

A study on servitization by manufacturing companies in Mysore

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Abstract

Across the globe, the service sector is growing rapidly, accounting for more than 70% of GDP in developed countries. The manufacturing sector is facing severe challenges – decreasing share in GDP, commoditization of products, increasing competition, especially from low cost economies etc. For the manufacturing sector to grow, it is imperative that they have to offer something differentiated and unique. Progressive manufacturing companies have identified and integrated services and solutions into their product offering and this process is termed servitization. Globally, organisations like GE, Caterpillar, IBM, Xerox etc. have embraced servitization, thereby ensuring differentiated offering from the competition, which in turn has ensured better growth – both in revenue and profits. The servitization or infusion of services by product companies can be in a continuum and in different stages. At the highest end, we have companies like GE and IBM who have infused services in all their product lines. At the other end, we have majority of product or manufacturing organisations who do not offer any services, other than entitlement services like warranty and post sales service. The objective of this research

is to study the extent of service infusion by different manufacturing companies in Mysore based on the framework of “the service infusion continuum”.

Keywords: Servitization, service infusion, services in manufacturing, services in product companies.

Introduction

The manufacturing sector across the globe is facing huge challenges such as intense competition, shorter product life cycles, commoditization and falling margins. More and more product oriented companies are realising that offering services and solutions will help financial growth, ensure differentiation from competition, enable get bigger share of customer wallet, result in customer stickiness/ loyalty and customer satisfaction.

B2C product companies routinely offer services as an entitlement or value add – like offering financing, warranty/ extended warranty, delivery, installation support etc. Some companies like Nike has gone one step ahead and has launched an app which is connected with the sensors in the shoes that can measure a host of fitness related indicators. B2C companies offer services more as a value add and differentiator, but not really as a business model that can enable higher revenue or higher margins.

However, B2B companies have realised the importance of services and are infusing services in their product portfolio to varying degrees. Globally, on the one extreme, there are companies like IBM that have transformed themselves from product to purely services companies. Xerox, an

organization known for manufacturing photocopiers is transforming itself to 'document management company'. The multi product corporate behemoth GE today gets 43% of sales and most importantly 80% of its profits of Industrial products from services (Price Point 2014). SKF, the world's leading bearing manufacturer has a business model through which it charges the customers for machinery uptime and productivity, rather than for the bearings it supplies. In India too, we are seeing companies like Volvo, TVS group and Mahindra leveraging their services offering to ensure higher revenue and profits.

The process by which manufacturing companies incorporate services in their offering was termed "servitization". Though the etymology of the word "servitization" can be traced to 1988 (Vandermerwe & Rada), the importance and imperative of infusing services into manufacturing or product organisations has been growing in importance only in this millennium. A definitive study on service infusion in product organizations was taken up by Zeithaml et al (2014) and they came up with the concept of "The Service Infusion Continuum", which explains the different levels or stages in which services can be infused in a product organization.

The purpose of this research is to study the level or stages of service infusion by select manufacturing companies in Mysore, India.

Literature review

The concept of servitization though is more relevant today, was discussed in detail much earlier in late eighties by Vandermerwe and Rada (1988). They talked about how not only service companies, but product companies also are moving into incorporating more and more services into their offering. The authors looked at servitization as a bundle that product companies offer - the bundle apart from the core 'goods' includes services, support, knowledge and self-service.

Managing this transition from product to services is quite difficult and Rogelio & Robert (2003), suggests that product manufacturers should integrate services into their core product offerings. The rationale for this type of integration is put forth along three lines. First being the economic arguments which tells substantial revenue generation is possible from an installed base of products with a long cycle since services have higher margin and also a steady and stable revenue stream that is fairly immune to economic cycles . Secondly the demand from the customers for more flexibility and customization and lastly the competitive arguments – since services can help to differentiate the product.

Uday Karmakar (2004) studied and reviewed the transformation of manufacturing in the United States. He says in the early twentieth century, manufacturing has moved from small to large scale mass production facilities. But by 2003 this sector reduced in size and accounted for only 12% of the jobs. The author discusses about

technology as the primary change driver behind service sector revolution.

