environments that integrate it. Through the analysis it is determined that the hotels can function as viable systems, ie may be able to absorb the complexity through the generation of internal tools to manage it.

Keywords: Viable Systems Model, hospitality, quality service.

## **INTRODUCTION**

The quality of services is expressed through the gap between what is planned (as planned), under a particular manifestation of services and the physical realization of the benefit (as presented), commonly defined by customer perception (Ankaba , 2006) In this sense the quality of services is valued on the subjective level, expressed through: a) The hotel certification systems, which measure a level of quality necessary to maintain a permanent, market recognition and endorsement. (Icons, AAA, SECTUR etc.)

b) Organisations and ISO standards, which establish uniform standards controls and integrated assessments of subjective perception, focusing on perceptions of the evaluators to measure the linearity rules.

c) The focus of the quality of services as an engine for economic benefit, which provides business development through service efficiency, where the service management of match to financial management.

Outside of these approaches the quality of services is a function of the internal organization of the system and its relations with the environment, where quality improve the system's homeostasis and encourages their development through the interaction of human activity systems with other systems (technological, economic, material, etc.). Some complexity of the quality system arises from the allocation of increased levels of ordered energy and information to abate entropy.

## **METHODOLOGY**

Bertalanffy (1995) introduced the concept of GST, which deals with phenomena that can not be simplified, by studying the system as a whole and embracing its complexity (Gigch, 1981). The systems approach, considers relevant components and their

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interrelationships, and tends towards the implementation of a holistic perspective (Cárdenas, 1978). The hotel company as a teleological system involves analyzing the orientation of goals and purposes (Ackoff, 2003), in order not only to know the system but to enact improvements (Tejeida, 2004).

The tourist business platform had used old theories to test its explanatory value (Li, 2008), however, tourism as a multifaceted phenomenon involving many variables in its dimension of quality service must be addressed in an integrated and holistic form (Mayaka & Akama, 2007) in order to advance in the transcendence of its theoretical value.

### **Considerations of the quality of service in Hospitality Industry**

#### *Definition of Services Companies.*

Kotler (1990) argues that services can be classified by type of activity to develop and manifest the existence of two types of companies. Companies based in the equipment (Equipment Based) and people-based businesses (People Based). For its part Chase (1978) proposed a classification of services, which reflect high or low degree of customer contact. The degree of contact is the length of time the customer interacts with the system.

The production of services and its measurements schemes, are oriented to the role of the client, who determines the resources and their implicit relationships, levels of information required, the volume of decision-making, indicators of efficiency and management tools applicable to each case.

The service production systems show changes in the structure, based on role of the performance of human resources, in the systemic integration, therefore the tourist services are more complex due that the human intervention generates a high volume of information, and requires large amounts of resources to keep them under control and focused on establishing a personalized deal to the client.

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**Table 1 Classification of hospitality service.**

Business Type Features	Hospitality services oriented to the product	Hospitality services oriented to customer	Hospitality services oriented to the organization
Customer Focus	Indifferent	With customer focus	Personalized
Processes and information	The process requires few decisions and information	The process requires a limited number of decisions and information	The process requires an unlimited number of decisions and information
Human Action	Initiative Reserved	With initiative	Innovative
Efficiency indicator	Economic Benefit	Complaints	Homeostasis of system
System Type	Simple	Dynamic	Complex Human Activity System
Resources	Technical	Technical and human	Technical and human

Source: own elaboration

### **Efficiency and quality of services**

The degree of quality of service is determined by sophisticated management systems that rely, on the category of hotel (Orfila, Crespi, & Martinez, 2005). So high categories hotels are more innovative, so it is expected that the quality will be greater at higher number of stars (Lamminmäki, 2008). This relation is not necessarily true, since as argued by other authors, (Lopez & Serrano, 2004; Israili, 2002), the quality level does not correspond with the category, but rather with the price, the authors give more importance to the room's price, valued by potential customers as a key factor in the purchase (Lockey, 2005), some new customers make an association of price with the quality of services, which typically seen as a sign of quality. (Haemoon, 2003). However, the price structure is usually affected by seasonal factors (Beldon, & Kwans, 2008), which shows that different price levels correspond to a single level of quality.

Assuming that hotel guests do not see the quality services as the sum of individual efforts, but as the entire service, the service quality can be administrated by management (Wilkins, Merrill & Herington, 2007). To ensure the survival and maximum efficiency, if not subordinate the quality level offered to a volume of profitability, but to subordinate the volume of return to a level of quality offered (Chen, 2007).

