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## **Service Concepts in World Class Manufacturing**

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The characteristics of service management are not only recognisable in service firms, but are also part of the cultural heritage of manufacturers involved in World Class Manufacturing (WCM). The application of World Class Manufacturing involves the implicit exchange of operational, organizational and managerial techniques that are typical of service firms. The authors offer a conceptual framework that shows how the traditional logics used by service firms underlie the functioning of WCM firms. The Benetton Group's approach to services will then be described in terms of this framework. The Benetton Group is a world leader in the design, manufacturing and distribution of apparel for men, women and children. The description of Benetton's case, which is based on an original study and on the authors' personal experience, is significant because it represents the successful experience of a world class manufacturing firm which has applied service concepts to production.

### **Key Words**

World Class Manufacturing  
Service Factory  
Service Management  
Benetton Group



## INTRODUCTION

The complexity of the current economic situation, characterized by the internationalization of markets and by the increasing vertical and horizontal integration between firms, has contributed to radical changes in the way traditional manufacturers both produce and relate to the market.

The globalization of markets, with the consequent lowering of both national and continental borders, has led to a breakdown of the operating frontiers between traditional sectors: manufacturing and service. This increased rivalry (Porter, 1980), by raising the level of competition, seems to benefit those firms which, although they were initially only involved in production, have now developed services such as customer assistance, research and development, financing, physical distribution, communication networks, etc., at a world level. (Schonberger, 1988).

However, in macroeconomic terms, the process of applying service industry techniques within manufacturing firms seems to go beyond the straightforward qualitative and quantitative expansion of back-up service activities and involves all the operational and organizational methods with which each individual firm competes on the market.

The fact that many manufacturing firms are interested in adopting the characteristics of service firms leads to a reappraisal of the way in which the service firms themselves have always sought to operate and produce. This validates a service firm model that has proved a winner under today's market conditions.

Starting from the consideration that some of the typical, specific characteristics of service firms are, nowadays, part of the common cultural heritage of many successful firms, independent of whether they produce goods or services, the aim of this study is to try to show how the paradigms currently in use in manufacturing necessarily require a culture of service management for their implementation.

Both the World Class Manufacturing and the "Lean Production" (Womack and others, 1990) manufacturing philosophies implicitly reflect the operational methods, the organizational considerations and the aims that have always characterized successful service firms.

The authors offer an interpretative framework in order to demonstrate how the concepts of service management are applied within the policies of WCM. Using this framework the approach to services taken by the Benetton Group, a leading manufacturing firm in the casual clothing sector at a world level, will then be described.

## FROM THE TRADITIONAL FACTORY TO THE SERVICE FACTORY

The on-going process of applying service industry techniques within manufacturing firms - understood as being the introduction of the organizational and managerial logic that is typical of service firms - is underlined by the fact that while researchers, for many years, tried to answer the question: "what is necessary to produce a successful product?" today it has become far more relevant, and important, to answer the question: "what is needed to service a successful product?"

It should also be noted that, likewise, there is a growing need to introduce the logics, methodologies and management techniques, already developed in manufacturing firms into the service firms (Fitzsimmons and Sullivan, 1985; Voss, 1986; Neville, 1989). When studying the service firm, Eiglier and Langeard finished by asking themselves "what is required to produce a successful service?" (Eiglier and Langeard, 1987), from which they coined the term "servuction".

The culture and the operational methods of service management have become a formidable competitive weapon even for the large manufacturing firms (Quinn and others, 1988). In these firms, the management of invisible resources, as well as of traditional visible resources, has become crucially important for their operational efficacy (Itami, 1987). The latter, visible resources, remain the essential condition required in order to operate, whereas the former have been shown to be indispensable for competitive success, irrespective of the sector involved.



Many manufacturing firms seek to become more competitive not only by increasing efficiency through reduction of costs, but also by improving their performance with regard to the services offered to customers, such as delivery times, reliability of deliveries, product innovations and post-sales service.

