SERVICE FACTORY: STRATEGIC MARKETING PLANNING IMPLICATIONS FOR THE SMALL MANUFACTURING MANAGER

John A. Vassar, Louisiana State University in Shreveport Binshan Lin, Louisiana State University in Shreveport Christopher L. Martin, Louisiana State University in Shreveport

ABSTRACT

The small manufacturer increasingly finds that its environment is becoming more turbulent. Recently, larger manufacturers have adopted the service factory concept into their operations; it is thought that small manufacturers should follow their lead and use the service factory concept as another competitive weapon. This concept emphasizes that the factory should offer a range of ser- vices as well as goods. This paper presents the strategic marketing planning process as a useful framework for the small manufacturer to use so that these services may receive a central focus.

INTRODUCTION

To succeed in the manufacturing arena today requires a more sophisticated analysis of the market. Traditionally manufacturers, whether small or large, have focused their primary attention on the internal operations of the firm. They have based their success upon achieving high levels of internal operational efficiencies. Efforts in this direction include steps by the small manufacturing firm to expand output by changing the production processes, modification of equipment, and installation of new methods to maintain control of quality. Recently, however, the "rules of the game" have changed and success must be based upon factors other than efficiency. Efficiency is still important, but there is an additional requirement to consider the service component as a prerequisite for success. The service factory concept is offered as a means for assisting the small manufacturing firm in becoming more competitive in their increasingly harsh environment.

Small manufacturing firms that succeed in the future will compete by bundling services with products, anticipating and responding to a comprehensive range of customer needs. Manufacturing firms become more competitive by employing a broader range of services by factory personnel and facilities [1]. Manufacturing firms now respond much like a professional service industry, customizing its products to the preferences of a special market segment [2]. An increasing emphasis on the service factory should result in the small manufacturing firm to

consider the advantages of this concept. Three major factors have spurred interest in this concept. First, the economy has shifted from an industrial to a post- industrial service economy [2]. Second, the service industry can serve as a role model for the small manufacturing firm. Third, service has emerged as a crucial strategic weapon in the manufac- turing environment. The purpose of this paper is to investigate the following three significant implications of the service factory for the small manufacturing operator:

- The service factory is strategic in nature. - The dimensions and attributes of the service factory should be addressed. - Marketing aspects should be included.

The paper begins with a literature review in service and service operations. A strategic perspective of the service operations is discussed. Next, a strategic framework for developing the service factory is then suggested. Marketing concerns and considerations of the service factory are addressed for the small manufacturing managers.

SERVICES, SERVICE OPERATIONS, AND THE SERVICE FACTORY

Services can be defined as economic activities that produce time, place, form, or psychological utilities. Service operations process refers to how a service is provided or delivered to a customer. Studies have led to wide distinctions between service operations and manufacturing operations: differences in the nature of outputs and differences in the underlying production processes [3]. The intangibility of services, simultaneous production and consumption, labor intensity, customer service specialization, perishability, and direct customer involvement, are some of the challenging issues that have impeded the development of a comprehensive theory base for the service operations.

The majority of research in the service field has shown diversity in the conceptualization of service. For instance, marketers focus on the intangible nature of service [4]. Services can be characterized by both palpable and mental intangibility. Economists have viewed services from both the demand and supply side.

They view the customer as one who buys a service, with the level of tangibility of the firm's output as not being particularly relevant.

For services, the process and output of the system are closely related. The design, process, and personal sales activities of a service are bound together into which is referred to a the "service package." [5]. Based on this system view of service, an important input to the service process is the design of the service package. The service package incudes specifications on the facility where the service will be provided, designations of any goods that are necessary in

providing the service, and descriptions of the physical and mental services to be provided for the customers, The role to the operations manager is to monitor and control the service process based on the feedback from the system to ensure that the perceived needs of the customer and service personnel are being met.

The idea of the service factory emphasizes two characteristics: (1) the factory provides a range of services as well as goods, with an emphasis on a combination of the two, and (2) the factory is managed so that these services are a central focus [6]. The concept of service has broadened to include both breadth of product offerings and the ability to customize to meet specific needs. Thus, the concept of the service holds a great deal of potential in the development of a small manufacturing strategy which is successful.

