

Need to Develop Best Practices for Business Related Services (BRS)

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Abstract. Manufacturing organizations seek to effectively integrate diverse service participants and their resources into a synthesized activity and also to make use of available assets efficiently. In pursuit of these goals companies follow a common strategy of implementing what are called “Best Practices” in the supply chains. Our aim is to examine if the best practices proposed for the manufacturing sector serve to bring about a significant improvements in the service sector. With this objective, we first review some typical interaction characteristics of services and manufacturing functions in detail. Interaction characteristics are heavily influenced by four basic characteristics of services: intangibility, perishability, simultaneity and heterogeneity. Interaction analysis helps us to group these interaction characteristics under major groups. They are 1) Planning 2) Capacity management 3) Flexibility Management 4) Execution 5) Measurement Model 6) Decision Making 7) Transparency. Further we review best practices that have been proposed for the manufacturing sector and their feasibility for considered domain of BRS.

1 Manufacturing Supply Chain increasingly Outsource Services

As Manufacturing Supply Chain today strives to achieve minimum operating costs and lean operations, many in-house services have become potential targets for outsourcing [1]. Manufacturing organizations increasingly consider the option of outsourcing an important process associated with the goods they bring to the market to specialized service providers [2]. A recent global survey conducted by the Economist Intelligence Unit (EIU), found that a full 80 percent of respondents in the industries currently engage in some form of outsourcing [3]. Earlier outsourcing was confined to non-strategic business activities such as cleaning, transport or legal services, but now outsourcing is also predominant in business functions that are closer to the core. The past two decades have seen a growing trend towards the outsourcing of Business Related Services (BRS) such as R&D, Maintenance,

Financing & Logistics [4]. Various services, as shown in Figure 1, are contracted out to specialized service providers to achieve lower cost and higher quality.

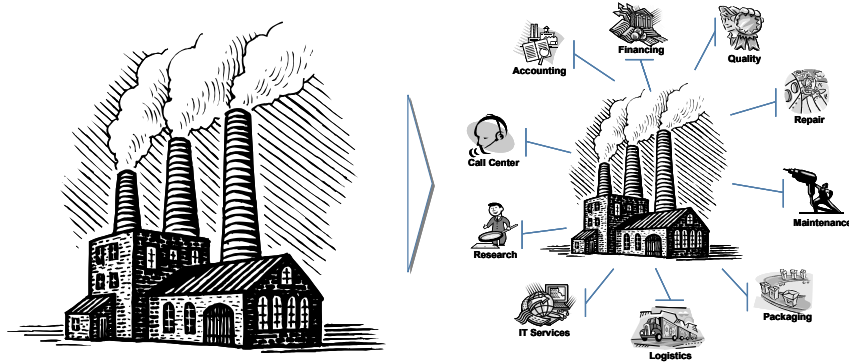


Fig. 1. Outsourcing of Business Related Services by Manufacturing

The relationship between services, particularly the BRS and the manufacturing is no more a substitutive relationship but rather it has become very complementary to each other [5]. The biggest challenge to manage complementary dependency is to enhance the use of standards, best practices, and common measure of performances as well as to ensure high visibility amongst all. The aim of this article is to examine if the best practices documented extensively in SCM literature are applicable to the service sector.

2 Methodology Proposed

Our aim is to examine if the best practices proposed for the manufacturing sector serve to bring about significant improvements in the service sector. With this end in view, the approach we adopt is outlined as follows: We first review some typical characteristics of services in detail. These typical characteristics have been well documented in literature. Based on these characteristics, we outline metrics in the service sector which are useful to measure the performance of a given service. Our next step is to review best practices that have been proposed for the manufacturing sector. The crucial step in our work is the matching of these two areas: the performance metrics of the services on one hand and the best practices in manufacturing on the other. We plot these two aspects on two axes, to evaluate if the best practices result in an improvement on the performance metrics. Two tools: the matching chart and the cluster relationship diagram are used for this purpose. We base our conclusions on the results from these two methodologies.

