

A FRAMEWORK FOR ANALYZING TECHNOLOGY AND STRUCTURE IN THE LODGING INDUSTRY

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This article aims to add to our understanding of lodging management from an organization theory perspective. In an attempt to link the principal dimensions of a lodging organization's configuration, the interrelationships between technology and structure are examined from a conceptual viewpoint adapted from a sociological perspective on service technology and organization structure. The focus of this effort will be on offering a framework for the analysis of hotel service technology and its relationship to optimal structural configurations for better management.

Keywords: service technology, organization structure, lodging industry

INTRODUCTION

A lot of attention has been given of late to understanding the functioning of service businesses from an organizational point of view. The industries that have been the focus of attention have mainly included hospitals (Mills and Margulies, 1980) banks (Schneider, 1980) and, in some cases, foodservice operations (Levitt, 1972). In this paper we propose to look at the lodging industry as a special case of service businesses.

A hotel is different from other service industries. Unlike a bank or insurance company it operates twenty-four hours. It is as complex a unit as a hospital, but unlike a hospital it does not deal with a selected target clientele, such as hospital patients whose needs are prescribed. The hotel carries with it a huge volume of transactions handled by a large workforce in various physical locations. The same workforce is also involved in a good deal of customer interaction. For these reasons, in addition to basic operational differences, hotels are unlike other service businesses. Thus, the knowledge derived from the analysis of service businesses needs to be applied selectively and may require modifications to suit the industry's special characteristics.

In the sections to follow we will briefly touch upon some of the major theoretical and empirical works, with regard to the notions of technology and structure, that have their roots in the organization theory literature. The applicability of the existing concepts is discussed from the perspective of service organizations in general. A conceptual framework for the analysis of technology and structure, from a lodging industry standpoint, is proposed.

TECHNOLOGY AND THE LODGING INDUSTRY

In most organizational studies, technology refers to the mechanisms or processes by which an organization turns out its products and services. Thus, some researchers have found in this definition scope to treat technology as a factor to be identified and controlled. There is a vast difference between products and services when it comes to the process employed to convert raw material to outputs. In a service industry like lodging, the input, process and the output all deal with living human beings and, apart from providing a service, handles the subjective state of the being. Some researchers (Perrow, 1967; Thompson, 1967) have labelled service technology as knowledge technology, since the employee interacting with the customer carries the knowledge to solve the

customer's problem. They carry with them unique methods to solve novel situations (Terre berry, 1968). Often this entails a good deal of information processing activity and, in some cases, involvement of the client in the production process.

In the case of the lodging industry, with the guest being the input, throughput and output, heterogeneity and unpredictability is inevitable in the organizations workflow. The guest inflow into the system is not steady. As input materials, they are sensitive and reactive. They also have a right to withdraw from the process they participate in voluntarily. All these aspects increase uncertainty and, as such, organization theory research suggests that uncertainty is detrimental to organizational performance.

Among the many classical technological orientations taken for organizations by researchers (Woodward, 1965; Thompson, 1967; Perrow. 1967; Hall, Haas and Johnson, 1967; Hage and Aiken, 1969; Mills and Margulies, 1980), Thompson's seems to come close to understanding the lodging industry. Thompson identified, based on the core technology of organizations, three basic forms: (i) long-linked technology based on a process that is sequential in its orientation such as an assembly line; (ii) mediating technology in relation to providing the link between two independent units such as the borrower and depositor in a bank; and (iii) intensive technology involving multiple operations in a single transformation such as in a hospital. These forms can be applied, in their broadest sense, to the lodging industry. A full service hotel seems to relate to the notion of intensive technology as opposed to a motel or limited service hotel which would be more appropriately categorized under long-linked technology.

Of late, in some lodging units, we are seeing an effort aimed at reducing the 'intensiveness' of the technology by using a 'task-force' orientation. Services such as security, conference arrangements, equipment hire etc. are being contracted out to independent contractors who, in turn, make them available to guests as and when required. In this case, the management intensity is reduced although the range of services provided remains the same.

Perrow's (1967) approach to technology in the form of routine vs non routine activities or Hage and Aiken's (1969) approach in the form of routineness does not fit much with lodging organizations because, as a basis, minimal scope exists to accommodate hotels/motels at different ends of a routineness continuum as they suggest. Thus, in summary, technological frameworks prevalent in organizational theory literature, although providing some applicability, do not adequately serve our purpose.