Bitner and Stephen (2007) takes the narrative one step further and discusses the service imperative by product companies and how successful product companies practice service excellence. As per the authors, the successful companies ensure that the strategies that are implemented are formulated after taking into consideration customer perspective. These are done through customer research, customer experience observation, and rich customer information system. Also the customers derive value through usage and co-creation. Their study focusses on customer-centricity. Jay (2002) studied the basic difference between customer centric and product centric companies. He says that the goal of a product centric company is to produce best product for customer, whereas the goal of a customer centric company is to provide best solution for customer. While the former considers product related features and other business parameters like new product development, technology, features, new applications, product reviews, product teams, profits, market share etc., whereas the latter is involved in customizing for best total solution, services, support, education, consulting, customer teams, customer P&L, customer relationship management, customer lifetime value, customer retention, customer satisfaction etc.

A key dimension of customer-centricity is 'value co-creation', which was defined as the direct joint actions by a customer and a service provider of an organisation

aiming at the contribution of values that emerges from both the parties (Gronroos, C 2012). As per him, value co-creation is the fundamental stone of the service marketing perspective. The service providing firm produces resources and provides them to customers who use the same either independently or by integrating them with other available resources in the consumption phase. The author says that the value formation process has 3 sub process - the firm acting alone, the customer acting alone and both of them acting together. in a coordinated and interactive process that creates value for the customer as well as for the firm.

While the above referred studies looked at service integration from the customer point of view, Gao J et al (2011) looked at it from the manufacturing perspective. They say that the integration of service and manufacturing has changed the product pattern and manufacturing paradigm. Physical product is servitized or integrated with the services to form product service system (PSS). In order to provide better PSSs with the lower cost, companies adopt service-oriented manufacturing (SOM). The authors classify the product service system as below:

- a) Product oriented PSS (PPSS): Here the ownership of physical products is transferred to the customers and service arrangement is provided to ensure the utility of the product over a given period of time. Typical examples include warranties and maintenance contracts. Here the products themselves form the basis of competitive advantage.

- b) Application oriented PSS (APSS): unlike PPSS, ownership of the material goods is retained by the service provider in this configuration. Customer purchases use of the product over a given period or units of service. The service provider sells its function instead of the product, e.g. through sharing, pooling and leasing systems. Leasing contract with time clauses is a typical example of APSS.
- c) Utility-oriented PSS (UPSS): similar to APSS, service providers retain ownership of physical products, while customers purchase utility as an outcome and not the use of a 'product'. For example, instead of purchasing or leasing a washing machine, a customer purchases washing service. The service provider owns the product and uses the product to provide utility for customers.

Cusumano, M et al (2008) also look at services incorporation from the 'product' point of view and propound that services in product oriented industries are actually activities that

- Could be sold or given away separately from the industry's physical products
- May relate directly to that industry's product and may be even necessary to use those products
- May not be part of production process of physical good themselves

They propose that services get incorporated in products in a continuum between customization and standardization. The authors also conclude that product innovation of customised service is directly proportional to market uncertainty and product use complexity. Product producers tend to provide more services in the market where there is high uncertainty and use complexity.

A contrarian view was propounded by Ivanka and Bart (2011). They analysed the value creation process of large manufacturing firms which have successfully developed after sales service over a period of 10-15 years and found that contrary to the belief that services are sold frequently at high margin, the authors say that empirical results show otherwise. The authors attribute this service paradox to

- Growth Paradox which unfolds when firms neglect the feedback effect from products to services
- Profitability paradox that occurs when a manufacturing firm fails to either recognise the importance of scaling up or simply fails to scale up.

Kowalkowski et al (2013) suggest that small and medium enterprises (SMEs) use different tactics while infusing services compared to the large organisations. They identify nine generic value constellations that can be used to operationalize different service strategies in SMEs. These constellations are system integration, customer-to-customer intermediary, competence co-location, specialist externality, shared service platform,

dual customer contact partnership, horizontal collaboration, integration co-location and competence acquisition. Majority of the SMEs have practiced hybrid version of these constellations depending on the environment in which they operate.