Characteristics of Services

We examine the four basic service characteristics: intangibility, perishability, simultaneity and heterogeneity, and performance metrics for these characteristics:

Intangibility

From the Manufacturer Perspective: Manufacturer often use the reputation of a service firm and its representatives to judge quality. Zeithaml observed that services often cannot be evaluated in advance of use [6]. Unlike goods they do not have many of what she called “search properties”. *From the service provider perspective:* Service producers must take into account consumer psychology while making plans to launch and provide services.

Perishability

In general, services are not storable: this is yet another difference from manufactured goods. Manufacturing companies typically maintain safety stocks as a buffer against demand fluctuations, and work-in-process inventory serves as an additional buffer. However, it is not possible for a service provider to engage in a similar strategy: for example, a consultant cannot make recommendations in advance; neither can a maintenance service provider have a “buffer service”: it must be real-time.

Simultaneity

A personal contact seems to be necessary in a majority of service operations, and customer participation is seen as playing a major role in the determination of a successful service-provider. Groenroos [7] stated that consumption and production are “broad overlapping processes”.

Heterogeneity

Heterogeneity imposes many restrictions and demands on the service provider. Every consumer represents a unique case, in the sense that each service would have to be tailored the needs of the individual consumer. The needs of consumers are likely to be diverse, and often intangible. This inherent variability makes it difficult to set precise quantifiable standards for all of the elements of service.

Metrics Reviewed

Based on the characteristics of services, researchers have proposed several metrics to judge service quality. The SERVQUAL method proposed by Parasuraman et al. is

one of the most widely used instruments for measuring the quality of services as perceived by the customer. This method evaluates service quality by performing a gap analysis of an organization's service quality performance against customer service quality needs [8]. Kettinger and Lee [9] modified the original model to adapt it to the software services sector.

Kaplan and Norton [10] proposed the Balanced Scorecard which details another approach towards measuring performance. It is a model of business performance evaluation that balances measures of financial performance, internal operations, innovation and learning, and customer satisfaction. These drivers encompass customers, the internal business process, growth and learning and the final measurement is the progress from an explicit and rigorous translation of the organization's strategy. Based on the metrics proposed in the above models, we propose the following list of metrics or indices to measure performance (Table 1). These may be tangible or intangible, with varying degrees of importance, depending on the given service.

Table 1. List of Metrics adequate to measure the appropriateness of best practices

<p>Tangibles</p> <ul style="list-style-type: none"> • Overall Equipment Effectiveness • Accessibility (Uptime) • Speed of Execution • Spatial Availability • Temporal Availability 	<p>Image</p> <ul style="list-style-type: none"> • Appearance • Past Personal Experience • Past Experience of Customers • Brand Image due to Promotion • Effectiveness of Personal Contact • Trustworthiness
<p>Quality, Reliability & Competence</p> <ul style="list-style-type: none"> • Conformance to Expectations • Guarantee 	<p>Security</p> <ul style="list-style-type: none"> • Integrity • Confidentiality

Existing Best Practices

Best practices are essentially methods or tools that leading firms use to carry out their business processes. As a result, this set of practices becomes a roadmap to improving business processes, hence the term best practices. Best practices are defined as methods, practices or process that when implemented in a pre-defined business environment; perform best on one or more pre-defined performance metrics. Hence a best practice must be specified with the business environment in which it is being implemented and the performance metrics that are used to evaluate it. Tremendous interest has been generated in the last two decades among business professionals and researchers alike in the area of Supply Chain Management (SCM) and the best practices therein. As a result, a plethora of research in the form of articles, whitepapers and journal publications has taken place, since SCM is seen as an effective way to create value for the trading partners and the customers. Two major initiatives namely SCOR Reference Model from the Supply Chain Council

and the EU funded research project Prodchain deserve special reference owing to the key encapsulation and also classification of best practices for SCM.