Firms which seek to respond to the expectations and demands of customers in a personalized, flexible and more complete manner, have to overcome the traditional supply concept of offering simply the product - however technologically or productively innovative it may be - in order to adopt the logic of an integrated supply of "bundles". These bundles consist of a combination of goods, services, support, self-service and know how, calibrated to meet the needs of the customer (Vandermerwe and Rada, 1988).

The driving forces behind the process of "servization of business", as Vandermerwe and Rada call it (1988), can be seen in the wide availability of, on the one hand, innovative technology and, on the other, the variety and variability of consumers' expectations. Therefore the process of change must necessarily be of a holistic nature in order to determine a new way of operating which overcomes the simplistic and obsolete distinction between goods and services.

The concept of service to the customer is by now widespread among manufacturing firms, but this concept is still often confined to the activities of physical distribution and, in most cases, has become synonymous with fast and reliable deliveries and a high percentage of the orders received being executed (Chase, 1990).

Given the new conditions of competition, this approach is, clearly, no longer adequate. Studies carried out by Chase with Erikson and Garvin (1988, 1989) and by Voss (1991a, 1991b), show how the adoption of the service factory logic within the manufacturing context can be a source of competitive advantage. Chase even identifies service as the "fifth competitive priority" within production strategies.

The term service factory means that particular integration of products and services, achieved by the excellent manufacturing firm, where "service is a multidimensional concept. It can refer to doing something for the customer, to doing something with the customer, or it can refer to providing a service to another function of the business" (Chase and Erikson, 1988).

The creation of a service factory necessarily implies a radical change in the operational and organizational characteristics of the firm.

Starting from the traditional factory (dominated by a production logic that pays little attention to the needs either of downstream work centres or of the final customer, organized into functional work shops, usually with little integration at the organizational level and with a low "level of contact" not only in intrafirm relations but also in relations with customers) one arrives, through successive steps, at the service factory. The service factory is characterised by a operating logic that prioritizes the customers' needs and also those of downstream work centres. Furthermore, production is organised in order to facilitate the flow of products, and those aspects, that are linked to human resources in general, and to services offered to customers in particular, are crucial factors for the success of the firm.

Examination of firms that produce physical goods and operate like service factories, shows how today, success in the market is increasingly tied into the ability to offer a balanced mix of products and services. This mix is making it more difficult to distinguish between a good and a service, up to the point where some authors have proposed the concept of a "service-enhanced product" (Chase and Garvin, 1989).

## SERVICE CONCEPTS IN WORLD CLASS MANUFACTURING: AN INTERPRETATIVE FRAMEWORK

The distinctive characteristics of service firms - structural, managerial and organizational - generally seem to be present in the majority of them irrespective of the sector to which they belong (banking, insurance, tourism, etc.), which validates the hypothesis that such features are crucial factors for success.

Certainly these characteristics are not the exclusive property of service firms, since they can also be found in manufacturing firms. However, in manufacturing firms these characteristics



have, on the one hand, traditionally not been seen as being of crucial importance and, on the other, are rarely found to be simultaneously present.

Among the many characteristics of the service firm, as described in the literature (Bowen and others, 1990; Heskett and others, 1990), the authors have selected four as being of particular importance to manufacturing firms: service package, customer involvement in the production process, simultaneous production and consumption and human resources as crucial assets.

The service firm offers a service package tailored to meet the needs/expectations of its own customers, offering services that fully, and continuously, resolve the problems of the customers.

In this context the customer plays a fundamental role, orienting, personalizing and, in many cases, becoming directly involved in the supply of services, as in the most obvious case: self-service.

The simultaneousness of the production and consumption of a service is tied up with the nature of service and with the impossibility of stocking something that is intangible.

Finally, the service firm always stands out because of the attention paid to human resources, in terms of professionalism of roles, motivation, training and education. In the classical service firms, that have no production function, human resources at every level, not only the higher levels, are a fundamental factor. In the absence of machinery and capital used for production, human resources are the crucial variable that marks the firm out and defines the services it offers.