While the earlier studies focused on product and service as bundle, service excellence and customer centricity, the recent study by Kindstrom and Kowalkowski (2014) discusses on the business model that can be incorporated to infuse the services in the product centric firms. The authors explain that the product organisations struggle in incorporating services since their typical innovation and invention model is centred on structured, bricks-and-mortar product development processes and platforms. Traditional frameworks separate process from product innovation, yet in services, these two concepts are intertwined. In the search for an alternative framework, the authors propose a a multidimensional framework as a business model for service innovation in a product centric firm. This framework includes ten fundamental business model elements - strategy, structure, offering, revenue mechanism, development process, sales process, delivery process, customer relationships, value network, and culture.

The service infusion continuum

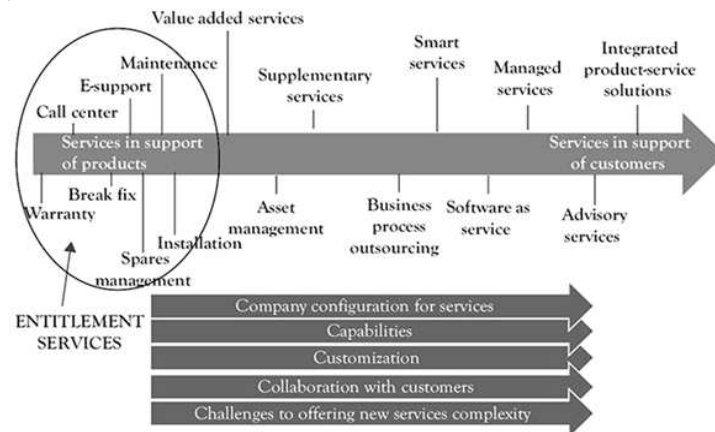


Figure 1 The Service Infusion Continuum –

Source: “Profiting from Services” – By Zeithaml V A et al, Business Xpert Press, 2014

The seminal research on services in product organisations was undertaken at Centre for Services Leadership, W P Carey School of Business, University of Arizona under the leadership of Zeithaml, V A. Zeithaml et al (2014) came up with a model “the Service Infusion Continuum” that tracks the different levels at which the services are infused in the product organisations. The study by Zeithaml et al focussed on Fortune 100 companies and maps companies like IBM, GE, HP, Caterpillar, Ingersoll Rand, Siemens, Xerox etc. in the ‘service infusion continuum model’ (figure 1) and also suggests framework on how companies can infuse services in their offering. This model by Zeithaml et al surmises the earlier researches on services in product organisations and hence forms the basis for this research.

The service infusion continuum is a framework with the help of which a product company can offer different types of services and solutions beyond their regular warranties, call centres, websites etc. The continuum lists ten levels of service (as below) that a product company can infuse as part of their offering:

- 1. Entitlement services** are basic services, such as warranty, call centre, repair and maintenance, installation, e-support etc. which normally most of the firms provide and is termed as entitlement services.
- 2. Value added services** are services that are contributory to the core products and enables the purchase, protection and usage of the products. These are extra services provided at a price while forging stronger relationship with the customer.
- 3. Asset management services** are typically sold separately from products. The services providers have deep insights, knowledge and experience with the assets irrespective of whether they are manufactured by them or not and they assume responsibility for deploying, maintaining, optimizing and moderising usage of this asset category.
- 4. Supplementary services** emanate from a company's deep knowledge about its customers' unmet aspirations and needs in a particular industry sector and the company builds upon its expertise in the sector to deliver these services. Typically they are stand alone services which supports the client's goals associated with the buying of the core product.

5. **Business process outsourcing** services denote those services which capitalize on the trend to lower labour cost by either contracting or outsourcing non-core business processes to organisations that excel in those processes. i.e., the product companies have those processes as their core competencies and hence they have the ability to deliver high quality services at comparatively lower costs.
6. **Smart services** mainly utilizes the sensors that are embedded into its products to ensure uptime, for detecting wear and tear of of the equipment and for life-cycle management.
7. **Software as a service** allows customers to access the firms or an organisations proprietary software whenever needed rather than buying a license for an application.
8. **Managed services** are services that involve transferring day to day management of specific functions to another firm for more efficient and effective operations.
9. **Advisory services** include professional consulting services and solutions that product oriented companies extend to senior executives of client firms to improve functional and business performance.
10. **Integrated product-services solutions** derive from a company's deep understanding of its customers' unique requirements, which helps them to customize, integrate, support and deploy a package of goods and services, including those offered by competitors.