The SCOR Model [11] classifies best practices in SCM into five process-building blocks: Plan, Source, Make, Deliver and Return and describes best practices for both technology and processes. SCOR has duly identified 12 best practices including Assess Supplier Performance, Cross Docking, Vendor Managed Inventory (VMI) to name a few.

On similar steps, Prodchain Project [12] aimed at the development of a decision support methodology to improve logistics performance in production networks. For their very specific needs to integrate SCM, Prodchain has analyzed and grouped best practices into Management Concepts, Software Solutions and Supportive Practices. All the existing best practices are primarily linked to one of these core groups. Combining the information on best practices from these two primary sources, the following Table (Table 2) epitomizes all the best practices relevant for manufacturing which are considered for further evaluation.

Table 2. List of Best Practices

<p>Just-In-Time</p> <ul style="list-style-type: none"> • Inventory Management • Inventory Management • Continuous Replenishment <p>Lean Manufacturing</p> <ul style="list-style-type: none"> • Inventory Management • Quick Changeover • Continuous Replenishment • Efficient Consumer Response 	<p>Collaborative Efforts</p> <ul style="list-style-type: none"> • Collaborative Planning • Collaborative Forecasting • Collaborative Replenishment • Co-located Procurement • Supplier Relationship Management • Continuous Replenishment • Efficient Consumer Response • Simultaneous Engineering
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These three focus areas were chosen because these represent the efforts of the industry towards making the supply chain more efficient thereby adding value to the consumer and the trading partners. Moreover, between them, these encompass activities and partners in the entire supply chain spectrum: from raw material provider to the end consumer.

Methodologies for Matching

Matching Chart

The first method we use is a matching chart: shown below (Table 3). On the vertical axis, the performance metrics for services are given. While on the horizontal axis, the planet concepts for the three clusters are plotted. If a direct improvement in the metric takes place due to the concept being considered, the corresponding entry is a darkened circle. In case there is a possibility of such an improvement, but not

directly, then the corresponding entry is a circle with a half-dark part. In case the concept fails to address the performance metric totally, the entry is left blank.

To further elaborate the above concept, we present an example: Consider quick changeover and temporal availability. Quick changeover is a concept to reduce the downtime of equipment to the minimum possible, and further uses concepts like single minute exchange of die (SMED). If followed in a service environment, it would mean ensuring that downtime for a service is kept to a minimum. Temporal availability – the probability that the service is available at a given time - is then improved. Additionally, also take the case of efficient consumer response and brand image. Although brand management is not directly addressed by the concept of efficient consumer response, it contributes towards it by ensuring that every response by a consumer is efficiently met through improving internal processes.

An analysis of the above chart shows the inadequacy of the reviewed best practices towards the service sector. It's seen that although tangible measures of performances are covered by these best practices, the intangible ones: quality, reliability, security and image are not adequately addressed. Though indirect improvements do result on some measures, there are no direct best practices that addressed measures of performances in the service sector.

Table 3. Matching Chart

	Inventory Management	Quick Changeover	Continuous Replenishment	Efficient Consumer Response	Collaborative Planning	Collaborative Forecasting	Collaborative Replenishment	Co-located Procurement	Supplier Relationship Mgmt.	Simultaneous Engineering
Overall Equipment Effectiveness	●	●	●	●	●	●	●	●		●
Accessibility (Uptime)		●								
Speed of Execution	●	●	●	●			●	●	●	●
Spatial Availability	●		●	●	●		●		●	
Temporal Availability	●	●	●	●	●		●		●	
Conformance to Expectations			●		●				●	
Guarantee	●	●	●	●			●		●	
Reliability	●	●	●						●	●
Competence										
Integrity										
Confidentiality										
Appearance									●	
Past Personal Experience	●		●						●	
Past Experience of Other Customers	●		●						●	
Effectiveness of Personal Contact										
Brand Image				●						
Trustworthiness	●		●							

2.4.2 Cluster Relationship Diagram

These three groups of best practices (JIT, Lean manufacturing and Collaborative Efforts) are called *clusters*, while their components are called as planet *concepts*. Thus clusters are broad class names for a group of planet concepts.