STRATEGIC PERSPECTIVES

One approach to service operations involves a strategic view of the service system. Heskett [7] suggests a strategic service vision in which four basic strategic elements are a strategic service vision in which four basic strategic elements are included. These elements are: (1) target market segments, (2) service concept, (3) operations strategy, and (4) service delivery system. Determining target market segments involve identifying common characteristics of the market, important needs of the market, and strengths of existing competitors. The service concept consists of establishing perceptions and expectations of the service itself in the minds of the customers, employees, shareholders, and investors.

Operations strategy is the recognition of the important role of operations in organizational success and the involvement of operations managers in the organization's strategic planning. There are four levels in the evolution of operations strategy [8]. These levels are: (1) no involvement, (2) industry current, (3) organizationally supportive, and (4) initiates competitive advantage.

The basic objective of the service advantage is to reach level four of the operations strategy. At this level, operations can be a genuine competitive weapon. Operations departments develop strategic concepts themselves. With the use of new technologies, operations management becomes a major force in the overall organizational strategic planning. The service system should be established by determining the role of human versus technology; specifying the equipment, layout, and procedures to be used in providing the service; and maintaining quality and delivery standards. As a result, these decision and their integration are a strategic service vision that should prove profitable to the service provider and valuable to the customer.

The service factory can be viewed as a new direction in the strategic for the small manufacturing firm. Manufacturing strategy has received increased attention in recent years as an important element in a firm's attempt to gain competitive advantage in the marketplace. Manufacturing strategy determines how manufacturing is going to reach its objectives.

While manufacturing strategy theory is only now evolving, its major components have been identified by operations management researchers. In manufacturing strategy literature there is a tendency to identify four elements of an effective manufacturing strategy. They are (1) cost, (2) quality, (3) flexibility, and (4) dependability [9,10]. Each of these competitive dimensions is the result of a number of contributing variables such as economies of scale, economies of scope, learning, inventory policies, and capacity planning.

The concept of a well-performing factory has evolved over time. Traditionally, the emphasis has been on material transformation and the production of tangible products. A well-performing factory was one that accomplished these transformations at low cost, and with high quality. A strategic focus on quality has been widely accepted as a cornerstone of factory strategy [11]. It follows that services must be tailored to accommodate key operational considerations. All factory managers are faced with the questions of which operational aspects to focus on and which to reduce control over.

Attention has shifted to flexibility: the range of transformations or products that the factory can accommodate, and the speed with which changes be made. Hayes and Wheelright [8] suggest that the development of flexibility could represent a "third dimension" of the product process matrix. This dimension would represent increased overall effectiveness without a major change in the basic match between product life cycle and process life cycle.

Although flexibly-integrated processing technologies allow greater responsiveness to markets and give companies potentially greater leverage with components suppliers, they tend to be adopted as part of some overall strategy for business units. De- Meyer, et. al. [12] report that both European and North American factories emphasize quality in their competitive strategies, while the Japanese rate low prices as number one in the futures survey. In their action plans, only the Japanese rate flexibility first, while North American firms are investing in statistical process control and zero defect programs consistent with their emphasis on quality,

The service factory presents the fifth element: service, defined as some combination of information, problem-solving, sales, and support, [6]. Chase and Garvin [1] demonstrate the multi-functional nature of producing service enhanced manufac- tured products and provides a strong argument for the importance of considering service and product together. The

managers of service factories assume that their organization is an open system and that the need exists for more direct and accessible connections to design, marketing, strategic planning, and their customers.

THE STRATEGIC FRAMEWORK FOR SERVICE FACTORY

The characteristics of the service factory can be depicted on two dimensions: (1) the production specific dimension, and the (2) service specific dimension.

The Production Specific Dimension

The production process is a crucial element in the small manufacturing firm. Systems are designed to allow the small manufacturing firm to reduce costs and increase the efficiency of their operations because they can bring about better materials management, smoother customer relationships, tighter control over finances, and greater overall planning for the future of the firm [13]. All of these improvements are desirable with the primary driving force for these systems design change being related to efficiency of the firm. Experts predict that new technology, as it develops, will create new uses and applications for small manufacturers. For example, with CADCAM(computer-aided design/computeraided manufacturing) and the development of a common database and three dimensional graphics, small manufac- turers will be able to apply these technologies to materials handling, automatic assembly, new product innovation, and office automation. [14]. In addition, small manufacturing firms are also buying industrial robots in order to compete with larger firms [15]. These examples demonstrate the rapid changes that are occurring in small manufacturing firms relative to this production specific dimension.