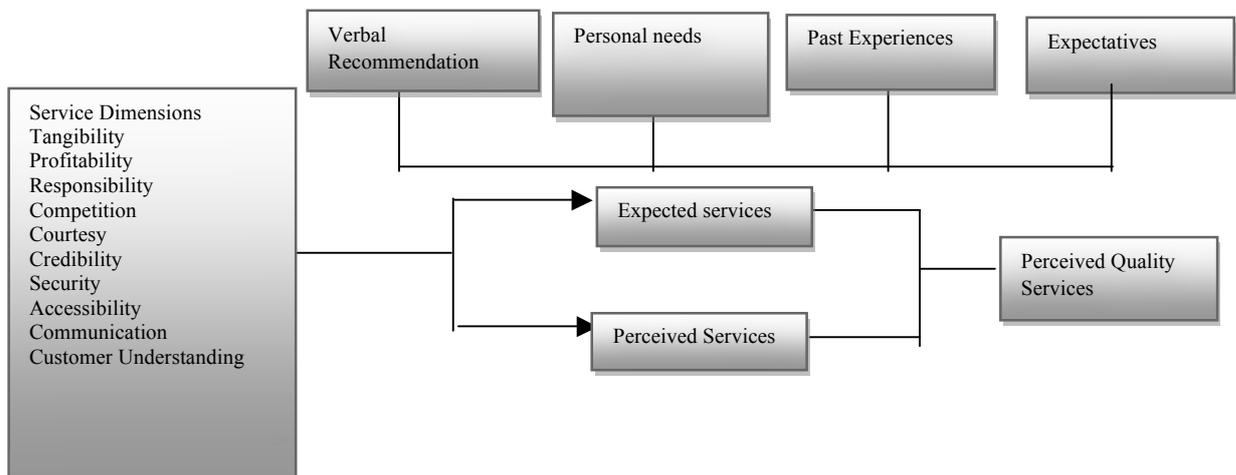
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### Systems certification and quality of services

The hospitality service modeled as a tourism industry model (TIM), suggest that quality is expressed through a relationship compatible with the rules of (The Leading Hotels of the World, TLHW, 2005). The certification schemes, create opportunities for an organization to demonstrate to its partners the viability of its management, as it constitutes a means of penetrating into the structures of the company to achieve greater control. (Salomone, 2008; Chan & Wong, 2005).

The quality of tourism services is created as a service delivery process (kindness, courtesy, efficiency, profitability and hospitality satisfaction) and as part of the performance of services (accommodation, food and entertainment facilities) (Zabkar, Brenčič & Dmitrović, 2010). From this approach follows that the experience of quality is subjective, in terms of measurement while the quality of services is objective in terms of its presentation (Chen & Chen, 2010). As quality, is the answer to the fulfillment in the delivery of services (Ho & Lee, 2007).

Parasuraman, Zeithaml, & Berry (1988) developed the SERVQUAL model based on hotel certification systems, which the application states the valuation of customers through the dimensions of location, facilities, service quality, pricing, reputation and security (Hsieh, Lin, & Lin, 2008) additional dimension are the interactions with the physical environment, behavior, knowledge, problem solving, teamwork, environmental conditions and the waiting time. (Martinez & Martinez, 2008).



**Figure. 1. Simplified scheme of the model SERVQUAL**

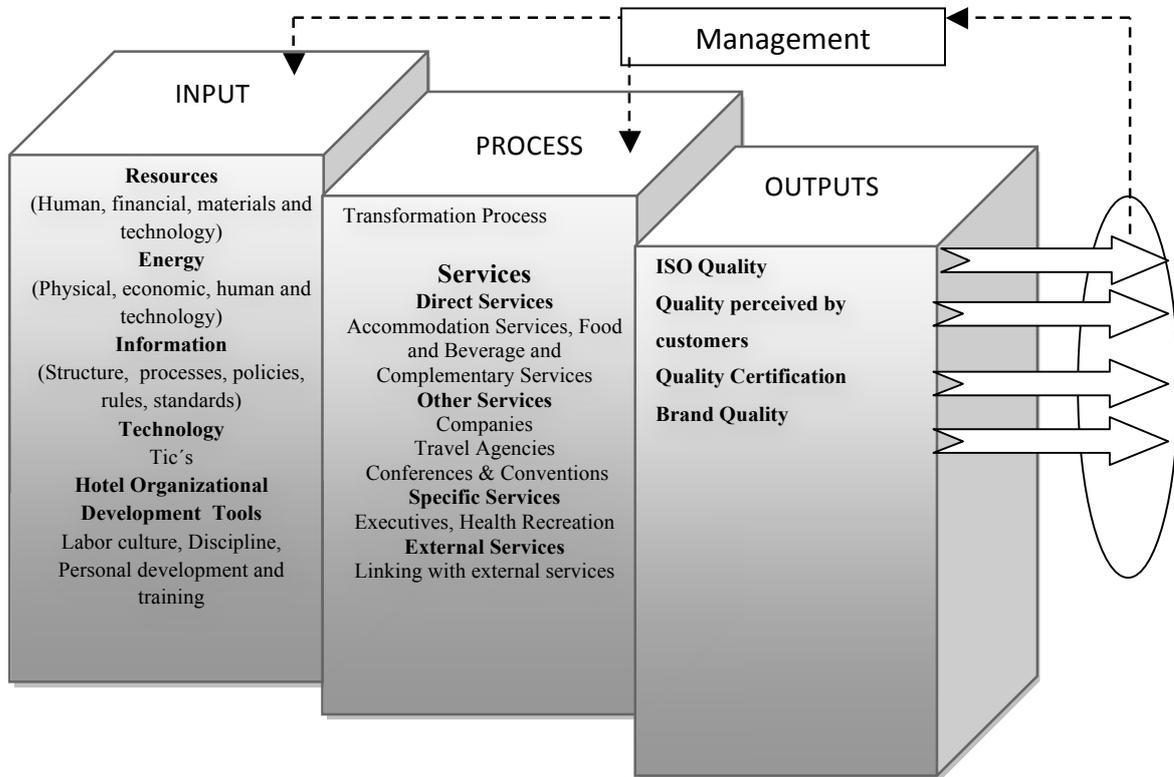
Source: Parasuraman et al (1988)

The SERVQUAL model in tourism has taken several forms as HOTELQUAL (Becerra, et al, 1999), LODGSERV (Knutson, et al, 1990) HOLSERV (Mei, et al., 1999), HOLSAT (Truong & Foster, 2005) Building different dimensions and expanding its applicability scope, reaching even to measure the satisfaction of a particular destination as in the case of HOLSAT.

