THE SERVICE – MANUFACTURING CONUNDRUM: INVESTIGATING A NEW APPROACH TO UNDERSTANDING AND CLASSIFYING SERVICES AND MANUFACTURING

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In this paper we propose a service-manufacturing model that will clarify the current confusion that exists in understanding the similarities and differences between services and manufacturing. Currently most products are regarded as a combination of services and manufactured goods to a greater or lesser degree depending on the product. The lack of conceptual clarity impacts upon the clear understanding of important issues in the workplace, such as Human Resource Management and labour practices in service and manufacturing contexts.
Abstract

In this paper we propose a service-manufacturing model that will clarify the current confusion that exists in understanding the similarities and differences between services and manufacturing. Currently most products are regarded as a combination of services and manufactured goods to a greater or lesser degree depending on the product. The lack of conceptual clarity impacts upon the clear understanding of important issues in the workplace, such as Human Resource Management and labour practices in service and manufacturing contexts.

KEY WORDS:
Service, manufacturing, model of services

Introduction

As workplace change has accelerated in most advanced economies, so the theoretical debate around it has intensified. Over the past three decades, services have increasingly become the dominant economic paradigm of advanced economies (Miles, Anderson, Boden & Howells, 2000). In Australia, more than 75% of Gross Domestic Product (GDP) is now attributable to the service sector (Kavanagh, 2001). The exponential growth in services has led to a rethink of traditional explanations of labour and work organisation. At one conceptual level this debate, which has its origins in services marketing, attempts to distil the differences between services and manufacturing models of work organisation, while attempting to predict the impact and outcomes on labour and work organisation. Schmenner (1986) has argued that manufacturing is increasingly adopting service type characteristics. Other researchers such as Russell (2002) suggest that service work is increasingly adopting work organisational methods familiar to traditional Taylorite manufacturing models. There is no single debate, rather a number of debates exist spanning a range of issues, and the lack of singularity has generated diverse and opposing viewpoints.

It is generally recognised that the definitions and descriptions found in the literature for the terms “service” and “manufacturing” are somewhat ambiguous (Crosby, 1979; Gronroos, 1990). Some researchers such as Bateson and Hoffman (1999) have drawn on service marketing literature to suggest that we are seeing the emergence of “manuserv” firms combining both manufacturing and service characteristics. In some instances it has been convenient to describe most products as “a bundle of goods and services” with goods at one end of the continuum and services at the other (Davis, Aquilano & Chase, 2003, p12). It is typically easier to describe service and manufacturing operations “by what they are not” (Canel, Rosen, and Anderson, 2000, p53). These debates have coalesced in a growing literature that attempts to distil conceptual differences between service and manufacturing models of work organisation in the context of post-industrialism. This paper aims to briefly review the theoretical approaches to services, and reformulate a service-manufacturing model that may assist in understanding the complex interconnectivity between service and manufacturing models of work organisation thus enabling us to understand the differences and similarities between Human Resource Management (HRM) and labour practices in service and manufacturing contexts.
Models of Services – A Bountiful of Plenty?

Several researchers (Silvestro, Fitzgerald, Johnston & Voss, 1992) have postulated various models of services – from hard to soft versions relying on a typology of industries connected to service characteristics such as high customer versus low customer contact; tangible and intangible; and customisation versus automation with the debate led by whether the ‘product’ outcome is tangible or intangible (Silvestro, et al. 1992). However, the problem of approaching work organisation from the point of view of the end product is somewhat deterministic. It tells researchers very little that is useful about why HRM and labour utilisation practices are shaped in particular ways.

The most accepted approach to understanding services is that proposed by Gronroos (1983), who in his seminal work approached services according to their inherent characteristics. According to Gronroos (1983), services share three main characteristics. First, a service is mainly immaterial or intangible. Second, a service in an activity or process rather than a material object, that is, the service can be consumed only as long as this process continues. When the process discontinues, the service in principle ceases to exist. In contrast, physical goods are material with physical characteristics and they exist after the production process has stopped. Finally, a service is, to a great extent, consumed at the same time as it is produced. For example, a restaurant may prepare part of the meal before the consumer arrives, but most of the restaurant service is produced simultaneously as the customer consumes the service. This holds for every service in varying degrees. Physical goods, on the other hand, are produced in a factory, or other similar place, and are consumed only afterwards (Gronroos, 1983).