STRUCTURE AND THE LODGING INDUSTRY

Structure, in organizational theory literature, refers to the properties internal to the organization such as locus of authority, levels of hierarchy, line control of work flow and so on. Burns and Stalker (1961) proposed a framework within which structure was related to technology at the organizational level. They developed a continuum with two ideal types of organization at either end. The 'mechanistic' organization (akin to Weber's bureaucratic organization) is characterized by a high degree of specialization, division of labor, structured hierarchical control, vertical communication, centralized authority and low autonomy. In the 'organic' organization type on the other hand, the task differentiation is less strict, the hierarchy less clear, more lateral communication and a relatively higher degree of autonomy. They went further to accommodate the environment by positing that mechanistic organizations are suited to stable organizational environments while dynamic environments would require an organic structure to effectively adapt to the changes.

Thompson (1967), in discussing organizations, sought to expose the limited applicability of the closed or rational organizational approaches to understanding organizations. In advocating the open or natural system approach, Thompson stresses the need for organizations to align themselves to the environmental influences that they are required to deal with. In this process of 'co-alignment' an open system approach is similar to the organic framework advocated by Burns and Stalker (1961). Lawrence and Lorsch (1967) in their study of firms in three industries looked at structure from another dimension. They sought to determine the degree of differentiation and integration among firms in the same industry based on their performance. They found that high-performing firms faced with a relatively uncertain environment tended to have greater differentiation and integration as compared to low-performing firms in the same situation.

In the context of the lodging industry, the notion of structure, as it exists, cannot be applied unilaterally. Hotels and motels operate in a dynamic, complex and illiberal environment (Slattery and Olsen, 1984). Based on this, an organic structure would seem most appropriate. Following Thompson's discussion, although the 'exposed' structure of the hotel may need to be organic (input and output activities), the technological core needs to be protected from fluctuations that may impair its functioning. To this extent, the operating core of the hotel, or its service delivery system, may need to adopt a mechanistic structure in order to function efficiently. In attempting to do this, the organization—client interface, at all three levels of the system (input, throughput and output) creates a unique situation that needs to be dealt with.

Lodging units, especially full service hotels, will often offer a wide range of services to cater to all the possible requirements its guests may have. In this process, to manage effectively the quality and uniformity of these services, a highly structured organization may be required. Multiple hierarchical organizations, high degree of differentiation and fairly complex rules, regulations, policies and procedures may be called for. It seems apparent that the nature of the structure is dependent on the process rather than the environment. In their study, Lawrence and Lorsch (1967) found that the higher the differentiation, the higher the integration required by the active involvement of integrating units. To some extent, this again is rather necessary in full service hotels which, for operational efficiency, claim differentiation.

Lodging organizations thus seem to fit different theoretical orientations. Some are mechanistic and others organic in spite of serving similar markets and providing comparable services. In some hotels there is a great deal of communication and transference of resources between departments in times of need. Organizational structures in terms of complexity often vary between organizations of similar size and mission. Formalization and centralization can be found to vary in organizations competing for the same business. It seems apparent, then, that the existing frameworks are insufficient in their applicability to service businesses in general and lodging organizations in particular.

THE LODGING INDUSTRY: A FRAMEWORK FOR ANALYSIS

Some organization researchers have called service organization 'people molding organizations' (Katz and Kahn, 1966). In the case of the lodging unit, the hotel has no authority of knowledge over its customers and no source of power independent of its customers. The main justification for its existence lies in providing a required and expected service to its guests. Thus it is the customers' status and control that determine the management control and staff activities. Given this situation, hotels predetermine, to a great extent, their technology and structure by defining the client base that they want to service. The rational client would look at the hotel's offering from a price-value perception and determine his or her consumption or repeat purchase. Therefore, an approach to developing a technology framework will essentially have to relate to the position of the organization vis-a-vis its client base and service level.

The technological dimensions, as far as the lodging industry is concerned, can be viewed from a service perspective along two dimensions, viz. diversity and complexity. Diversity refers to the number of different service units that exist. Complexity refers to the degree and nature of interrelationships that exist between these sub units. Figure 1 represents a two dimensional technological matrix that can be used to 'map' the location of service businesses. The four quadrants represent varying combinations of service complexity and diversity that are associated with different services. Four types of lodging units, and their hypothetical position on the matrix, are presented in the figure to illustrate these differences.