As stated earlier, the characteristics of service management, that have just been described, are not only distinguishing features of service firms, but can be seen to be a part of the cultural heritage of world class manufacturing firms.

Manufacturing firms, operating on international markets, have to reach certain levels of performance, simultaneously, in certain areas such as: high quality, low costs, on-time delivery, reduction of the time-to-market, and flexibility of production volume and product-mix. World Class Manufacturing represents the process that allows a firm to gain a considerable global competitive advantage through continued improvements in production capacity and ability. The principles and methods that are adopted under WCM logic require deep cultural rethinking, and operational and organizational restructuring, of the whole production system.

The process of renewal required by WCM involves the implicit change to operational, organizational and managerial techniques that are typical of service firms.

The authors offer a conceptual framework that shows how the traditional characteristics of service firms underlie the functioning of WCM firms. The proposed framework is the result of cross referencing the four characteristics of service firms mentioned earlier with the areas that World Class Manufacturing can be broken down into (Schroeder, 1991): Just In Time (JIT), Total Quality Control (TQC), Human Resources (HR), Technology Management (TM) (including aspects of both process and product) and Information Technology (IT).

Table 1 offers some examples of how the concepts of service management are applied in World Class Manufacturing.

One of the fundamental aspects of JIT is that each work centre functions by treating the downstream centres' demand just like customer's demand, so that production is regulated through a pull logic (De Toni and others, 1988). Downstream consumption primes upstream production, rendering production and consumption almost simultaneous and effectively reducing the stocks of material between one centre and another to nil. The logic that links the upstream and downstream centres is, thus, that of service: in fact, production is based on exactly what, how much and when it is required. In order to guarantee that this will function, full responsibility, and consequently the necessary authority, must be delegated to workers to manage the operations.



Table 1 - Service Concepts in World Class Manufacturing.

<b>CHARACTERISTICS OF SERVICE FIRMS</b> <b>WCM AREAS</b>	<b>CUSTOMER INVOLVEMENT IN THE PRODUCTION PROCESS</b>	<b>SIMULTANEOUS PRODUCTION AND CONSUMPTION</b>	<b>SERVICE PACKAGE</b>	<b>HUMAN RESOURCES AS FUNDAMENTAL ASSETS</b>
<b>JIT</b>	PRODUCTION ON THE BASE OF DOWNSTREAM CONSUMPTION	ZERO INVENTORIES	THE RIGHT PRODUCT AT THE RIGHT TIME	WORKER'S RESPONSAILITY IN OPERATIONAL MANAGEMENT
<b>TQC</b>	QUALITY AS CUSTOMER SATISFACTION	ZERO DEFECTS	GUARANTEE AND ASSISTANCE	QUALITY CIRCLES
<b>HR</b>	PEOPLE AS AN OPEN SYSTEM	COORDINATION AMONG PURCHASE, PRODUCTION AND MARKETING DEPARTEMENTS	SOFT SKILLS	CONTINUOUS TRAINING
<b>TM</b>	PRODUCT DESIGN BASED ON CUSTOMER SPECIFICATION	ZERO SET UP AND LOT = 1	HOURLASS STRUCTURE AND MUSHROOM CONCEPT	MULTIFUNCTION MANPOWER
<b>IT</b>	NETWORK SYSTEMS	REAL TIME SYSTEMS	VALUE ADDED SYSTEMS	USER FRIENDLY SYSTEMS

In WCM firms, quality is increasingly being understood as the satisfaction of customers' expectations which thus assume a central role in defining the specific features of the product (quality deployment). Attaining zero defects in each phase of the manufacturing process is the necessary condition for using pull logic for production order release. Quality does not only mean only making a product with no defects, but also concerns customer assistance, before and after sales service, and product guarantees. Firms' experiences have shown that these objectives can only be met if all employees, at every level, are fully involved in meeting them through structures such as quality circles which are becoming a common feature in the implementation of total quality management.