Inaccuracies for using these models are externalized in the inefficiency of human resources, poor management of development, lack of planning and leadership for quality (Sebastianelli, Tamimi & 2003). What highlights the inefficiency of the hotel

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certification systems to deal with complexity, is due to they focus on the subjective perceptions of the evaluators to measure the regulations and expose the quality of services to this assessment within a static process that dependent on the generation and renewal regulations.



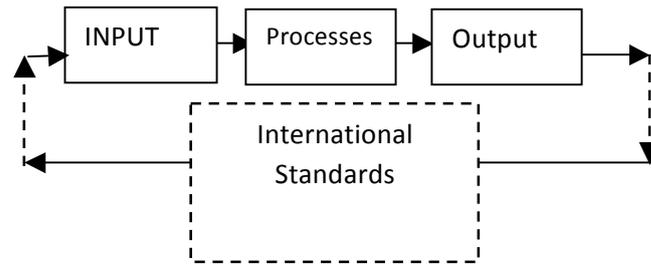
**Figure 2. Cybernetic model of multiple outlets in Hotel**

Source: own elaboration

The permanence of the Hotels in existing certification systems (ISO, The leaders Hotels of the world, Starwood AAA, etc.) Is compelling since it generates an expectation on consumers (travel agencies, transportation lines, etc.) serving as a parameter in the international market. However, certification systems register the production process, because they serve in determining outputs necessary, internal adjustments to restructuring changes in the inputs adapted to considerations of certification systems rather than their own internal system considerations (see figure 2), so that certification systems are the only supra-systems capable of dialing the directionality of quality management.

Hotel management system by coupling the production of services at different qualities, try to assemble a quality system that is alien, so it is necessary to foreground the internal dynamics of the organization and conduct certification systems to the reinforcement without the involvement of establishing the purpose of the production process, giving way to a quality system itself.

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**Figure 3. Cybernetic process of quality services**

The quality of services is a dynamic process through space-time dimensions, which involved a series of interrelated elements from a series of recursions comprise:

- The internal dynamics of the subsystem hotel
- Local regulations Tourism Minister (SECTUR)
- Regional Quality standards
- Local associations of quality
- The Mexican Official Standards Regulations
- The quality of corporate
- The Certifying Agencies
- International organizations
- International Standard Organization (ISO) Regulations

The multiple dimensions of quality are necessary to rethink the presentation of which cybernetic model should be able to adjust to changing demand, with the understanding that the demand is constantly evolving to fast-track degrees that the establishment of certification systems.

### Structure and flow of information in services

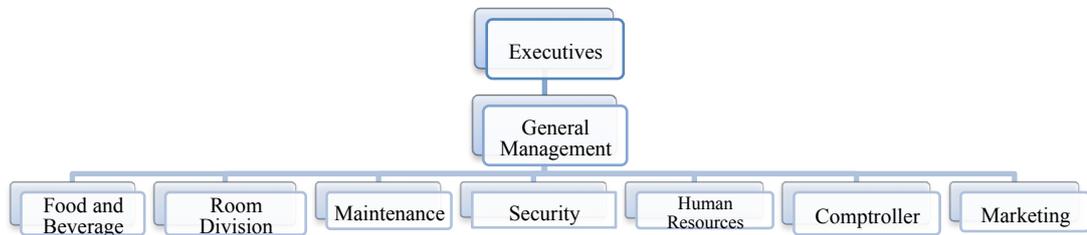
The information technologies (IT) have generated scenarios strangers in the hotel (Simon, Marques & Narangajavana, 2008), derived from direct contact with customers through the use of electronic systems (Schmidt, Cantalops & Dos Santos 2007), giving as resulted in the emergence of a globalized postmodern emerging tourist.

The generation of information systems affects the way they organize, operate and distribute the products and services in the tourism market, however these technologies have not fully envisioned the execution of plans and programs of purposeful systems, where information should be used not only to order the system but for direction, which involves balancing the interaction between human and technological systems since the existence of a unit of the first with the second unit has a service quality this relationship. Thus, the dysfunction of the use of electronic media, is the inability of management systems to keep pace with the acquisition of new technologies, due to seasonality in the administrative practices of services to systems integration marketing increasingly advanced.

Within any company there is an organizational structure that is necessary to achieve its objectives, in hotel structure it should allow the flow of information and resources. Managers should get more information and greater autonomy, which leads more easily to achieve the goals and objectives (Subramaniam, McManus & Mia, 2002).

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The flow of information can be used to solve specific problems in particular areas of services, (technical committee) or general problems of larger amplitude (executive committee), so allowing the flow of information upward, ie, stimulating problem solving and away from the frontline staff, as are those who know the changes that present demand, and the individual requirements of customers due to the hospitality industry involves a high degree of interaction between frontline employees and customers. (Karatepe & Hasan, 2007). The traditional service organization has the classic hierarchical structure of communication, designed to deal with the internal control leaving out the complexity of the system (see Figure 4).