Gronroos (1983) goes on to argue that as a consequence of the above characteristics, a set of other consequential features of services arises. Services cannot be shared, they are difficult to standardise, there is no transfer of ownership, and the production and consumption of services often occurs simultaneously. Gronroos (1990) lists a range of characteristics that differentiate services from physical goods. These are described in Table 1.0 below:

<table>
<thead>
<tr>
<th>Functional Characteristics</th>
<th>Physical Goods</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit definition</td>
<td>Precise</td>
<td>General</td>
</tr>
<tr>
<td>Ability to measure</td>
<td>Objective</td>
<td>Subjective</td>
</tr>
<tr>
<td>Key process</td>
<td>Manufacturing</td>
<td>Delivery (buyer-seller interactions)</td>
</tr>
<tr>
<td>Distribution</td>
<td>Separate from manufacturer</td>
<td>Same as production</td>
</tr>
<tr>
<td>Personal selling</td>
<td>Tangible</td>
<td>Intangible</td>
</tr>
<tr>
<td>Flexibility of provider</td>
<td>Limited</td>
<td>Broad</td>
</tr>
<tr>
<td>Time intervals of producer</td>
<td>Months to year</td>
<td>Same day</td>
</tr>
</tbody>
</table>

(Source: Gronroos, 1990:28)
The conceptions proposed by Gronroos, as described above, essentially define the parameters of the debate about the origins, characteristics, and processes of services. The work of Gronroos is important because it systematically analysed services and attempted to identify salient characteristics based on the nature of the service product and the variability of market demand. These in turn are examined in relation to how they influence the strategy and structure of the organisation to define the characteristics of the organisation itself. Despite the importance of his work, it is necessary to recognise that the theoretical basis for the review of the features of service is drawn from an alternative conceptual model based on organisational behaviour.

Much thinking is guided by our manufacturing experience. However, contemporary forms of service work do not necessarily follow the post-industrial paradigm of work as postulated by writers such as Piore and Sabel (1984). Many researchers suggest differences between the way manufacturing and services are organised and the way in which labour is used (Korczynski, 2002) with emphasis on more sophisticated forms of managerial control in contemporary service work settings (Russell, 2002). Key issues here are flexibility and new forms of managerial control both internal and external to the organisation. These developments emerged as a response to increasingly competitive environments, unstable labour markets, globalisation, and mass marketing. Labour control and flexibility become paramount in the production and organisation of contemporary work. This is not to argue a simple “McDonaldisation” thesis as suggested by Ritzer (1996) that updates an essentially Weberian approach to work organisation based on standardisation, routinisation, customisation and commodification. Rather, HRM strategies and practices may move in tandem with work reorganisation. What becomes key drivers for change are technology, production logistics, and labour utilisation strategies. The primary purpose of this paper is to advance a model of understanding the service—manufacturing continuum that may shed light on understanding changes in work organisation in manufacturing and services industries.

Why Study Services – Manufacturing Models?

Why study services-manufacturing models? The preoccupation by mainstream sociology, with a paradigm of work organisation dominated by research drawn from manufacturing case studies, has left the analysis of contemporary service and manufacturing relationships relatively untouched. Exceptions are researchers such as Dotchin and Oakland (1994) and Beaumont, Sohal and Terziiovski (1997). However, their work is predominantly aimed at identifying quality issues and outcomes rather than a theoretical attempt at unifying service and manufacturing paradigms. This illustrates the problematic of studying services, indeed where research has ventured into services it has often been undertaken from different theoretical and methodological perspectives, and many studies are only loosely bound together in terms of shared concepts, ideas and assumptions. However, there is little theoretical synergy, and the research base is narrow and fragmented. There is a lack of good research data involving service work. Much of this reflects traditional industrial sociological preoccupations with workplace behaviour on the manufacturing “shopfloor”, and physical condition which services are seen as not possessing, and hence not “work” as understood by traditional industrial sociology.

