1 Introduction

1.1 Motivation

1.1.1 Service business development as a response to commoditisation tendencies

Over the last decade, the business environment of capital goods manufacturers has changed dramatically. Unlike consumer goods, capital goods are durable and capital-intensive products; manufacturers sell their products and/or capital goods to other companies. Capital goods manufacturers are involved in business-to-business relationships; in the value chain, they can be positioned as manufacturers of machines and equipment or suppliers of modules and components (i.e. 1st, 2nd or 3rd tier suppliers).

Capital goods manufacturers invest substantially in product innovation, develop proprietary new product technologies, try relentlessly to reduce the time to market of their products and attempt to achieve cost optimisations. However, few capital goods manufacturers are able to outrun the competition with pure product-related technologies and innovation alone (Matthyssens and Vandenbempt, 2008; Vandenbosch and Dawar, 2002). Moreover, capital goods manufacturers often face the situation where the marginal rate of R&D investments is considered to be diminishing. In order to achieve similar competitive advantages as in the past it means that companies have to invest all the more in R&D. Maintaining R&D investments at the same level would make transferring technological advantages to the price of the product more difficult. Capital goods have become commodities (Grönroos, 1990; Matthyssens and Vandenbempt, 2008). This, in turn, puts pressure on product margins and profitability. As a direct consequence, many categories of capital goods have reached competitive equality leading to a situation where technological advantages are becoming increasingly difficult to maintain as a lasting strategy.

In some industries, capital goods are even sold at cost price: the intensive level of the competition leads to a situation in which product prices are very close to the actual manufacturing costs. The underlying idea of selling at cost price is to attract more customers and thereby increase the market share of the installed base. 'Installed base' is a specific term used in the capital goods manufacturing industry to describe the products that are currently being used by their customers. Once the customers use their products, companies can then start to provide services that lead to increased revenues and margins from their service business (Brax, 2005; Gebauer and Fleisch, 2007; Jacob and Ulaga, 2008). The actual profit comes from the service business since the products are sold at cost price.

Adding services to the products, along with extending the total offering through services, are potential ways of responding to eroding product margins and the loss of strategic differentiation through product innovation and technological superiority. The extension of the total offering via services has been conceptualised in the literature through notions such as 'servitisation' (Vandermerwe and Rada, 1988), 'transition from products to services' (Oliva and Kallenberg, 2003), 'going downstream in the value chain' (Wise and Baumgartner, 1999), 'product-service systems' (Tukker, 2004), 'moving towards high-value solutions, integrated solutions and systems integration' (Davies, 2004; Windahl and Lakemond, 2010) and 'manufacturing/service integration' (Schmenner, 2009). These views converge on the concept of 'service business development', which can be defined as increasing the value contribution of services in the capital goods industry.

Generally speaking, service business development covers the strategic movement from being a pure manufacturer of capital goods to a provider of innovative combinations of products and services. Pure manufacturers develop, manufacture and sell capital goods. Providing innovative combinations of products and services suggests that companies develop, manufacture and provide products; develop and deliver services; integrate and combine products and services creatively for tailor-made solutions. Such an innovative combination leads to high-value unified responses to the needs of customers (Davies *et al.*, 2007; Sawhney, 2006).

Extension of service offerings

It is arguable that the development of service business corresponds to an extension of the service offerings. The extension of the service offerings includes basically the following service categories (see Table 1.1):

- *Customer service*: extending the service offerings often starts with customer service. The aim of customer service is to augment the product offering. General strategic options involve increasing the logistical precision of the delivery of the product, customer integration in customising the product offering, customer adaptation of the product features and standardised customer service (Wouters, 2004). Customer service influences the client's overall level of satisfaction and strengthens not only the confidence of the customer but also the credibility of the manufacturing company. Services that are typically embraced are information, delivery, billing and documentation. Such services improve the quality of the relationship with the customer (Mathieu, 2001a).
- *Product-related services*: product-related services cover the provision of basic service for the installed base, e.g. spare parts, repair, inspections and basic training, to ensure that the product functions correctly. Product-related services also cover more advanced services such as preventive maintenance service, process optimisation and training and maintenance contracts (Gebauer, 2008; Oliva and Kallenberg, 2003). Basic services simply ensure the functionality of the product whereas more advanced services aim at the prevention of any product breakdown. The aim is to optimise the efficiency and effectiveness of the product when it is utilised by the customer. Both the basic and the advanced services for the installed base address the operational needs of the customer. The service offering could be extended further by supplying services supporting their business needs.
- *Services supporting business needs*: these services reach beyond the operational needs of the customer and address their business needs. The services involved are very diverse and different in nature. They are closely associated with Kotler's (1994) concept of business services, Oliva and Kallenberg's (2003) process-orientated services and Davies' (2004) description of operational services and system integration. The services are based on the customer's requirements for integrating products and services into a customised and functioning system. They involve providing assistance and advice in, for example, technical questions, feasibility studies, design and construction and R&D. Using such services, companies can design and construct products and systems using the competencies developed in-house and by the customer. Customers benefit directly from development competencies: it is indeed these competencies that keep