**Figure 4. Typical hierarchy structure of a hotel.**

### **VIABLE SYSTEM MODEL AS A TOOL OF DIAGNOSTIC ON THE QUALITY OF HOSPITALITY SERVICES**

The viable systems model of cybernetics is based on the science of information and control of organizations. The information kills the variety and range reduction is one of the main technical regulation (Beer, 1980), while control is an attribute of a system concerning the connectivity (Beer, 1959) into a practical reality. The cybernetic machine (control-information) introduces a degree of order that eliminates the uncertainty where viable organization capable of maintaining a separate existence, although their existence should enjoy a certain autonomy (Beer, 1985), these considerations allow capture and describe the essence of the organization rather than its particular structure (Jackson, 1991).

#### **The organization model**

The flow of information on the quality of services is composed of a series of implicit functions in services (viable systems), whose implementation entail.

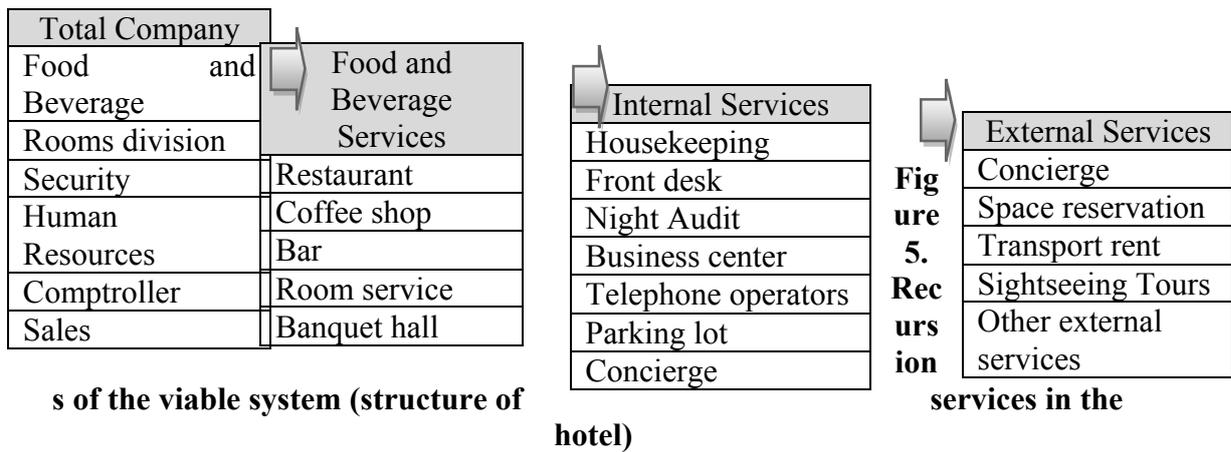
- 1) The production departments are responsible for the transformation of energy inputs consisting of information and its variations in quality of services consisting of the output.
- 2) The subsystems of marketing, sales and marketing shop, which provide the main link with the environment.
- 3) The maintenance and security subsystems as functions of maintenance, responsible for ensuring that the parts of the system remain within the system,
- 4) The sub-systems monitoring and adaptive management as subsystems
- 5) The executive committee and the steering system.

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### Resolution level: specification of the viable subsystems and the overall system to which they belongs

In this first phase are separated viable systems from those which are not. Service viable systems are integrated so that each dimension are recursive systems in the quality of services, self-reference which is based on roles in the firm and are the lower recursion viable systems that produce it (Tejeida et al,2010). The self-production of services is regenerated to maintain the identity of the quality of services provided by the hotel.

Viable systems are composed of food and beverage services belonging to the food and beverage management, internal departments involved in the sale of rooms belonging to the division management rooms and external linking services handled by the concierge department that converge on the core business of the firm that service is to serve a different nature in a process subject to improvement.