Among the most widely used (and least agreed upon) contrasting categories are notions of “manufacturing”, and “service” products. Definitions have varied between the forms of labour involved, the type of work performed and the nature of the product/service which is procured (Canel, Rosen & Anderson, 2000). While various attempts have been made to locate some unifying characteristics, the definition of service remains elusive. The
frustration engendered by the lack of conceptual clarity has sometimes led to the argument that any notion of “services” is so confused, and is used to refer to such an incoherent set of activities, that its analytic utility is limited.

Analysing services falls into two main arguments. First, there is a set of writers who suggest ideal type differences between service and manufacturing in relation to task structure. This is an important set of arguments and needs to be clarified and summarised. However, this debate and many of the formulations concerning differences between manufacturing and services are misleading because many factors pertaining to modern large scale service units apply equally to manufacturing. It would appear that such writers are operating within ideal type notions of services and manufacturing.

The second argument as proposed by this research is that the real world of manufacturing and service are not ideal models, but reflect diverse ranges and forms of work organisation more attuned to characteristics and changes in product markets. Changes in work organisation generally reflect changes in product market conditions as well as being derived from the choices and constraints facing management. This approach construes managerial strategy, organisational behaviour, and labour markets, as being the outcomes of complex, often contradictory, propositions yet operate in a mutually reinforcing way. Both service and manufacturing share forms of work organisation reflecting a given set of opportunities and constraints on managerial action. The development of this second argument is based on the intersection of manufacturing and service modes of production in the context of changing market conditions.

A Conceptual Model of Manufacture – Service

Following Gershuny and Miles (1983) one can decipher four broad uses of the term “service”. First, it is used to refer to service industries constituted by organisations whose final “product” is, in one sense, “non-material” whereas manufacturing requires a tangible output. Both can employ workers engaged in both manual and non-manual occupations. Second, it is used to refer to service occupations, which may be present within all areas of the economy, but which involve labour processes which do not result in the production of material commodities. Third, it is used to refer to service products which are “services” provided by businesses to support or enhance the sale of some material commodities. Fourth, it is used to refer to service functions, which refers to the notion that almost all products, whether tangible or not, involve people in some kind of service activity recognising that many service and manufacturing firms have both a manufacturing and service function.

In order to commence the research, we have initially developed a model of the service – manufacturing interaction as an ideal type that we seek to test and modify in light of our experience. This preliminary model is achieved by untangling and dismantling the complex picture of manufacture and service work, and theoretically reconstituting the manufacturing and service tasks, as set out in Table 2.0 as follows:
Table 2.0 Disaggregating Service-Manufacturing Tasks

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Service Tasks as Ideal Types</th>
<th>Manufacturing Tasks as Ideal Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Customer Contact / Proximity</td>
<td>Consumer contact – high</td>
<td>Consumer contact – low</td>
</tr>
<tr>
<td></td>
<td>Consumption is at point of production</td>
<td>Consumption and production separated</td>
</tr>
<tr>
<td></td>
<td>Consumer part of production</td>
<td>Consumer interaction is neutral (or marginal)</td>
</tr>
<tr>
<td></td>
<td>Emotional / interactive labour high</td>
<td>Emotional / interactive labour low</td>
</tr>
<tr>
<td>b. Perishability</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>c. Technology</td>
<td>Frequently smaller work units / batch production</td>
<td>Larger scale production methods</td>
</tr>
<tr>
<td></td>
<td>Decentralised production</td>
<td>Centralised production</td>
</tr>
<tr>
<td></td>
<td>Bureaucratic and mechanical control low</td>
<td>Bureaucratic and mechanical control high</td>
</tr>
<tr>
<td>d. Tangibility / Intangibility</td>
<td>Intangible product – output is diffuse</td>
<td>Tangible product – output is discrete</td>
</tr>
<tr>
<td></td>
<td>Standardisation low</td>
<td>Standardisation high</td>
</tr>
<tr>
<td></td>
<td>Skills sold directly to consumer (exchange)</td>
<td>Skills stored in product (inventory)</td>
</tr>
<tr>
<td>e. Observability</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>f. Capital / Labour ratio</td>
<td>Capital / labour ratio for smaller units tends to be lower</td>
<td>Capital / labour ratio for larger service units tends to be higher.</td>
</tr>
</tbody>
</table>

Table 2.0 above represents an ideal type model distinguishing between service tasks and manufacturing tasks. This research is based on analysing the above model on six critical dimensions drawn from the work of Mills and Moberg (1982), Snyder, Cox and Jesse (1982), and Littler (1982; 1990), and are used here to describe the core tasks of service work. First, there is the close customer contact and proximity of production and consumption. The role of the consumer is integral, both spatially and emotionally, in the form of close and personal interaction. In manufacturing the consumer is separated from production (Mills & Moberg, 1982; Snyder et al. 1982) and emotional capital is high for service encounters (Bolton & Boyd, 2003). This is referred to in our model as the “Customer Contact / Proximity” dimension (a).