The production specific dimension can be represented using three elements. The first element is the decision units in the process. Small manufacturing operators should primarily consider the use of a rational decision process in developing their strategies. Hayes and Wheelwright [8] classify manufacturing strategy decisions variables into the following eight units: capacity, facilities, technology, vertical integration, workforce, quality, manufacturing planning and control systems, and organization. These categories suggest a clear linkage between manufacturing and corporate strategy. A composite review of Ward et. al., [16] yields the ten decision units: the eight units from Hayes and Wheelwright [8], the fit between product and process and their lifecycles, and performance measures. The service factory should be integrated into each decision unit to enhance the process of the production dimension.

The second element is the degree of interdependence among the decision units. Managers should monitor the external environment for changes that may prompt the necessity for a

modification of the production specific dimension. A good fit among these decision units is the result of a manufacturer having developed not only a coherent service factory strategy but also an organizational infrastructure to support its manufacturing process.

The third element is the strategic resource available in the process. The service factory is a resource-based strategy. Accordingly, the role of manufacturing management encompasses the central task of obtaining maximum efficiency in gathering, maintaining, safeguarding, employing, and communicating its re- source to meet the resource requirements, and ultimately assisting the organization in achieving its mission and goals. Moreover, the state of a company's support is closely related to its stage of the service factory development. Thus, the central role of the manager is a kind of a facilitator and an element of both stability and organization for the firm and the individuals within it.

The Service Specific Dimension

A well-functioning service factory is one that does a good job across a wide range of services and provides a high level of service effectiveness. In terms of service effectiveness, the key concept for the 1990's will be speed. It has been said that the 70's were the decade of price-based competition, the 80's of qualitybased competition, and the 90's will be the decade of time-based competition [17] . Time is becoming the main battlefield and weapon of service competition [18]. Competitive success increasingly depends on management's ability to anticipate and respond quickly to changing market needs. The ways leading organizations manage time represent the most powerful source of service effectiveness.

The new economics of service factory is based on the concept of economies of scope: it is just as cheap to produce a variety of products on the same equipment as it is to produce only one item or to produce the range of products on separate equipment. This concept implies that large-scale mass production capacity has become less important than flexibility and excellence in service design.

Competitiveness can be based on service itself rather than cost. The quality of a service depends on establishing a close relationship between the giver and the receiver. The way to reach the goal of service factory is to start by identifying a focused set of customer needs and try to fill them with deliberate speed [1]. The name of the new manufacturing game is time [19]. This means that speed and flexibility --- rapid changes in process and focus, shorter product development cycles, and more rapid problem solving.

Small manufacturing firms must develop systems that will allow for information exchanges between their organization and the customer. Interorganizational systems (IOS) have been

developed to facilitate information exchanges that will enhance the service capability of the service factory. IOSs are just now being introduced into manufacturing linking manufacturers with their suppliers to as well as their customers. The new Saturn plant plans to electronically link dealers' showrooms to the factory so that orders may be processed in real time. Obviously, this exam- ple may be ultimately replicated in the small manufacturing firm [6].

Many research efforts have attempted to measure the value added by the service specific dimensions in the production process. But little has acknowledged the value added by the service specific dimension through resource contributions. A more appropriate measure would be the sum of the value contributed by the service in terms of resource commitment as well as through the service process.

The attributes of the service factory imply a new role for the small manufacturing operator. Manufacturing now involves the management of: (1) interfaces with other areas of factory, customers, suppliers, and other firms, (2) capability of service factory strategy, and (3) information richness and problem-solving in services.

The service factory emphasizes an increased focus on the marketing concept which shifts the small manufacturer's orientation outside the firm to the customer. The strategic marketing planning process emphasizes that the small manufacturing firm first examine the markets that they wish to target. Small manufacturing operators must realize that they must successfully manage important interfaces with other areas of the factory, with customers, with suppliers, and with other firms. A marketing focus must be fostered to ensure timely response to the customer. This suggests a different organizational form than the strongly functional boundaries of the past.

In terms of service factory capability, certain service attributes will be dominant and others will be of less concern. With this in mind and recognizing that they are limited to a certain extent by the service that they must be provided, the factory needs to take advantage of the flexibility that they have in determining how operations will be structured and what interfaces may be created between the customer and the process.