The services move in a continuum and as it moves from left to right, the company's focus of support shifts from "products sold to customers served".

However, the authors argue that the path towards infusing services in a product organization is fraught with challenges and not all organisations are able to transform themselves successfully to service-centric organisations. The authors collectively refer to these challenges as five C's – viz., company configuration or structure, capabilities(customer facing capabilities of sales, delivery and support), customization of offerings, collaboration with customers and challenges to offering new services (specifically investment, performance metrics and partnering with competitors and other supply chain members.)

While "service infusion continuum" will form the focal point of this research, the scope is only to identify the services and map them to the different levels of service infusion continuum. The challenges in implementing services is beyond the scope of this research

Research design & methodology

Problem statement

Infusing services has been found to be the key to profitability by leading global product/ manufacturing organisations, especially in the business-to-business area. Several organisations like IBM, GE, Siemens, SKF etc. have successfully incorporated services in their offering and have seen their revenues and profits soar. There are extant

literature which documents the success of these enterprises also. However, such a study in the Indian context has not been taken up. This research aims to make a beginning in this area and bridge the gap. This study will help in understanding the level of service infusion by manufacturing companies in India, specifically companies located in the city of Mysore in the state of Karnataka.

Research objective

The objectives of this study are (a) To study the services provided by the manufacturing companies in Mysore and (b) To map these services in broad categories along the services infusion continuum of Zeithaml et al (2014).

Nature of research

This study is exploratory in nature and aims to explore the diffusion of services by manufacturing companies in Mysore. The focus of the study is to gain insight into the manufacturing company's service orientation, the structure for services in the company, type of services offered etc. Hence, the research approach adopted is 'case-study' based and hence 'qualitative research'. The research was conducted through a detailed one-to-one semi-structured interview with the key executives of the respective organisations.

Sampling and data collection

This is an exploratory study based on qualitative data. The criteria used for selecting the respondents (manufacturing companies) are as below:

- (i) the company should a B2B (major sales coming from Business to Business) company based out of Mysore since the service infusion continuum was more apt and relevant for them
- (ii) it should have an annual sales of above Rs.100 Crores since small manufacturing companies may provide services, yet they may not monetize or leverage the same towards higher profit and
- (iii) the companies should be serving customers across the country and
- (iv) willingness of the executives to share the information.

A total of 16 companies in Mysore fulfilled the above criteria. The sampling approach of qualitative research is different from quantitative research since the number of respondents are very limited and as part of the research process, one is likely to encounter differing responses. Hence the sampling that is used is 'purposive convenience sampling', purposive referring to those meeting the criteria and convenience referring to their willingness to partake in the study. The research texts suggest sample size between four and forty depending on whether the sample is homogeneous or heterogeneous. (Daymon & Holloway 2002). Based on the criteria for selection (senior executives) and their availability and willingness to share information, fifteen executives from the following nine companies were identified and administered the interview.

1. Autoliv India Pvt. Ltd.
2. Mysore Polymers and Rubber Products Ltd.
3. J K Tyre Ltd.
4. TB Kawashima Automotive Textile(India) Pvt. Ltd.
5. San Engineering & Locomotive Co. Ltd.
6. Triveni Engineering & Industries Ltd.
7. Skanray Technologies Pvt. Ltd.
8. Kluber Lubrication India Pvt. Ltd.
9. Automotive Axles

1-2 executives from the above companies were met and detailed interviews were conducted over 30-60 minutes. The interview was of semi-structured nature and the interview schedule had twenty five questions. A few of the questions are as below:

1. What is the product portfolio of your company?
2. Which are the industries and the market you serve?
3. How do you differentiate your products from your competitor's product?
4. What are the services you offer?
5. Is there a separate department that handles services?
6. How do you think provision of service will affect the bottom line of your company?