Second, the perishability of the product reduces the capacity to quantify and technically control work flow. The nature of the product shapes the way in which production logistics are deployed, inventories organised (Fuchs, 1968; Sabolo, 1975) and how emotional capital may be stored (Bolton & Boyd, 2003). For example, a personal service is highly perishable, and generally cannot be stored. Its added value is usually derived only where production and consumption occur simultaneously, or at least in very close proximity to one another. Personal service is also highly variable, and has shorter product cycles. In manufacturing technical control is high, and usually allows for the stockpiling of product in
the form of inventory (Mills & Moberg, 1982; Snyder et al. 1982). This is referred to as the “Perishability” dimension (“b”).

Third, the production of personal service is diffused and organisation is structured according to occupation and function. Service technologies are construed as people oriented and people processing (Korczynski, 2002). Communication is essential for co-ordination and people processing. Production in these circumstances is decentralised and smaller work units/batch production possible. In manufacturing, centralised production and larger scale is possible. Technical communication and quantification is possible (Snyder et al. 1982). This is referred to as the “Technology” dimension (“c”).

Fourth, while the personal service product can be both tangible and intangible, the service product standardisation is low. Emotional/interactive labour is high. The role of the workforce is integral to the personal service provided as skills are sold directly to the consumer. The transfer of ownership is not a key factor for services. While in some services, such as restaurants and fast food outlets, there is a clear transfer in ownership between producer and consumer, in personal services the nature of the service provided does not involve a transfer or exchange in ownership (such as hairdressing). In manufacturing, the consumer is removed from production, and consumption is based on commodity exchange. Ownership is transferred between producer and consumer. Skills are stored in inventory. A key issue here is the nature of product storage and product availability, which is linked to shelf life. In personal service, just-in-time systems are structured in terms of the availability and flexibility of labour. Flexibility and adaptability of labour costs is achieved by matching labour inputs to customer demand. By varying the full-time complement of labour through casualisation, part-time, and non regular forms of labour, labour can be purchased on an as needed, or just-in-time basis. Inventory is a cost to manufacturing as it ties up capital. Just-in-time systems are equally important for manufacturing, but are linked to improved technical control over inventory. Services would rely on process controls (such as work rules and service standards) whereas manufacturing is able to monitor and measure through output controls (Ouchi & Maguire, 1975). This is referred to as the “Tangibility / Intangibility” dimension (“d”).

Fifth, observability is a control dimension and depends upon five conditions (Littler, 1982); (i) the greater the physical separation of employees from points of authority, such as in large and scattered organisations, the more limited are the opportunities for visual control of work. Employees often come to exercise more discretion and free will: (ii) the greater the number of occupations and skills within the organisation, the greater is the stress for superiors to have the requisite skills and knowledge to monitor the work performance of employees; (iii) personal services do not lend themselves to control and quantification. In most assembly line operations, tasks are more observable in that the consequences of action or inaction are readily observable. In personal service, this action-reaction process is less discernible to management, particularly, in large, complex personal service organisations where employees are expected to deal directly with consumers; (iv) the social structure of the workplace and notions of privacy affect the way in which control can be exercised. Managerial control and authority do not necessarily imply high observability (Littler, 1990). In the personal service organisation, management cannot be present during each consumer interaction. In some services such as health organisations, the physical separation of consumers, professional control, privacy, and the use of esoteric skills by subordinates, limits managerial observability and control over the production process. Under these circumstances, personal service management require other control strategies. In manufacturing, these managerial problems can be overcome by technical control. In addition, producer and production are usually linked spatially to one another, and management often possess the knowledge and skill to
comprehend the nature of subordinate work. Observability is higher in such situations. The observability of personal service tends to be lower when compared to manufacturing (Littler, 1982; 1990). Personal service work is often performed through face-to-face interaction between producer and consumer. The physical separation of production between separate departments and the exercise of esoteric skills by some personal service workers (i.e. chefs and cooks) results in reduced observability in large, complex organisations, such as hotels, increasing the need for management to be spatially close to production (i.e. through walk around management). In manufacturing, spatial separation, and assembly line control are amenable to technical intervention, reducing the need for management to be spatially close to production; and (v) the social structure of the workplace and notions of privacy affect the way in which control can be exercised. Managerial control and authority do not necessarily imply high observability (Littler, 1990). In the personal service organisation, management cannot be present during each consumer interaction. In some services such as health organisations, the physical separation of consumers, professional control, privacy, and the use of esoteric skills by subordinates, limits managerial observability and control over the production process. Under these circumstances, personal service management require other control strategies. In manufacturing, these managerial problems can be overcome by technical control. In addition, producer and production are usually linked spatially to one another, and management often possess the knowledge and skill to comprehend the nature of subordinate work. Observability is higher in such situations. This dimension is referred to as the “Observability” dimension (“e”).