Firms' experiences, studies, and research, all agree that, nowadays, organizational efficacy is increasingly correlated to the role played by human resources. Far more than technology or capital, human resources seem to be the crucial asset in determining the "smooth functioning" of the organization, which can be measured through parameters such as level of service, quality of service, time taken to respond to specific requests, etc. Nowadays, what is required is that the persons in the firm develop organizations as open systems which involve customers and that are able to quickly gather and transmit information about the market needs in order to take decisions in real time. This situation is obtained thanks to good integration and coordination - understood in terms of "shortened distance" between the firm's departments - by means of managerial figures who are not only experts or specialists in their own fields, but who know, and can evaluate, the problems of other areas which are complementary to theirs (Heskett, 1986).



Some studies, (Zeithmal and others, 1990) have shown that the key for supplying high quality service lies in creating an equilibrium between the expectations and the perceptions of customers and by eliminating the differences between these. In this context, the "soft skills" of personnel, understood as the ability to improve communication between the firm and its customers (competence, courtesy, availability, quickness, image, etc.), have been shown to be of prime importance (Voss, 1991a).

Simply modifying the structures and/or the mechanisms of management is no longer enough: in the search for organizational efficacy attention has to be put on the processes that involve the different actors and on the culture that permeates and differentiates the organizational context. In a situation that increasingly underlines the importance of interventions that contemporaneously affect all the organizational variables, the continuous process of education and training facilitates the recovery and exploitation of the organization's experiences and their transformation into knowledge. In other words, education works within the organization by making the already existing cultural heritage, as yet not "metabolised" into knowledge that can be used in day to day functioning, available for use by individuals.

As regards technology management of both product and process, in the former case customer involvement means that the product design is carried out either directly to customer specification or by co-design. This is made possible by the increased availability of Advanced Manufacturing Technologies (AMT) such as CAD and CAE systems. In the case of the process, the adoption of AMT, such as Flexible Manufacturing Systems (FMS) which make low set-up times and unitary lot size possible, facilitates simultaneous production and consumption. An hourglass product structure and a mushroom shaped process design (Mather, 1988), respectively, constitute the basis for offering a wider mix of products - utilising a low number of sub-assemblies and components - and for being able to orient production towards the required mix as late as possible, thus increasing the flexibility of the response (De Toni and Zipponi, 1991). Lastly if the emphasis is on the role of human resources, the versatility of labour is fundamental in order to enable all these advanced manufacturing technologies to be used efficiently.

The availability of new information and communication systems makes direct communication between the customer and the plant possible, rendering order status visible and increasing customer involvement in the manufacturing process. Real time systems permit control over production activities on the basis of data regarding effective production and consumption, thus guaranteeing a flow manufacturing process. Enhancement of the product can be obtained thanks to value added systems that allow useful information to be acquired and made available to the customer (Rockhart and others, 1986). Lastly, the possibility of operating with user-friendly systems expands the field of potential users, the degree to which computer systems are used and, at all levels, encourages the habit of using computer technology in the decision making process.

## APPLICATION OF THE INTERPRETATIVE FRAMEWORK TO THE BENETTON GROUP

Benetton Group is a world class company in the design, manufacture and distribution of apparel for men, women and children. The headquarters are at Ponzano Veneto, Treviso, Italy. The Group's consolidated revenues in 1991 exceeded 2070 million US dollars (up 12% from the previous year) and generated a net profit of 151 million US dollars (up 23% on the preceding year).

Benetton produced more than 83 million items of clothing in 1991. These came from its 14 factories which have been set up in Italy, France, Spain, the USA, Argentina and Brasil. In the course of a single year the company prepares almost 5,000 models for its various collections, (Benetton, Sisley, 0-12), which are then sold through 6,500 stores (700 in North America) in almost 100 countries.