Table 1.1: ***Service categories involved in service business development***

	Customer service	Product-related service	Services supporting business needs
Goals	- Improving the quality of the customer relationship	- Ensures the functionality of the product. Basic services enable companies to react as soon as possible to product breakdowns - Increases the efficiency and effectiveness of the product. Advanced services aimed at the prevention of product breakdowns	- Reaching beyond the operational needs of the customer
Examples	- Services related to information, delivery, billing, documentation	- Basic services for the installed base (e.g. spare parts, repair, inspections and basic training) - Advanced services for the installed base (e.g. preventive maintenance service, process optimisation, training and maintenance contracts)	- Outsourcing services - Business consulting - Technical consulting services (e.g. R&D, design and construction, feasibility studies)

competitors at bay and deter them from catching up. Both the companies and their customers possess a unique position of competency that is difficult to duplicate (Davies 2004; Wernerfelt 1984). The collaborative process of co-creation allows customers to learn of the capabilities possessed by the manufacturers. The manufacturers, in turn, are then able to advise them in the design and construction of their processes. Furthermore, services can also cover 'outsourcing', whereby companies take over part of the processes on behalf of the customer. The manufacturing company assumes the operating

risk and full responsibility for the customer's operating processes. Outsourcing services allow manufacturers and their customers to co-create an in-depth understanding of the operational requirements of the process output (Gebauer *et al.*, 2010).

These service categories fulfil the various needs of the customer. They ensure the functionality and performance of the product when used in the customer's production process, cover its operation and maintenance whilst in use and, finally, take the business considerations of the customer into account. The needs of the customer with regards to operating and maintaining the product are closely coupled to the question of outsourcing. Developing service business appears, therefore, in part to be the 'other side of the coin' of the outsourcing discussion (Hobday *et al.*, 2005). Customers reduce their set competencies, thus becoming more flexible and highly specialised: they concentrate on their core competencies alone. It means that they turn to outsourcing activities and demand more services (Oliva and Kallenberg, 2003).

Moving from being a product manufacturer to a service provider

Service business development can be a potentially competitive strategy for manufacturing companies (capital goods manufacturers) to compensate for the lack of technological opportunities for product differentiation (Bowen *et al.*, 1989; Martin and Horne, 1992; Vandermerwe and Rada, 1988). It proceeds along a continuum from *product manufacturer* towards *service provider* (Belz *et al.*, 1997; Oliva and Kallenberg, 2003).

- A product manufacturer considers services as a supplement, i.e. an add-on to the product. Service revenue is quite low: most of the value contribution stems from the product and the few services, such as installation, documentation and spare parts, which are offered. The value contribution of these services is relatively low.
- A service provider relies mainly on creating value through the provision of services. Service profits and revenues drive the overall profitability of the company. A large number of services are offered, including product-related services and customer-support services (such as maintenance contracts, consulting services, financial services, etc.) (Belz *et al.* 1997; Oliva and Kallenberg, 2003).

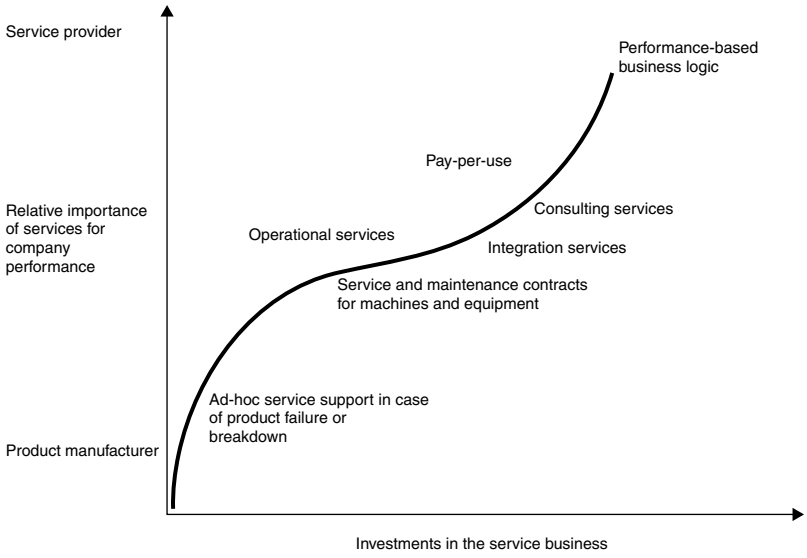


Figure 1.1: Moving from being a product manufacturer to a service provider

Moving from being a product manufacturer to a service provider requires more than investments in the service business to change the business logic, as illustrated in Figure 1.1. A product manufacturer offering a few services might either integrate services into the price of the product or charge the customers for the service support as and when needed, e.g. product-related services such as spare parts and field services. In such a situation, the value contribution of services is relatively low. Moving towards the role of service provider can help convince customers to pay a fixed price for the service desired: the customer is thereby provided with an annual service contract that covers all of the service costs associated with maintaining the product (Cohen *et al.*, 2006).