7. Are the services being provided to all customers?
8. Are all the services requirements being provided by your company itself? Or there is a third party service provider?
9. On what basis the billing is done to customer for the service provided?

In a qualitative research, the validity and reliability of the questionnaire cannot be tested due to the nature of research and less number of respondents. Instead, one should ensure authenticity and trustworthiness of research (Daymon & Holloway 2002). Two methods – ‘member checking’ and ‘peer debriefing’ were used to enhance the quality of research.

Data analysis

Unlike quantitative research, which follows structured data collection and analysis and usage of statistical tools, in qualitative research, there is a constant interplay between data collection and analysis. Qualitative data analysis focusses on data reduction and interpretation. Data reduction works towards coding and categorizing the data, while interpretation ensures meaning and insights from the data collected. Following these principles, data was analysed and the results are as below:

Results

Based on the interview conducted, the brief profile of different companies and the services offered are summarized as below:

Autoliv India Ltd: Autoliv India is the subsidiary of the Swiss-American company Autoliv Ltd. Basically, they are the manufacturers of automotive safety equipment, such as seat belts, airbags and electronics related to them. A couple of key services that the company offers are product quality life assurance till the end of normal vehicle life and dynamic component testing in a simulated car-like set up.

Mysore Polymers & Rubber products: They manufacture rubber tubes and rubber moulds as per the specifications provided by the customers. The company provides standard warranty services to its customers.

J.K Tyres: They are the pioneers of radial tyres in India. Apart from manufacturing host of cross-ply and radial tyres for all vehicles – from two wheelers to cars to trucks and off-road vehicles – they also provide a host of other services. Warranty and maintenance of tyres are provided with the production. The company also has tyre care centres along the highways that provide tyre repairs, inflation pressure check-ups, tyre rotation checks and general tyre service. The company also has a ‘fleet management program’ through which the company offers total tyre solutions – from the purchase of new tyres to tyre disposal – to ensure the optimum Cost Per Kilometre (CPKM) to the large fleet. They also provide a dedicated ‘fleet in-charge’ for every fleet who assists in the implementation of best tyre care and maintenance practices. They also provide data management software that monitors tyre data performance.

TB Kawashima: They are specialized in manufacturing fabrics for the transportation segment. Their main products

are interior materials for automobiles and other vehicles. They provide the standard warranty services to their customers.

San Engineering: They are leading manufacturer of locomotive, power packs, gear boxes, cardan shafts and a variety of technologically advanced rail related and locomotive products. Apart from selling their products they provide a host of services. These services include training for customers, leasing services and design services. The company also provides consulting services to organisations who want to set up manufacturing plants.

Triveni Engineering: They are the market leader in high speed gears, gear boxes and water treatment solution. They provide training to their customers on how to identify a problem and measures to be taken immediately on identification of a problem. They also have a call centre for problem resolution. In addition, they also provide design services to their customers.

Skarray: They are the largest Indian medical diagnostics equipment manufacturing company. i.e., a company owned by Indian promoters. They manufacture X-ray systems, surgical C-ARM, Ventilators, Defibrillator, Patient monitoring Systems, central nursing Station, and Electrosurgical units, Anaesthesia delivery systems, Electro cardio grams and Dental Products. They have set up special demo rooms for providing demonstrations to the customers. They have customer interaction centre which takes complains whenever their products are installed at any place. Product training is provided to technicians and doctors based on the need.

Kluber Lubrication: They provide comprehensive range of speciality lubricants in the form of solid, liquid and paste. Their products are complemented by a range of services- together they offer substantial overall benefits. They provide expert advisory services to our clients on how to choose and store the lubricants, how do they find the best possible timings for an oil change, how accurately they can determine bearing free space and internal clearance. The company also provides application engineering support. The company also provides comprehensive post-sales support, termed “Kluber Efficiency Support”.

Automotive Axles: Automotive Axles manufactures drive axles, non-drive axles, front steer axles, specialty & defense axles and drum & disc brakes for automotive sector. They provide testing service and post-sales product service. They also advise customers on choosing the right kind of products.