The stores in Benetton's sales network are managed by independent entrepreneurs who sell the company's products. The retailers, helped and supported by Benetton representatives in the



area, who also have a high degree of autonomy, order for each season (spring-summer, autumn-winter) a quantity of the goods from Benetton, which then consigns the goods ordered within the time agreed. In the period that elapses between the definition of the collection and the arrival of orders from the retailers, Benetton organises for the production of the items designed by the stylists. Eighty-five percent of production is carried out by outside contractors who are linked to Benetton through relationships that have been established over the years.

Not only the definition of the items for each collection, but also the advertising campaign, commercial distribution and planning and control of the production by outside contractors are all coordinated centrally.

By referring to the conceptual framework proposed above the authors show how the typical concepts of the culture of service management are applied within the Benetton Group. This analysis is carried out using the areas that define World Class Manufacturing.

The description of the Benetton Group's case, which is based on an original study and on the authors' direct personal experience, is significant because it represents the successful experience of a world class manufacturing firm in applying service concepts to production.

### Just In Time

The casual wear sector is marked, on the one hand, by the highly seasonal nature and the fashion content of the product and, on the other, by a long tradition of outside contractor involvement (termed "façon"). Benetton has succeeded in introducing, and spreading, the idea of the entrepreneurial involvement of those involved in the business within the distribution phase too. The upstream production network and the downstream distribution network have been planned according to the same logic, that of shared entrepreneurial risk in the context of a long term bond within which the value of loyalty is the true driving force behind the on-going economic and organizational process.

In this sense, Benetton represents the point of articulation and conjunction, between the production phase and the distribution phase, or rather, the means of overcoming the directly conflicting needs of upstream and downstream. The special ability, and the novelty, of the Benetton model lies in the way it unifies and harmonises these two aspects that traditionally pull in opposite directions. Its true genius lies in the fact that it does so on a very large scale and also serves a large and scattered clientele in many different countries all over the world.

The distribution network aims both to interpret and forecast consumers' needs and then to sell. The production network is able to produce quickly, maintain high quality and keep costs competitive: it is able to put even radically new products into production very fast and is thus able to satisfy the distribution network's orders efficiently.

Hence, production is founded on JIT principles on the basis of downstream consumption. Raw materials are bought on the basis of both customers' orders and sales forecasts. In order to reduce the stocks of raw materials and finished goods, and to operate as far as possible on the basis of a portfolio of customers' orders, planning of activities foresees:

a) an estimate of the portfolio of orders that permits advance warning to be given to suppliers of the quantity of raw materials that will be needed (free orders), and to plan and adapt production capacity, most of which is external;

b) only for "classical" items, where the fashion element has less bearing, is the initial upstream production carried out on the basis of forecasts. By these means a number of clothing items are put into production in advance, before customer's orders are received. Customer's orders and semi-finished products are not matched at the beginning of the production cycle, however this is done just before the items are finished (i.e. right product at the right time).

Close interaction with raw material suppliers and with the outside contractors involved permits the production plan to be relatively easily adapted to commercial requirements.

### Total Quality Control

The firm's main objective is to offer a service to customers (i.e. stores). If one takes service in its broadest sense (i.e. offering some support in opening retail outlets, deciding on the range of products for each area, creating and supplying advertising materials etc.), Benetton's service,



and the return that the sales network derives from it, are the reasons why a large number of retailers have joined, and believe in, the firm's business system. One measurement of the level of service attained is given by the percentage - equal to 99% - of the customer's orders that are dispatched correctly and within the time agreed on the basis of their seasonal nature.

From the stand-point of the quality of the product it would seem that Benetton keeps a closer check on raw materials and on manufacturing process than do other firms in the sector. Benetton also checks on technology and the processes and not only on the raw materials used and the products made by suppliers. For example, there is up to 100% quality control of the finished woollen products manufactured.