Information richness is another feature of the service factory. With the proliferation of the computer and inexpensive electronic memory, almost any operational process can be monitored, analyzed, and ultimately optimized by the application of computer sensors and controls. Another aspect of information richness crucial to the service factory is the accumulation of data from the environment which concerns the customer's needs, attitudes, and preferences as they relate to the product that is produced. Without this information, the

factory cannot focus its service efforts effectively.

MARKETING CONSIDERATIONS

A major thrust of the service factory should be the integration of the marketing concept into the small manufacturer's competitive strategy. A strategic marketing management perspective and structure is imperative if the small manufacturing operator is going to be successful in implementing the service factory concept. The creation of a marketing plan which is aligned to the manufacturing firm's mission statement is critical to the implementation of the service factory. The implementation of the service factory strategy requires marketing management attention to a number of areas, including:

Redefining the Factory Mission Statement to Include the Service Factory Concept

A good starting point for developing the service factory strategy is to ensure that the mission statement reflects a refocusing of attention on the service dimension. Traditionally, manufacturers tend to focus on product attributes such as capabilities and quality levels rather than the product's benefits to the customer. The small manufacturer must begin to think about what are the important elements of their service to be provided, where are the strategic resources, and what particular know-how on which our business depends. To answer these questions is the central concern of the mission statement.

Selection of the Target Markets

The success of the marketing plan depends on how well it identifies customer needs and organizes its resources to satisfy them appropriately. Therefore, the major component of the marketing plan is selecting the group or segments of potential consumers the firm is going to serve with each of its products. By focusing on the target groups and their needs, service decisions can be more rationally addressed.

Developing the Market Mix

The core of the strategic market planning process is the marketing mix. This mix is a set of controllable variables that must be managed to satisfy the target market and achieve organizational objectives. These variables are commonly classified according to four major decision areas: product, price, promotion, and place (channels of distribution).

The output of the foregoing strategic market planning process is a marketing plan which is a formal statement of the decisions that have been make that formats the small manufacturer's

focus on the decisional areas that are necessary for integrating the service factory concept.

IMPLICATIONS FOR THE SMALL MANUFACTURER

The application of the service factory concept to the small manufacturer undoubtedly holds a great deal of promise for increasing its level of success. The small manufacturer should be in a more advantageous position to implement the service factory concept than the larger firm because of a reduced bureaucratic structure and the increased ability to respond more readily to customer needs. The following are a few suggestions that will assist the small manufacturer in applying the service factory concept to their operations [2,6]:

1. Formation of multiple production units as required.

Whenever a customer needs on-site assistance or can gain advantages from having the small manufacturer at the customer's plant, the operator should accommodate them. This will require the small manufacturer to sometimes move outside their four walls to service the customer.

2. Install new technology.

New technology is often necessary to meet the service requirement of the customer. The latest generation of manufacturing technology allows for the flexibility to better meet the product requirements of the customer.

3. Train factory personnel.

All levels of management and employees must be retrained to become sensitive to the service needs of the customer. This training process should also be accompanied by a change in the reward system to provide an incentive to focus on customer needs. Also, an emphasis should be placed on the creation and training of small, cohesive teams of highly skilled generalists who are capable of functioning of a variety of projects.

4. System of feedback from the customer.

Most control systems in factories are internally focused. For example, quality control relate primarily to the product and not necessarily to the customer. Systems should be developed to monitor such service areas as: warranty costs, customer replacements, customer complaints, and transportation costs.

5. Allow customers to visit the plant.

Some small manufacturers prohibit outsider visitors. If a plant is well-run, then the plant should be a showcase for customers or potential customers. By demonstrating that the factory has a service oriented workforce, modern technology, and is willing to meet the service and technical needs of the customer in a timely manner, the sales effort of the small manufacturer will be strengthened.

6. Integrate manufacturing into the engineer's management role.

Traditionally, the engineer has been a manager of people and production planning. The service factory concept increases the role of the engineer to include managing knowledge, selecting projects, and managing fixed costs. In addition, the engineer is more likely to be found with line responsibility on the factory floor.

Today, a new reality exists in the manufacturing industry. Yesterday, the focus was on scale. In order to be a successful manufacturer, one had to be large. Now one may be successful by having a cell of approximately six machines and fewer than a half a dozen people. Smallness is now better than largeness. The critical factor for success is now the competency of the small group of people. The implication of this new reality is that with the technological changes and the service factory or- ientation, the small manufacturer may successfully compete with the large manufacturer.

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