A further step in developing the business logic towards being a service provider is paying only for the performance of the product. ABB, a specialist in industrial automation, for example, offers its customers traditional product-related services such as spare parts, field services and maintenance services but also an 'Automation Performance Management Service'. ABB guarantees specific performance levels of the industrial automation equipment it provides. Performance

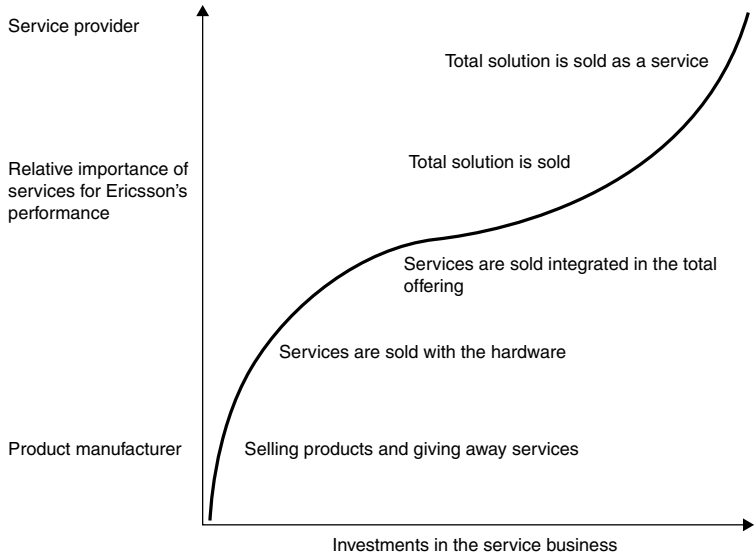
levels are determined by the reliability of the industrial automation equipment and the service excellence achieved in the provision of spare parts, field services and maintenance. Customer payments depend on whether ABB meets the performance goals or not. Alternatively, the business logic could involve paying only for services used by the customer. In the aircraft industry, for example, Rolls-Royce and General Electric sell 'power-by-the-hour'. Customers pay a fixed tariff for the hours that the air engines actually run. This covers all of the costs involved, including the air engine, installation and after-sales services (e.g. repair, maintenance, modernisations and spare parts) (Glueck *et al.*, 2007).

Whereas Figure 1.1 illustrates the general movement from being a product manufacturer to a service provider, Exhibit 1.1 illustrates Ericsson Operating Systems as an example of this movement.

Exhibit 1.1: Ericsson's movement towards providing services

Despite fundamental changes in the world of telecommunication, Ericsson Operating Systems has been one of the most successful businesses in the branch in the last decade. At the level of the business model, an emerging digital value network is replacing the traditional value chain. Whilst technologies such as broadband, multimedia and wideband allow new services and solutions to be introduced, they also raise the questions of reducing costs, using service to ensure quality worldwide, making profits, being the first to create revenue as well as building new skills in order to be successful. To cope with such potential questions, Ericsson set up a Global Services Division in 1999. Its creation was a major step that the top management called 'the evolution of services at Ericsson'. The evolution of services began by selling products and giving away services, and culminated with the total solution being sold as a service. Accordingly, business logic implies payment being made either for the actual performance or pay-per-use. Bearing this vision of the evolution of services in mind, the top management triggered Ericsson's transition from being a product manufacturer towards being a service provider. In 2010, Ericsson generated about 39 per cent of its revenue through the provision of services.

Exhibit 1.1: (*cont.*)



The evolution of services at Ericsson

1.1.2 Economical and strategical arguments for moving towards services

The rationale for service business development can be divided into *economical* and *strategical* arguments (Oliva and Kallenberg, 2003).

Economical arguments: these highlight the financial potential of services (Cohen *et al.*, 2006). The financial potential of services embraces three different aspects: (1) using service revenue as a performance indicator for moving toward services, (2) services are more profitable than products and (3) service business is less volatile than product business.

