8. Creating and capturing value in the service economy: the crucial role of business services in driving innovation and growth[1]

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INTRODUCTION

Developed economies are service economies. Managers and researchers have yet to pay attention to one of the major drivers of this phenomenon: the rise of business services through the opening up of new business models. Contrary to popular opinion, the share of consumer services in economic output has remained rather stable over time, while the share of business services has been rising continuously (Ehret and Wirtz 2010). Business services constitute the backbone of the networked enterprise. While the vertically integrated firm used to dominate the age of manufacturing, service economies build on networks of specialized firms where businesses can hire almost any conceivable business activity or resource as a service.

In the domain of strategy, the rise of business services goes hand in hand with the strategic shift from product-centric strategies to service-based business models. Companies use business models as a strategic response to the increasing competitive pressure which shows in reduced margins and shorter time frames to capture the value from product innovation. Chances are shrinking that products with cost or differentiation advantages today will still be leaders tomorrow. As a response, firms organize around opportunities in order to craft value propositions that are difficult for others to copy. This requires companies to focus on domains where they are unique and have competencies that provide a sustainable competitive advantage, while using business services to integrate underlying resources.

By pursuing stronger focus, firms have been shifting a substantial share of business activity beyond the domain of their legal boundaries to the advantage of specialized providers of business services. Consumer goods firms outsource the management of complex manufacturing technology and their supply chains. Increasingly, they even team up with external suppliers and inventors in order to speed up time to market and boost the scale of innovation. Procter & Gamble set the pace in consumer goods with its landmark 'Connect and Develop' programme (Huston and Sakkab, 2006). For mobile systems like IOS, Android or Palm OS, attracting a sufficient number of external software development companies implies the make or break of a platform (Harper and Endres, 2010).

Business services are at the centre of this fundamental transformation taking place in developed economies. Arguably, the IT industry pioneered the move from manufacturing-centred to service-based business models. Having served on boards of major consumer goods companies, then IBM CEO Lou Gerstner felt that the company could do more than selling boxes and should focus on managing complex IT systems and processes for major client corporations (Ploetner, 2008). In manufacturing technologies,

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industrial suppliers are increasingly using machines and technical modules as platforms for the delivery of services. Providers of paper manufacturing machines like Germany-based Voith now operate entire factories for their clients as a service. Manufacturers of aircraft engines are joining their customers in operating their planes, tracking engine performance 24/7, and managing the service and maintenance networks (Ehret and Wirtz, 2010; Lay et al., 2010; Ploetner, 2012).

Even firms which began as consumer brands are starting to spot their own opportunities in business services. Take Amazon, which established itself as an online-retailing household name, but now drives the major share of its growth from offering IT services from its server farms, and from channel management by opening its fulfilment and retail infrastructure to third-party retailers (Chesbrough, 2011; Levy, 2011).

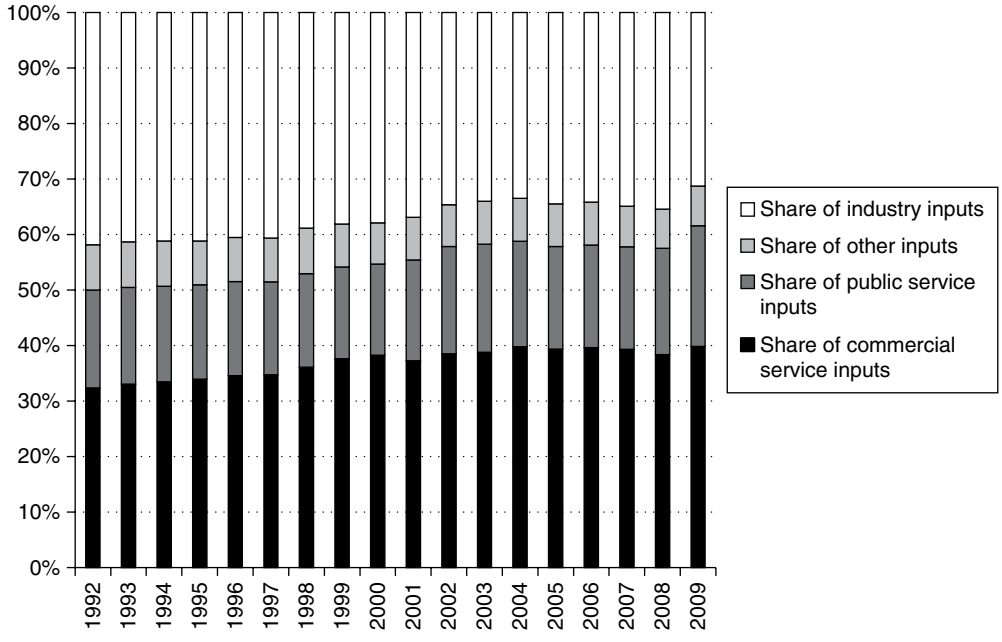
In this chapter we will elucidate key features of business services. First we show macroeconomic evidence that the rise of business services is the driving force transforming industrial into service economies. Next, we discuss three economic theories that explain the value provided by business services. Finally, we discuss key elements of service-based business models for capturing and delivering value in the service economy.