The application of this framework from a lodging industry perspective can be illustrated as follows. A basic motel is characterized by a limited number of service sub-units. Specifically, a rooms-only operation may have a rooms department with skeletal housekeeping, maintenance and book keeping support. Also, the relationship between these departments is likely to be linear and simple. In the case of a full service hotel, however, the number of service sub-units increase manifold. The basic departments of rooms and food and beverage are supported in addition by other services such as laundry, valet, business services, recreation and travel. In the latter case, the interrelationships between these sub-units, in attempting to provide a total service to the client, increase in geometric progression. Hence, diversity and complexity are both increased. In the case of primarily conference hotels, the diversity in terms of the number of different services is very high, though complexity is reduced by the minimal interaction between the services especially in situations where the conference operation functions with autonomous reception and food and beverage operations. For all suite hotels, on the other hand, the services provided are fewer and focused on a narrowly defined customer segment. In this process, the interrelationships between the service sub-units of the hotel is very high and closely orchestrated to provide 'total' service to its more affluent and discriminating customer. While this represents a lower level of service diversity, the high complexity requires a closely coordinated structure.

Given the two dimension orientation of technology above, and given the customer orientation lodging organizations need to adopt, they operate under two uncertainties at the process level, viz. task and work flow uncertainty (Mills and Moberg, 1982). Work flow uncertainty is defined as the uncertainty of input (client) arrival into the system. Task uncertainty is caused by the client interaction in the process.

This has technological implications with respect to the degree of complication introduced in the process. In lodging organizations, work flow uncertainty is generally high irrespective of the level of service provided. However, efforts are constantly

made to reduce this uncertainty. It is in the methods of uncertainty reduction that lodging units at different complexity-diversity levels differ.

Drawing from Thompson's (1967) notion of sealing off the technical core, a variety of methods can be used. Workflow uncertainty can be reduced by levelling (reservations), buffering (overbooking) and smoothing (peak-load pricing) to control the timing and quantity of input (client) flow into the system. Other methods of sealing or protecting the technical core are to: anticipate environmental changes and prepare oneself as in the case of forecasting based on history and current trends; and finally, rationing input when demand is more than lodging operation can handle, by way of wait-listing reservations, is a means employed to selectively stagger inputs.

In a lodging unit with low diversity and complexity, effective use of these techniques are limited by a lack of flexibility due to the constraints of resources and the client base serviced. A move to tie up with a reservation/referral network often results in a reduction of uncertainty offset by a cost by way of the fee.

As far as task uncertainty is concerned, Mills and Moberg (1982) suggest two methods to reduce it. One method is client selection and socialization, i.e. exclusion of those with unique problems from the system. Another is routinization of the conversion process, i.e. not allowing for any variety in the product offering in the form of standardization. From a lodging industry perspective, these uncertainty reduction methods are more feasible for units that have low diversity and complexity. Such operations can follow a policy of allowing no customers without reservations, allowing no changes once a reservation is made, and not providing any additional services that a client may need. This involves reducing the client to a symbol which is, at best, being processed rather than being changed. A full service hotel, on the other hand, will find such methods for the reduction of uncertainty affecting its very mission aimed at providing services required by the customer and offering flexibility in delivery.

A highly diverse and complex operation, being highly people-related, requires an organic orientation with the process being very flexible. This requires building a sufficient repertoire of possible service offerings in as many combinations to cover a wide range of needs. An operation with low complexity and diversity could adopt a more mechanistic orientation with the process relating more to control than people and of a somewhat long linked service technology type.

Based on the dimensions of technology discussed above, a structural framework for analyzing lodging organizations from an integrated systems perspective can be developed. Mills and Margulies (1980), in developing a typology of service organizations,

proposed three categories: maintenance interactive; task interactive; and personnel interactive. Taking a customer orientation, as is the approach in this paper, they suggested that organizations like banks and insurance companies belong to the maintenance interactive type of organizations. This implies a cosmetic continuous interaction between the employee and customer projecting an image of consistency with high routinization. Task interactive organizations like advertising and engineering firms focus on problem solving. The emphasis is not so much on what the customer wants but how to accomplish what he wants. Finally, in the personnel interactive type of service organizations there is a continuous in-depth interaction. As in the case of schools, professional services and the like, the interaction focuses on the improvement of the customers' intrinsic and intimate well-being. An analysis of this typology, from a lodging industry perspective, has limited applicability. The nature of the lodging business, a special case among service industries, warrants a modified treatment from the one proposed by Mills and Margulies (1980) as illustrated in the following section.

Using the framework described above, we propose to redefine the Mills and Margulies three interactive type orientation as process interactive and people interactive types. The process interactive type refers to organizations based in a customer relationship and resulting structural orientation where the objective is to process rather than to service. A second type, the people interactive lodging organizations, with accompanying high levels of technological diversity and complexity and their mission directed towards full service and flexibility, are placed at the other end of the structural continuum.