### Human Resources

According to Luciano Benetton (1991), the group's founder and current vice president and managing director, human resources are the key factor in the system. What is innovative here in the management of human resources is the fact of looking beyond the confines of the firm, involving external human resources, then creating a stable business coalition with them and exploiting the soft skills (cultural identity, common values etc.), of both the internal and external resources.

This involvement of outside resources is so important to the firm that 75 - 80% of all production is carried out externally. One could almost say that the firm has moved its management focus from the inside to the outside. In practice, Benetton manages resources that are not directly subject to the company but that nevertheless are integrated into the organization. Trust is the fundamental characteristic of the relationship between Benetton and the outside contractors (also with representatives and retailers). Such trust clearly has an economic basis due to the profit external entrepreneurs have made in the past and their expectation, supported by results obtained, that profits will continue to come in the future. But such trust is also founded on other than directly economic reasons: at the basis of the trust in Benetton itself - which effectively asks outside contractors to take entrepreneurial risks - there is the feeling among outside entrepreneurs that they are part of the main firm, that, in some way or another, Benetton has directed them towards, and helped them on the way, to an entrepreneurial success that would otherwise have been difficult for them to achieve.

On manufacturing side, one clear example of how the relationship is based on trust is the fact that often outside contractors don't know exactly what their revenues will be until after they have produced and delivered the items. They trust Benetton because of their past experience with the company when it helped them to become independent entrepreneurs, allowed them to learn and develop on their own initiative and to maintain a profit margin that guaranteed them both survival and development.

The feeling of belonging can also be explained in terms of cultural recognition (Schein, 1985). In this light it is easy to see why the majority of outside contractors are in the Veneto Region (North Italy) despite their higher production costs in relation to their direct competitors in the Far East or even in the South of Italy. But these higher costs of production are offset by other advantages: the higher propensity to accept technological innovation among these outside, autonomous, but integrated, producers and the higher quality and greater reliability of these outside contractors. Basically, the benefits derived from this relationship of trust are greater than its costs.

Loyalty and trust, based on a similarity of culture, means that the loss of an individual subject goes deeper than the loss of the physical person but could mean the risk of partial losses within the production and sales system (Hirschman, 1970). Hence, it is not simply a question of changing managers, suppliers or customers as would happen in more traditional firms.

### Technology Management

Within the seasonal lots that are produced, not only is there the possibility of introducing variations, in order to fully satisfy customers' requirements and to meet the needs of the different geographical areas, but there is also the possibility of producing "flash" lots, a few



thousand items made to order for an individual representative/customer. These lots, that are produced very fast, are the result of "ad hoc" demand by the clientele (or by the sales management) which cannot be met by the world collection and are usually concerned with the revival of an article from a preceding collection or of some article in the current collection. In this case, the product description is decided on in conjunction with the sales manager of that area, who with his/her knowledge of the market and access to the information gathered from representatives and retailers, has the authoritativeness and the reliability which are fundamental for responding in the best way to demands from the sales network.

As regards the policy of technological innovation among outside contractors, the cultural factor is important in convincing the outside entrepreneurs to carry out the necessary investment and innovation within their production systems in order to keep the manufacturing costs and the quality standards competitive in the long term and thus benefit Benetton.

### Information Technology

Benetton has an information network that links the representatives directly with its headquarters. Through this network representatives from all over the world can send in orders in real time and by user friendly procedures thus eliminating the errors and the long delays that are typical of traditional order entry. Furthermore, this network also allows representatives to check on the status of their orders, thus offering them an important window onto the reality of production and distribution within the firm.

## CONCLUSIONS

In this paper the authors have shown how the managerial and organizational methods of service management are characteristic not only of service firms but are also part of the cultural heritage of manufacturing firms involved in World Class Manufacturing.

The case of the Benetton Group, examined by means of the conceptual framework proposed by the authors, has made it possible to interpret the process of how WCM firms transform the methods of operational, organizational and managerial functioning which are typical of service firms.

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