Planet concepts themselves are composed of specific best practices, called *satellite concepts*. In the cluster relationship diagrams and the matching chart, we list the clusters and their planet concepts. The figure below (Figure 2), called the cluster relationship diagram shows the relationship between various clusters and their planet concepts. The colored dotted lines are used to mark each cluster and its planet concepts. Common planet concepts can be clearly seen through this diagram.

Superposed on this diagram is the supply chain: from the raw materials supplier to the end consumer. The role of service providers is also denoted – along this supply chain. The cluster relationship diagram also reiterates the conclusion in the matching chart. Best practices that cover the entire supply chain do not address the services. The service areas of transportation, maintenance, are missing from the clusters of the best practices. In other words, services are still outside the gamut of existing best practices.

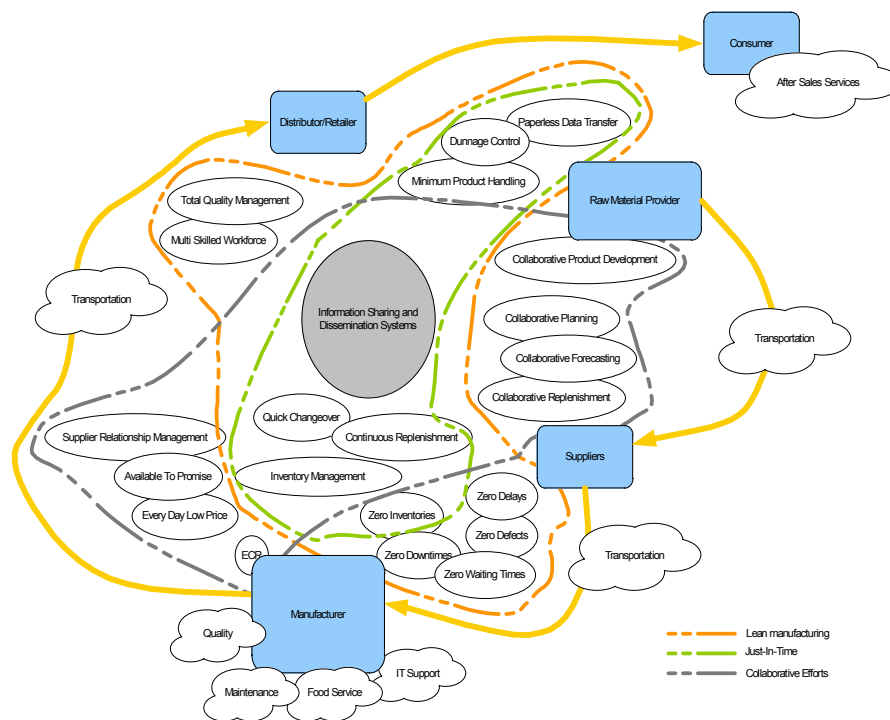


Fig. 2. Cluster Relationship Diagram

3 Conclusions

In the above article, we aim to throw some light on the understanding of best practices towards the service sector. With this goal, we have matched best practices in the industry being currently practiced against the performance metrics in the service sector. The clear conclusion that emerges from our exercise is that existing best practices are inadequate from the point of view of the service sector. The intangible issues pertaining to services are not addressed by these best practices. The best practices being currently practiced in the industry are under the assumption that the product relates to a good rather than a service. The basic difference between goods and services is responsible for this inadequacy. Services have already surpassed manufacturing both in terms of GDP generation and employment. Yet, this sector lacks a comprehensive set of best practices documentation, which is extensively available for the manufacturing sector. There is a great need to document best practices pertaining to the service sector, or re-align manufacturing best practices so that these are applicable to services too. This presents an opportunity for future work in this field.

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