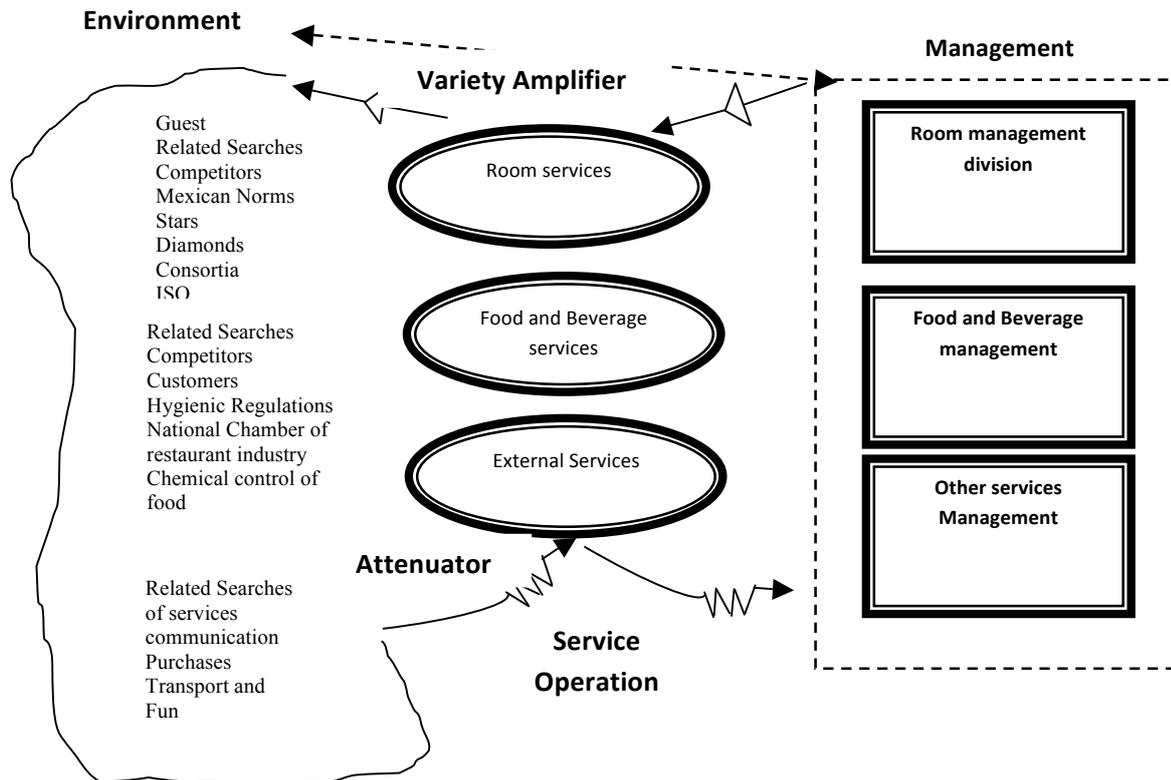


### Brief description of five viable sub-systems

#### *System 1*

The operational elements attached to the administrative approach, are that management has less variability than operations in the same manner in which transactions have less variability than the environment. Thus the basic axiom holds that the variety of the environment exceeds that of the operation it serves or operates, while the operation exceeds the range of management that regulates or controls (Beer, 1985). The system 1 is the definition of system operations approach, whose particularity is defined by the formation of viable systems in their own right.

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**Figure 6. The hotel system in its relations to the Operation Management**

### System one considerations

**Operation Amplifier-Environment.** This device increases the range of operations to match its complexity with the environment consisting of: a) obtain relevant customer information, b) identify changes needed in the design of services c) Recognize the value of quality customer d) find new mechanisms for coupling of services and) recognize service trends f) suggest changes in the suppliers of goods and external services, g) to suggest changes to normal services, h) search speed of response mechanisms, i) to implement elements continuous improvement, j) design a format to detect changes in quality and vulnerability.

**Management-Operation Amplifier.** This device increases the variety of management to match its complexity with the operation comprising: a) maximize the use of technology b) identification of policies, procedures, standards and appropriate standards of quality c) determine the quality of products and services provided by other companies, d) establish mechanisms for ongoing evaluation of services e) Create mechanisms intercom services, f) establish direct feedback to the operation of services

**Dimmer-Operation Environment.** This device reduces the variety of the environment to match its complexity with the operation comprising: a) Recognition of the expectation of the client, b) knowledge of tourist motivation, c) linking of previous experience,

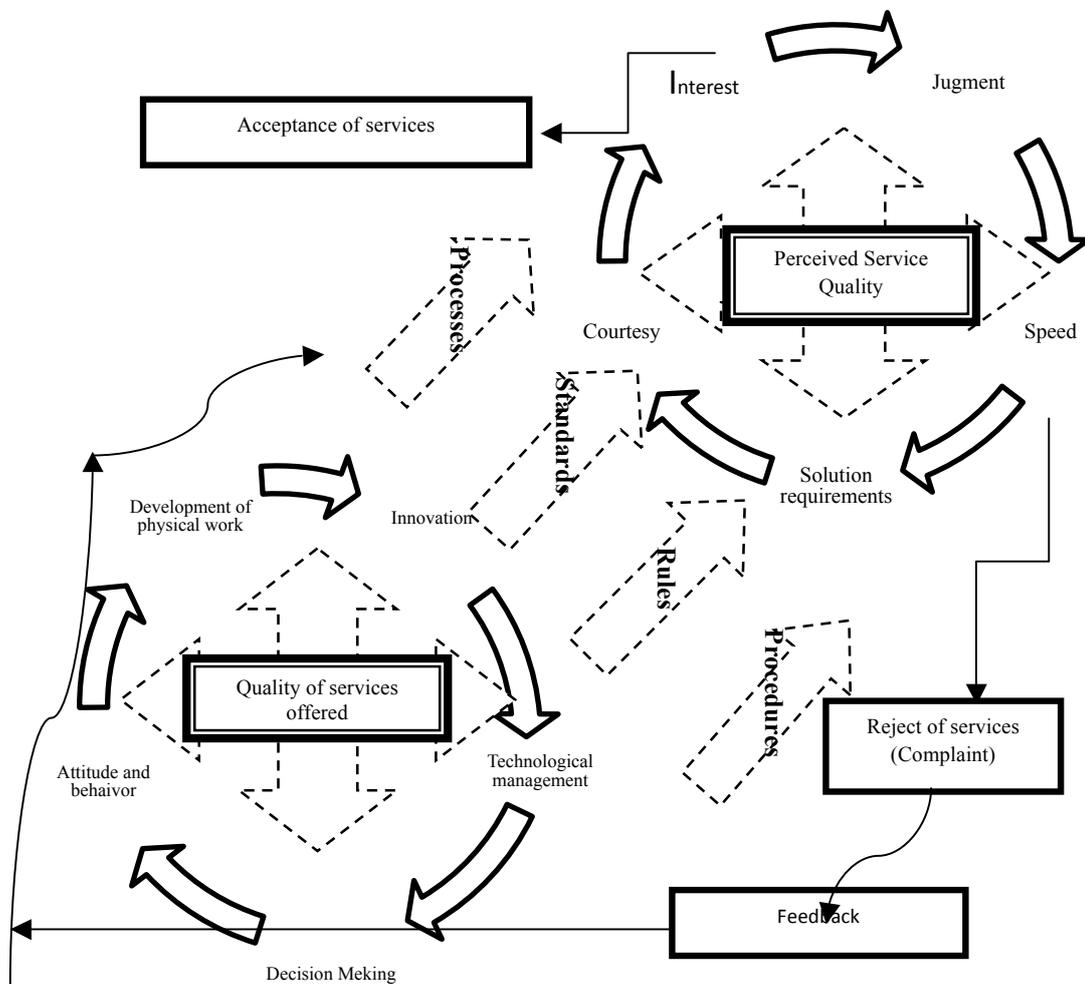
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interpretation of attitudes, d) recognition of evolutionary segments, f) technological prowess, g) benchmarking.