The framework as outlined in Fig. 2 presents this intrinsic differentiation in the various structural dimensions between a process and people interactive lodging organization. At the input level, the two major dimensions identified are information and customization. In a process interactive lodging type, the information is basic and relates to the transaction: dates, rates and mode of payment. In a people interactive organization, the effort is to obtain information, both in quantity and quality, with the aim to customize the services (choice of room) to a specific type of client (FIT, Group etc.).

At the process level, the transformation in process related organizations is simple and involves a brief employee-customer interface by way of direct contact. Also, the problem solving situations and the available permutations of a particular problem type are relatively few. In a people related operation, the power and control of employees is high requiring a higher level of socialization of the client to the product offering. The nature of decision making in a people interactive lodging operation is highly interrelated, complex and thus has multiple consequences.

At the output level, the transaction in a process related organization type is rather short and the attachment the organization forms with the client tends to be short term. In the case of a people interactive operation, the transaction is multiple, includes different service sub-units and the focus of the relationship is longer term with a view to building repeat business.

SUMMARY AND CONCLUSION

The foregoing discussion and analysis has attempted to outline the limitation of the concepts present in current organization theory literature in dealing with technology and structure as it applies to service industries in general and the lodging industry in particular. In synthesizing the relevant theoretical aspects of technology and structure, an effort was made to refine the notions as they exist and customize them to a specific industry setting. In this process a framework for the analysis for technology and structure in the lodging industry was presented.

It is hoped that the above conceptual orientation and analysis will enable researchers and practitioners to view lodging organizations within the context of the technological framework and thus derive appropriate structural qualities. This approach would facilitate a streamlining of the product and service offering in a manner more suited to finding a niche. In this process the nebulous orientation that is prevalent today, as is evident from the proliferating variety of product offering, can be reworked to allow lodging operations to claiming differentiation based on a well-conceived and integrated service strategy.

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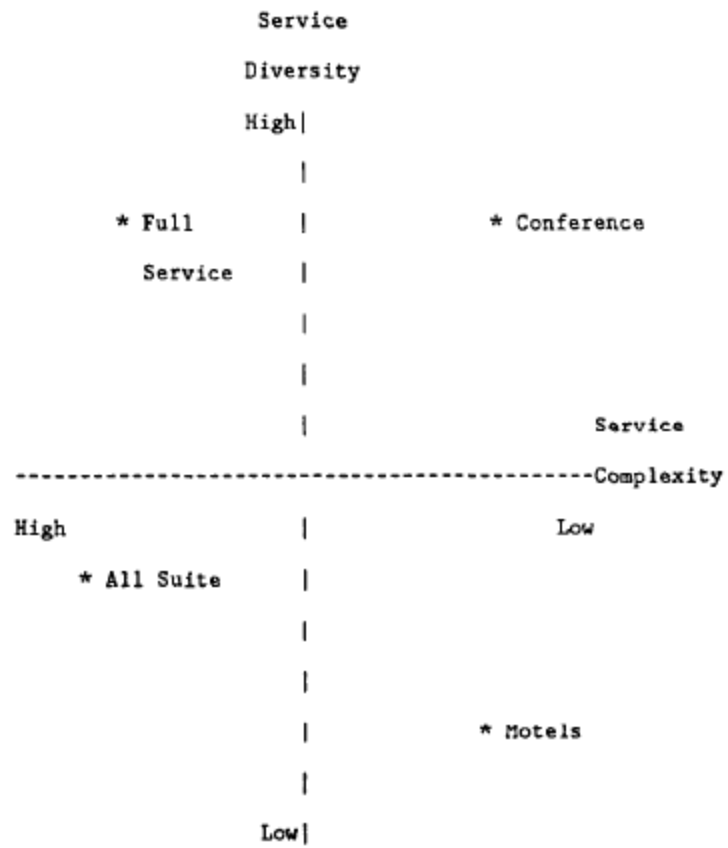


Figure 1. Dimensions of service technology: a lodging industry perspective.

DIMENSIONS	PROCESS	PEOPLE
-----	INTERACTIVE	INTERACTIVE
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Input		
- Information	Quantity	Quantity & Quality
- Customization	Low	High
Process		
- Transformation	Simple	Complex
- Problem Solving	Basic	Diverse
- Socialization	Minimum	Maximum
- Decision Making	Linear	Inter-related
Output		
- Transaction	Simple	Multiple
- Attachment	Short-term	Long-term

Adapted from Mills and Margulies, 1980.

Figure 2. Dimensions of service structure: an integrated systems perspective.