BUSINESS SERVICES AND THE RISE OF THE SERVICE ECONOMY

Macroeconomic research has started to note the role of business services as economic growth engines. OECD studies show a continuously rising share of business services in adding value to the output of manufacturing (Woelfl, 2005; OECD, 2008). In the case of the USA, businesses have increased the use of service inputs from around 30 per cent in 1992 to 40 per cent in 2008. If public services such as infrastructure, health and education services are added, service inputs have a share of over 60 per cent of inputs into value creation of businesses in the US economy (Figure 8.1).

Traditionally, economic theory held that services lag in productivity behind manufacturing and therefore inhibit economic growth – a phenomenon called 'Baumol's disease' (Baumol, 1967). This argument may apply to certain consumer services where productivity may not be the purpose of service delivery or is hard to measure (e.g., a hair stylist, a fine-dining restaurant or an opera house). However, if services are supplied to businesses, they can significantly contribute to productivity growth of manufacturing as well as that of the overall economy (e.g., Fixler and Siegel, 1999; Oulton, 2001; Wirtz and Ehret, 2009). Indeed, empirical research shows that business services used by manufacturing firms are the most important drivers of productivity growth in developed economies, followed by the use of IT (Triplett and Bosworth, 2003). Figure 8.2 illustrates that in today's advanced economies connected enterprises can hire almost any conceivable business activity and asset as a service.

Why would business services improve the productivity of a manufacturing firm? Consider the following example. A manufacturing firm runs its own canteen with 100 workers, who in the national statistics are all classified as 'manufacturing employees' and who produce 'manufacturing output' (their output is captured in the added value created by their employer, that is, the manufacturing firm). However, how good is a manufacturing firm in buying ingredients for cooking, designing and running kitchen



Source: OECD STAN database; accessed 30 April 2012.

Figure 8.1 The growing share of services as inputs into commercial activity in the US economy

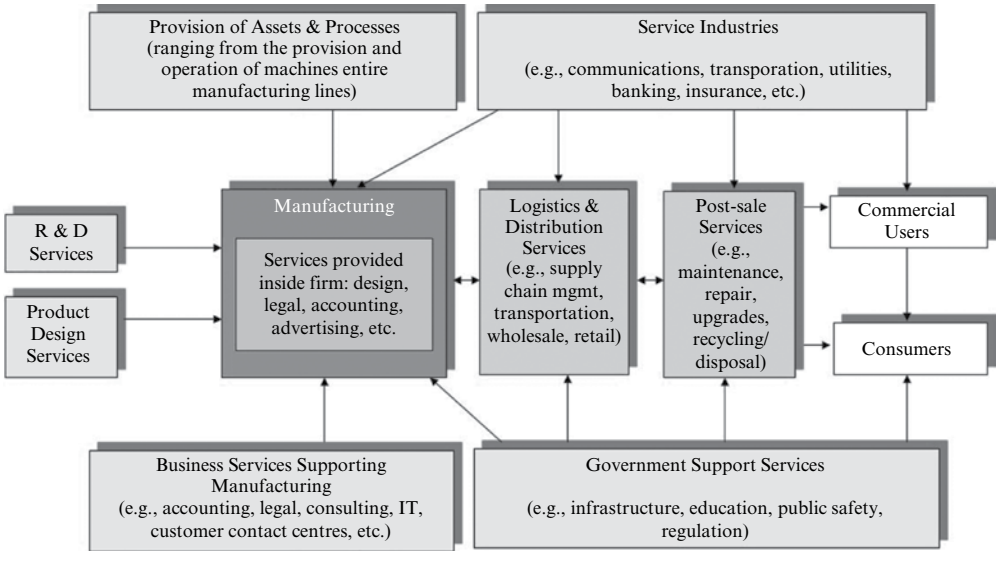


Figure 8.2 Business to business services – a growth engine for the service sector

processes, motivating chefs, and controlling quality and costs in a canteen? The general answer is that it would probably neither produce fantastic food nor be very cost effective. The reasons for this are threefold. First, the operation lacks economies of scale and is high on the learning curve. Second, the manufacturer does not have a lot of experience catering to many sites, which makes management, cost and quality control, and benchmarking difficult and expensive. Third, the firm has little incentive to improve processes or conduct R&D on that aspect of its business, mainly because of the low volume and low criticality of canteen operation to the overall business. As such, the canteen operation would neither justify much management attention nor significant investments in process improvements and R&D (Wirtz, 2000; Wirtz and Ehret, 2009).

Many manufacturing firms have recognized this problem and outsourced their canteen operations, most likely via a tender process with a renewal every few years. The winning bidder is likely to be a large catering firm or a firm that specializes in running canteens across many sites. That company makes 'operating canteens' its core competency. This means that the operation is managed with an emphasis on service quality and costs (sites can be benchmarked internally), has economies of scale and is way down the learning curve. It also makes sense for the firm to invest in process and service redesign, and in innovation and development of specialized tools, equipment and systems, as the benefits can be reaped across multiple sites. What used to be a neglected support activity within a manufacturing firm has become a management focus and core competency of an independent service provider calling for professional management and entrepreneurial responsibility. This logic applies to all non-core functions within firms and has led to more and more outsourcing, even among service organizations (e.g., Heracleous, Wirtz and Pangarkar, 2009; Heracleous and Wirtz, 2010).