Attenuator Operation-Management. This device reduces the variety of the operation to a manageable size by management, comprising: a) analyze relevant information service b) Integrating quantitative and qualitative instruments in the performance of services, c) build an instrument to implement a failure analysis , to assess the quality within the cost-benefit ratio adjustment in the dimensions of services, c) rethinking the concepts and mechanism of quality audits, d) development of instruments for measuring responsiveness.

The design of the company's system uses a complex devices together so that the amplifiers and attenuators may be combined in different functions. Amplifiers are used to restore the conditions of variety and create conditions acceptable to regulate homeostasis. The attenuators are used to reduce the number of possible states leading to balance control functions.

### System 2

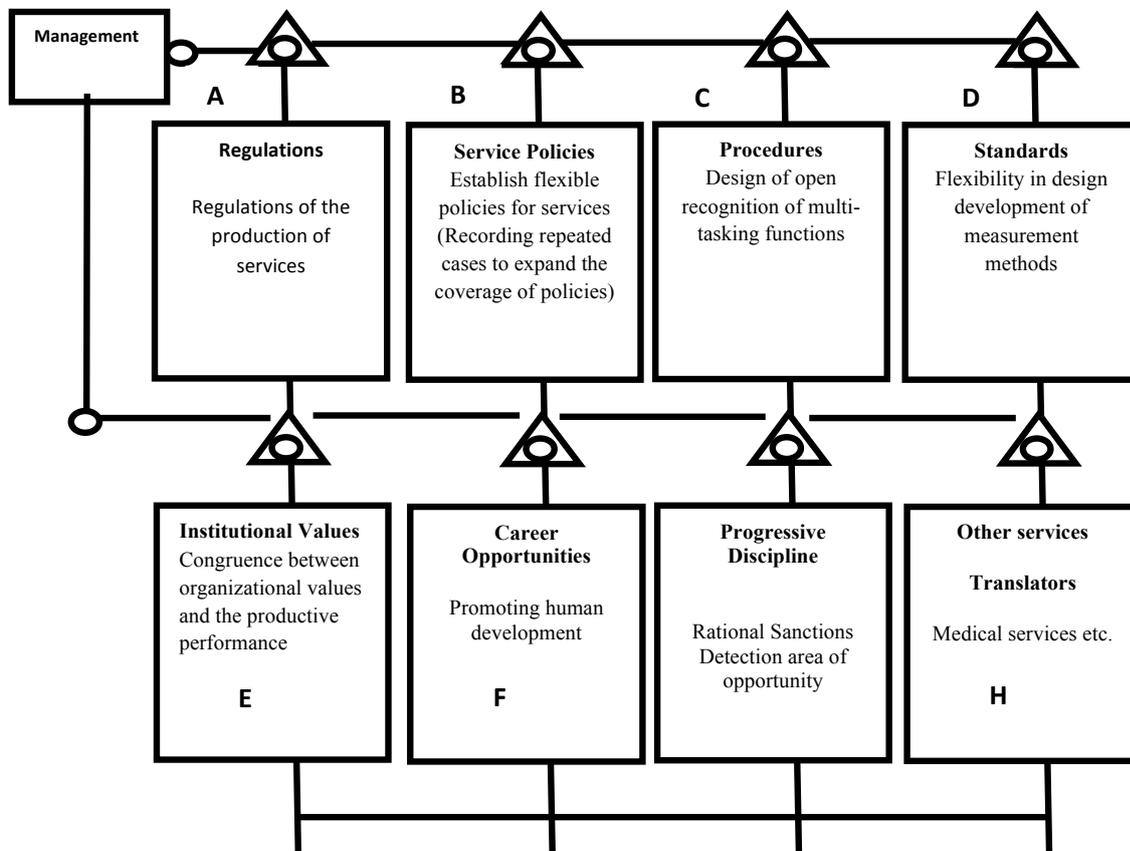


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**Figure 7. Client-hospitality service provider interaction and impact on the organization**

Employees have the option of delaying the processes, procedures, standards and policies, accelerate them or change them based on customer needs, according to their best order and responding to individual determinations of adequacy which is the level of response that employee has to the system, which determines the degree to which the system operates, customer trials are offset by the innovation of employees. This phenomenon occurs at different levels resulting from the acceptance that appropriate behaviors, which balances the entropy isomorphic behavior resulting from the inclusion of complaints, (see Figure 7).

System 2 in the system 1 is based on the policy flexibility to allow its application in particular cases of services since this distinction determines the degree of adaptability of the system. Moreover, the rule of the personnel actions should allow the development of human resources requires a capacity to deal with this complexity. The system serves to counter two oscillation of services through the creation of vertical channels that allow filtering management information services (see Figure 8).



**Figure 8. The two system means a system regulation.**

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### System 3

The system 3 is immediate internal functions of the company presented sporadically, according to the required system variety. It is responsible for monitoring and coordination of a system, which should define the level of performance in such a way that will provide management information on the behavior of the system.