Finally, in personal service organisations, capital/labour ratio is generally related to unit size. For example, a large integrated resort may not be technologically intensive, however, it can clearly be described as capital intensive when one has regard to the costs of infrastructure such as buildings and facilities, land values, finance etc. The role of the workforce is integral to production, delivery, and consumption, and requires a complex range of skills, discretion, and judgement in order to carry out the producer – consumer interface effectively. In manufacturing, the capital/labour ratio is generally high. The workforce is independent or product design. The introduction of new technology, however, can cloud the distinction between high and low capital intensiveness, as illustrated in highly capitalised service organisations such as the fast food, health and medical, and transport industries such as airlines. This is referred to as the “Capital/Labour Ratio” dimension (“f”).

Discussion

Theoretically, the model provides an effective means of understanding the main characteristics of two major economic paradigms, services and manufacturing. Use of the model clarifies dimensions of business that have previously been clouded by ambiguity and uncertainty. Being able to clearly differentiate services from manufacturing has important implications for researchers, including those undertaking research in HRM, Management, Marketing, Industrial Relations and Operations Management.

Practical application of the model highlights issues and challenges for employers and employees in the service and manufacturing domains. Key areas include recruitment selection and induction; training and competency building; rewards management; performance management; and promotion. Understanding the similarities and differences between services and manufacturing will enable managers to perform more effectively, resulting in positive outcomes for businesses and stakeholders.

A major challenge for employers, through managers and HRM specialists, is to target the right employees at the recruitment stage. Methods used to assess competence need to be
robust. Job skills in manufacturing can be demonstrated and are therefore relatively easy to measure. In service industries job skills tend to be behavioural and the measurement of competence is different and more difficult. Being able to identify the duties of a position clearly, by applying the service-manufacturing model, will enable managers to make appropriate staff selections in both the service and manufacturing domains. However, effective means of identifying and addressing issues in respect of services will need to be developed.

Rewards and retention are also more difficult to quantify and manage in service industries. Manufacturing lends itself to easily measured units of output while service industries often depend on customer feedback and less objective measures to determine performance. Once again, the challenge will be to develop robust, equitable and effective measures of performance.

Tenure of staff may also be an issue. In service industries workers are often temporary employees engaged in what tends to be seasonal work. This leads to issues of retention and recurring investments in training new employees together with delays while new employees acquire competencies.

While the brief discussion about the practical applications of the model has focussed mainly on benefits, a number of challenges exist for employers and managers. Being able to identify duties and competencies more clearly will make employers and managers more accountable for making appropriate decisions when selecting, training, appraising and rewarding staff. Identifying and measuring the dimensions of services and manufacturing more clearly will demand improved levels of performance from managers, particularly managers operating in the HRM domain, and employees alike.

Conclusion

This paper has briefly traced the conceptual debate concerning service and manufacturing paradigms. The paper proposes a more useful model of the relationship between services and manufacturing that may enable a more complex and sophisticated explanation for the confusion and lack of clarity that currently exists. Greater clarity will inform the debate about the differences and similarities between HRM and labour practices in service and manufacturing contexts.
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