The detailed interview transcripts were collated and sorted for the nature of services offered. Being qualitative research, the data was analysed based on deduction and interpretation. The objective of the study is to study the services and map them into service infusion continuum. Accordingly the responses were categorized based on the different stages of service infusion continuum and the categorized data is mapped to service infusion continuum (Table 1.)

Table 1: Services Vs. Levels of 'Service Infusion Continuum'

Sl. No.	Name of the firm	Nature of services offered	Mapping to service infusion continuum
1	Autoliv India Pvt. Ltd	Product Quality Life Assurance till the end of normal vehicle life; Dynamic Component Testing in car-like set up	Entitlement services
2	Mysore Polymers and Rubber Products Ltd.	Warranty; Maintenance	Entitlement services
3	J K Tyre Ltd.	Warranty; Maintenance; Call centre Services	Entitlement services
		Tyre Care Centres along the Highways that provide <ul style="list-style-type: none"> • Tyre Repairs. • Inflation pressure check. • Tyre Rotation. • Tyre service. 	Value-added services
		Fleet Management Program	Asset Management Services

4	TB Kawashima Automotive Textile(India) Pvt. Ltd.	Warranty services	Entitlement services
5	San Engineering & Locomotive Co. Ltd.	Product Training	Entitlement services
		Leasing Services	Value-added services
		Design services	Supplementary services
		Consulting services for customers for setting up manufacturing plants	Advisory services
6	Triveni Engineering & Industries Ltd.	Customer Training towards problem detection; Call Centre for problem resolution	Entitlement services
		Design services	Supplementary services

7	Skaray Technologies Pvt. Ltd.	Product Training; Warranty; Repair & Maintenance; Customer Interaction Centres	Entitlement services
8	Kluber Lubrication India Pvt. Ltd.	Kluber Efficiency Support	Entitlement services
		Application engineering	Supplementary services
		Consulting on choosing lubricants	Advisory services
9	Automotive Axles	Product testing in-house as well as field	Entitlement services

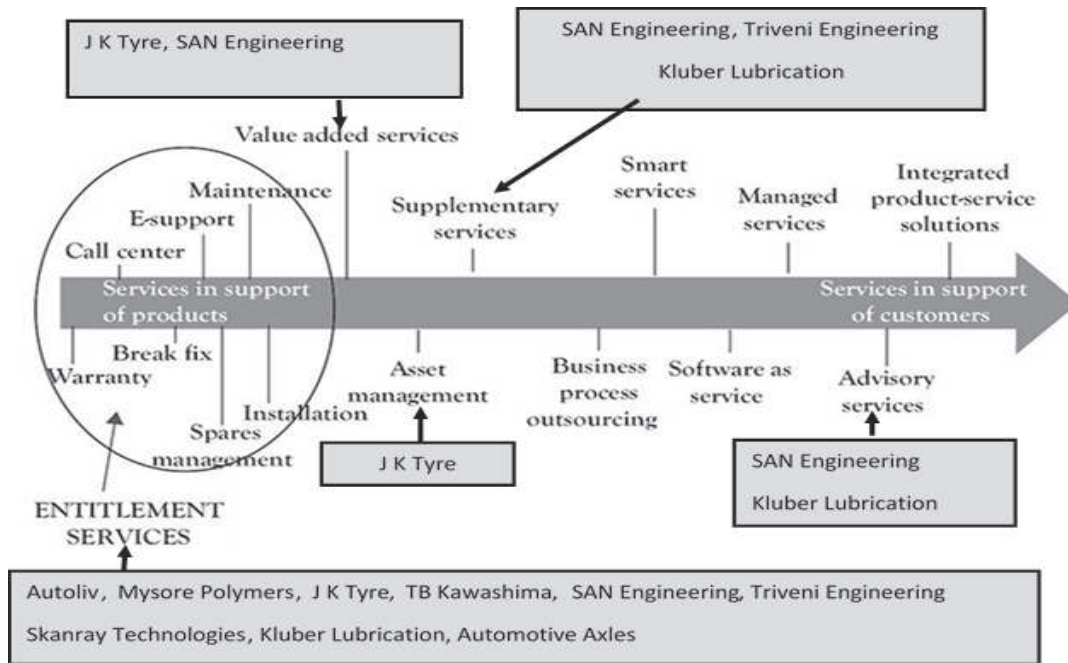


Figure 2: Companies Vs. Levels in Service Infusion Continuum of Zeithaml et al (2014)

Discussion

The figure 3 shows the level of services (as per service infusion continuum) vs.companies offering these services.