The system 3 is defined through the following relationships. a) The hotel offers empowerment of authority to the operators to make spontaneous decisions that can be documented in a behavioral indicator. b) The financial dimension is controlled by an efficient management at the point of sale POS (Point of sales), while the above items a) and b) converge to c) PMS (Property Management System), which derives more weight in financial management rather than management services, which means the sale is always above the service. d) The role of market principles is integrated into the CRM (Customer relationship Management), linked to the flow of information on the use of e) ICT (electronic information systems). The above elements a), b), c), d), e), eventually associated with the quality of services.

Customization of services includes these functions from its entropy generation, as their effects are outweighed by the innovation of good policy, which must transcend the same way to these distinctions, so that the design of system 3 must promote the integration of homeostatic actions, using these resources, leading to redefine these functions within the context of service quality and bring them to adapt.

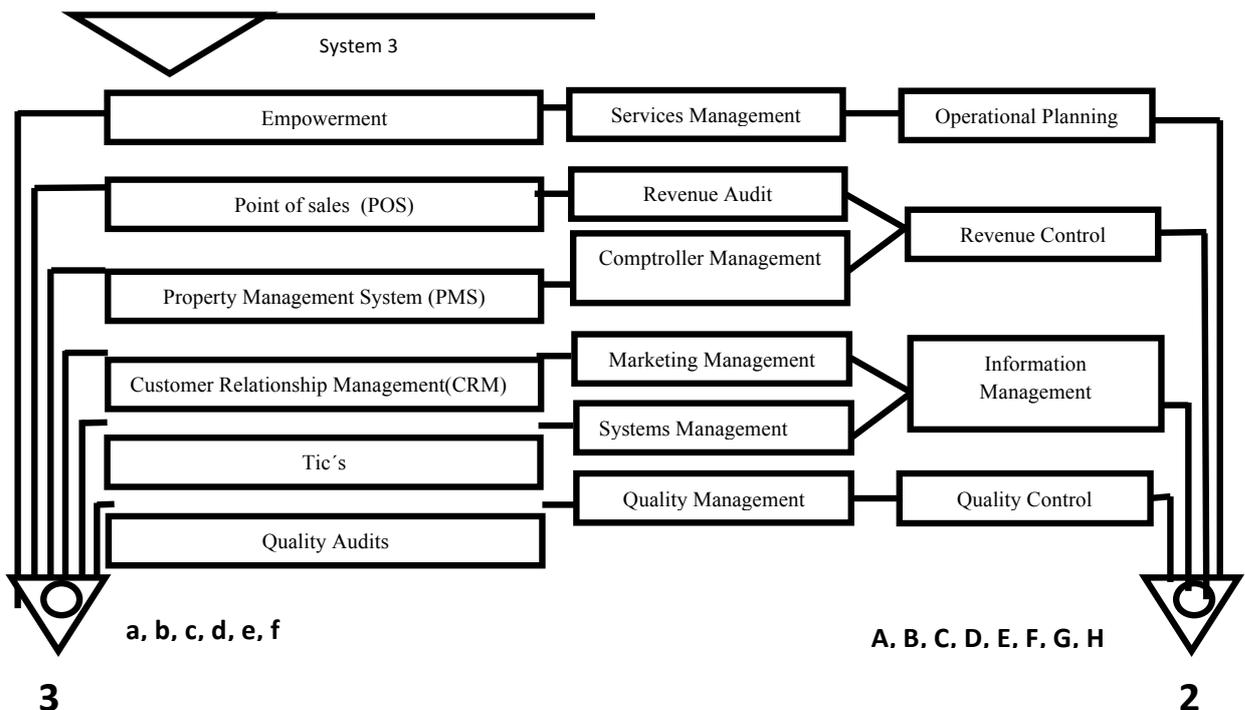


Figure 9 System three Definition

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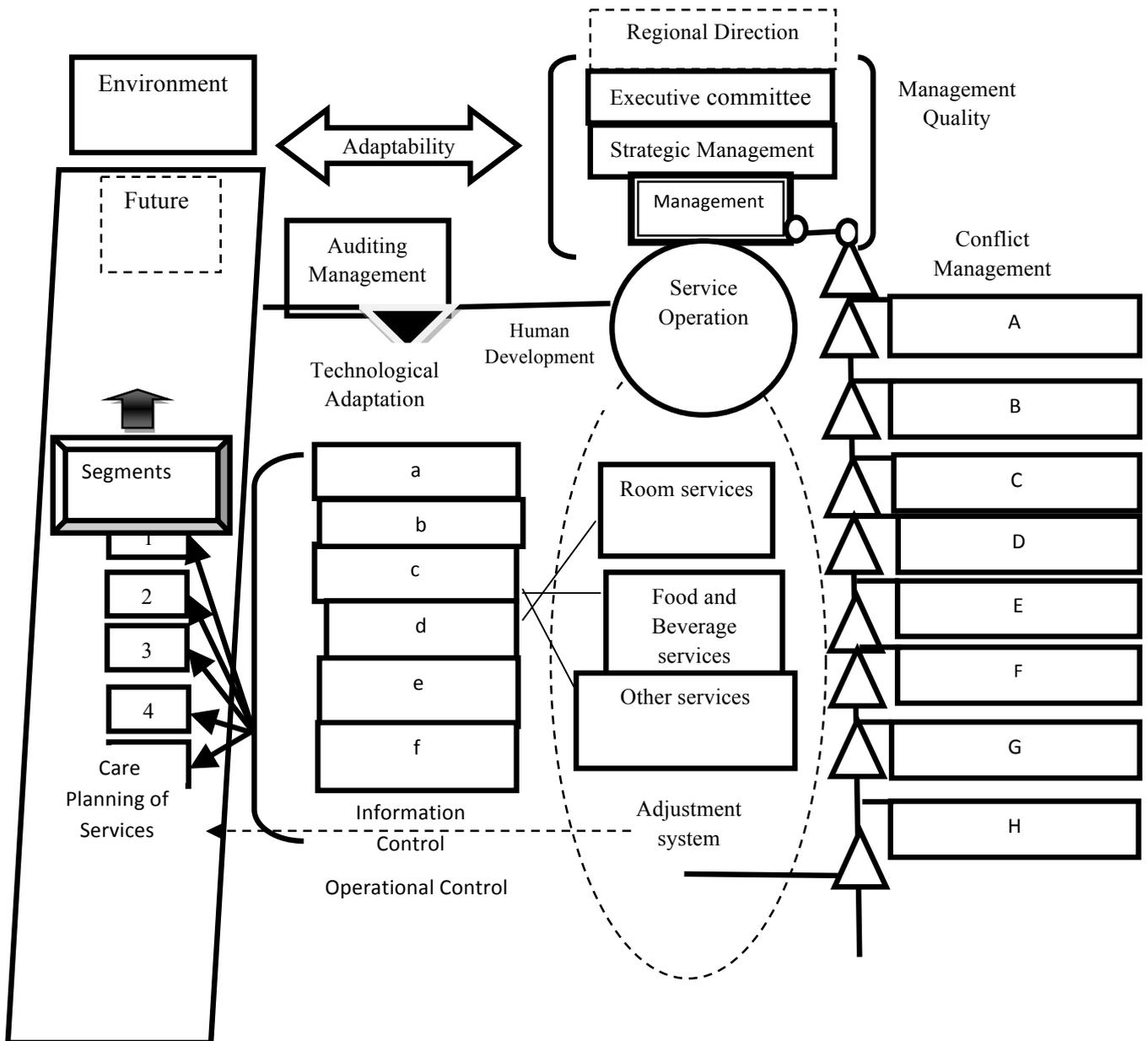
### *System 4*

4 The system is intended for the organization to collect all possible information of the total environment for the long-term strategic planning and ensure that the organization remains a viable system. Composed of air marketing, sales, marketing and PR shop. These functions, you should be able to detect relevant information and permeate to the focusing system allows the adaptability of the system 1 and the decomposition of 2-5 systems to the changing environment.

### *System 5*

The system 5 is responsible for the highest decisions of the system through the definition of identity and purpose of the organization, composed of board of directors, regional management or the executive committee within hotel companies for the purpose of organization revolves around the concepts of quality, so that the definition of identity must correspond to this force, since the functionality of 1-4 systems depend on identifying the proper system design based on its central purpose improve the quality of services.

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**Figure 10. Viable system of quality hotel services**

## CONCLUSIONS

Quality systems must start from the complex relationships between the environment, system and management approach that governs it, because the consideration of economic returns as indicators of the really helpful limits the evaluation of services within more performance indicators that show the levels of quality, indicating the occupancy rates, therefore, economic performance indicators should be contemplated in his relation to quality.

Certification schemes should be considered in designing the quality system as they play an important role in value added, however should not be the main reason for change