Using service revenue as a performance indicator for moving toward services

Services can yield an attractive share of revenue. One example is the report of the longitudinal development in the share of service revenue in the German machine and equipment industry (VDMA, 2008), in which the share of revenue generated by services increased, on average, from 13 per cent in 1991 to 27 per cent in 2007. Similar increases

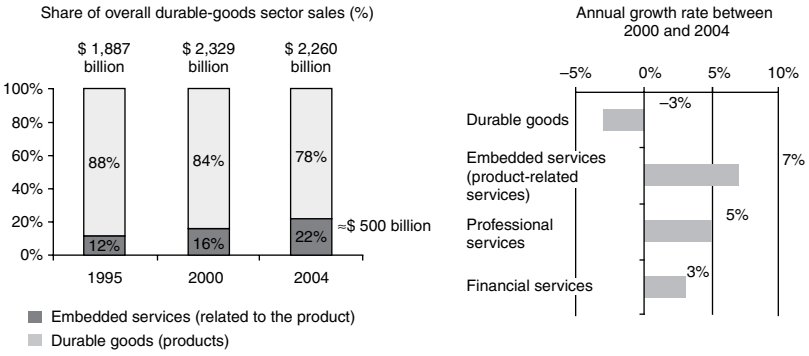


Figure 1.2: Service revenues

Source: Auguste *et al.* (2006, p. 43).

in the share of service revenue have been observed in the sales of durable goods (Auguste *et al.*, 2006). The data reported indicates that the share of revenue attributed to embedded services (product-related services) increased from 12 per cent in 1995 to 16 per cent in 2000: it was reported to have reached 22 per cent in 2004. The growth rate suggests that embedded services achieve the highest growth rates when compared to the sales of durable goods. They outperform other service business such as professional and financial services (Auguste *et al.*, 2006), both of which represent service categories that could also be offered by manufacturers of durable goods. Professional services correspond to business consulting and integration services (see Figure 1.2).

Whilst the above figures of 27 per cent and 22 per cent are averages, the share of revenue that can be attributed to the provision of services varies significantly from company to company. Figure 1.3 illustrates that although the majority of companies (38.7 per cent) generate less than 10 per cent of their total revenue through services, a few companies achieve more than 40 per cent of their total revenue this way (11.1 per cent). The share of revenue created by services has a positive relationship to the overall profitability of manufacturing companies. Homburg *et al.* (2000a) suggest similar numbers: 70.4 per cent of industrial marketing companies in their sample create up to 15 per cent of their total revenue through services and 11.3 per cent of the companies generate more than 40 per cent of their total revenue this way. Meiren (2006) argues that 66 per cent of companies create less than

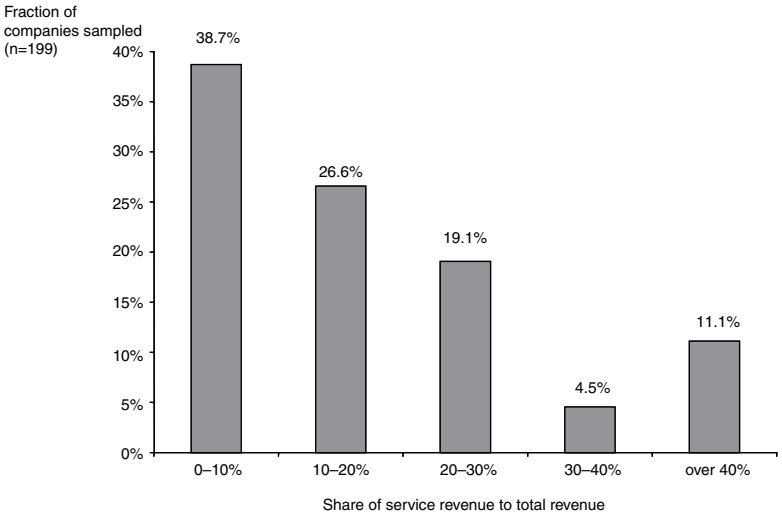


Figure 1.3: Share of service revenues
Source: Gebauer and Fleisch (2007); Ren and Gregory (2007).

20 per cent of their total revenue through services and only 9 per cent create more than 40 per cent of their revenues through services. It is important to note that the calculation of shares of service revenues can differ. For example, some studies integrate spare parts revenues into the service revenue, whereas other studies consider spare part revenue as product revenues.

Such attractive service revenues indicate that the service market is often considered as being greater in magnitude than the actual product market. Wise and Baumgartner (1999, p. 135) argue that 'in many industries today, the sale of a product accounts for only a small portion of overall revenues. Providing services to customers is where the real money is.' Similarly Jack Welch, the former CEO of General Electric, argued that 'the [service] market is bigger than we ever dreamt' (Mathieu, 2001a, p. 451). Consider, for example, the following three industries: locomotive, automobile and personal computers. The ratio between customer expenditure on the product and services throughout its life-cycle ranges from 1 to 5 and 1 to 20. It means that a customer who invests 1 million euros in a new locomotive will spend about 20 million euros on services. These include not only services necessary throughout the life cycle of the locomotive but also