J K Tyre

The data collected and interpreted very clearly showed that though the companies are divergent in the products that were manufactured by them, uniformly all of them are focused on entitlement services. The entitlement services (Zeithaml et al 2014) are essentially services like warranty, on-line support, routine maintenance etc. that is sold along with the product and are not monetized separately. The entitlement services are often bundled with the product when it is sold and this service has long been offered by all companies. It has been observed that more than half of the companies offer only entitlement services and do not offer any other services. This shows that the executives in these companies are not looking beyond products.

Value-added services come at the next level of service, after entitlement services in the service infusion continuum and this is the first stage at which services can be monetized. While value added services can be the same services as entitlement services, but the differentiating factor is these can be monetized. While all nine companies who provide entitlement service can also provide value added services, only two companies were offering value added services. This shows their executives unwillingness to monetize services.

Asset management services are typically sold and billed separately from products. While at least four out of the nine companies have the competence and product expertise to offer asset management services, it was observed that only one company was offering asset management services. What is evident from the existing scenario is that these companies have not explored further avenues for generating revenue or the company does not have the structure to support services.

Among the nine companies that were considered for the study, three companies offered 'design services' which falls under the category of 'supplementary services'- services that are built upon the company's expertise in the sector. On further assessment, it was found that these three companies are in the area of design and manufacturing products according to what was designed by them. Hence they saw design services as an additional service that they could monetize.

Only two companies – both of them engineering organisations- offer consulting services which fall under "advisory services" in the continuum. And our discussion with the executives of these companies also revealed that most of the times, these services are offered as part of pre-sales to get the order and they may not always charge or monetise these services, in which case, it may not truly qualify as "advisory services".

It is pertinent to note that out of nine companies, only three companies was straddling across three or more services entitlement services, value added services and asset

management services. Six out of nine companies were not looking at services as a key differentiator and as an avenue to earn more profit. It was evident from the interaction with these companies that the emphasis is more on the products and services are looked at as just an 'add-on'. The organizational structure of the companies are also product centric, with most of the executives believing that more profits can be derived out of product rather than services.

Conclusion

This research addressed only one aspect of servitization, viz. adoption of services by the companies. Based on the study, we could also map their services onto service infusion continuum. The study showed that all the companies were focussed only on 'entitlement services' that does not bring any additional revenue. The companies that were focussing on other services also were not doing so by design, but including those services that were a pre-requisite for manufacturing. It was clearly evident from the study that the companies are not sensitised to the relevance of services as a key differentiator and lack understanding of the power of services in ensuring higher profitability. Only one company (JK Tyre) understood the power of service, perhaps because (a) they straddle across B2B and B2C and (b) they operate in a highly competitive market and there is a compelling need to differentiate. The biggest challenge one could see in the other companies' is that the firms are entrenched in a culture that is 'product-centric'. They hold onto the legacy of products and are not looking forward to incorporating

services as a differentiator and the route to greater profitability. But going forward with falling of import tariffs and entry of MNCs on account of “Make in India” initiatives, it is only a matter of time before the companies realise the criticality of services and will be forced to incorporate services.

Incorporating services in product/ manufacturing organisations requires understanding of many strategic components – like changing management practices, changing structure and employee reward system and being more customer centric. Senior management and human resources team need to play a key role while moving to a service-centric organisation.

The companies could have their own reasons for their unwillingness to get into services. Further research can be taken up in this area to understand the reasons behind companies unwillingness to incorporate services. This study was focussed on companies in Mysore. The research can be further broad-based to cover more companies in different geographies. In the present study, except one company that happens to be an MNC, all the other companies are Indian companies. It would be worthwhile to study the service infusion from the perspective of MNCs. Also further research can be taken up in MNCs that are known to have incorporated services in a major way in their home country and understand their level of service infusion in their Indian operation.

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