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because the system recognizes other factors that alter its internal workings, so certification systems that have feedback about change, because the purpose of system is to improve the quality of services and better meet certification standards.

The attenuation and amplification devices, highlight the complexity of regulation, where the quality system of services should be provided with new tools that foster a comprehensive understanding of the environment and efficient control mechanisms in management, the traditional thought structure hotel companies by hierarchies, is designed to prevent errors through direct supervision, but under this approach the operation of services can not get enough freedom to operate as a viable system.

A loaded system performance in the quality of services is subject to the above-systems which are 2-5 since joining the service definition and find the mechanisms of action that permit viability so that cause the least harm to the costs and people.

The review of the system 2 shows that the normalization neutralizes innovation in services stocks because in the traditional approach seeks to provide the system with mechanisms to keep it within certain limits of action, however it is achieved contain the same way human action and therefore the willingness to design and implement standard policies and procedures rules, flexible action in the quality of services because they extend the range of participation and thereby the potential a better answer. The system 3 outlines the failings in the amount of information, ie human resource is given to a minimum level of information to mitigate the adverse actions responsive, while its design reflects the importance of the business coordination, so its application to quality system diverges in separate functions. Perhaps making an order, however viable system development requires a more dynamic intercom, where the operation of services should seek to summarize and classify order to control a higher degree of information with the intent of self-directed and that only when information is acquired larger and not equal to the degree of disorder of the system will tend to develop.

4 The system must maintain a close connection with the operation of services, and to be able to detect the appropriate information from the current and future environment, combining what they really are separate functions (buying public relations and marketing) in integrated features to improve the quality services.

Finally for the system 5 to create mechanisms of control over the fulfillment of the functions of the 2-4 and its impact on the system 1 through the detection of compliance in the organization's purpose, identity and integration as it means to design, implement and evaluate new administrative tools that may be able to cope with complexity.

Therefore the viable systems model applied to hotel highlights the gap between the traditional approach of operation and design of business services through the search for sustainability in a relational analysis of the parties and the whole.

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