What are the underlying drivers of this division of labour between companies? A non-ownership perspective provides a partial answer to this question, as discussed next.

SERVICES AND THE DIVISION OF LABOUR BETWEEN FIRMS

Why does it pay for firms to use external service providers in addition to or as an alternative to their own operations? In economics, this question has puzzled several research streams in the wider field of the theory of the firm. Why do firms exist at all within an efficient market economy? What costs and benefits affect their organizational boundaries? What events or forces call for redrawing these boundaries? These questions call for a clear understanding of what a firm does. They also explain the value contributed by external service providers for taking on tasks or value co-creation. We explore three major streams of research that shape these core questions:

1. *Property rights theory* highlights the costs of ownership as a crucial factor playing in favour of business service providers which can act as the efficient owners of assets.
2. *The resource-based view* identifies the unlocking of valuable management capacity from unpromising non-core activities as an important value proposition of business service providers.
3. Finally, the *entrepreneurial theory of the firm* conceives the use of external service

providers as an important way for a firm to navigate its organizational boundaries to its most promising business opportunities.

Property Rights Theory: Services as an Alternative to Ownership

From its early days, service research has highlighted the value of services as an alternative to owning goods for obtaining value. A firm has the alternative to use its assets and employees to produce the services it needs or to buy services from external providers (Lovelock and Gummesson, 2004). Property rights theory analyses factors and conditions for optimal own-versus-rent decisions. At its heart, this theory is concerned with the efficient size and boundaries of the firm. The boundaries of the firm are defined by the ownership titles it holds for assets like machines, inventories and intellectual property (Grossman and Hart, 1986). The important implication for service research is the development of a framework for deciding when a firm should use external service providers rather than its own people, assets and processes.

Property rights theory was developed for the analysis of economic issues arising from the shared use of assets. Assets are valued for their potential services (Barzel, 1997). For example, commuting or leisure driving are part of a car's service potential, while valuable output produced is that of a machine. Property rights contain (1) the right to use an asset (*ius usus*), for example use a machine for manufacturing; (2) to change its form and substance (*ius abusus*), for example to change parts and components of the machine; (3) to obtain income or other benefits (*ius fructus*), for example to rent the machine to a third party; and (4) to transfer all residual rights, for example to sell the machine (*ius succesionis*) (Furubotn and Pejovich, 1972).

Contracts can be used to share valuable assets and define the terms of property rights across several parties, and thereby put assets to their most valuable use. This works under the assumption that contracts accurately reflect the different valuations of the various services of an asset to the sharing parties, and that enforcing the terms of contracts is costless. In such a perfectly known world, the institution of ownership would not matter as all economic actors simply rent what they need according to their valuation, thus ensuring the highest-valued use of an asset. But according to Coase (1960) this is unlikely to hold as writing and enforcing contracts is costly, and fundamentals of valuations are exposed to uncertainty. Ownership is a social invention for organizing economic activity in situations when actors refrain from value-creating activities because of prohibitive costs of contracting.

When is it beneficial *not* to own an asset? Building on Coase (1960), property rights theory highlights factors that render owning an asset inefficient and play in favour of external service providers. In the main, two types of costs decide if using a service provider is more efficient than ownership, that is, measurement and governance costs.

First, measurement costs need to be incurred when determining the value a collaborating partner contributes in order to enforce the terms of a contract. If the output of an activity can easily be measured and enforced, service contracts tend to be the more efficient solution. If measurement costs are high, or measurement is unfeasible at all, the firm is better off by assuming ownership and managerial authority (Barzel, 1997). Thus, industries tend to favour vertical integration to explore value mechanisms in early stages of their life-cycle, while the share of externally sourced services rises once critical value drivers are

well understood and performance measures are easily established and maintained. Once managers are able to define performance indicators, establish measurement methods and enforce contract terms, external sourcing of a service becomes a feasible option.

Second, allocating rights to users of assets like machines or equipment implies governance costs for specifying and enforcing contracts in the face of potential opportunism like the hold-up of a powerful supplier with the aim to reap profits from its customer. Ownership titles grant their holder residual decision rights and residual profit (Grossman and Hart, 1986). Property rights theory claims that ownership of an asset should be allocated to the business for which it is most 'specific' in the sense that the firm finds itself in the most favourable position to maximize the asset's value. Ownership is only efficient for these 'specific' assets, while the firm can move towards higher efficiency by hiring services from non-specific assets by the means of service contracts. For example, if you are in the business of inventing an 'eating experience' with revolutionary cooking processes like the legendary El Bully restaurant (Chesbrough, 2011), you have strong reasons to own specialized kitchen equipment. Ownership of kitchen equipment is much less imperative for a multinational car company.

Property rights theory provides an organizing principle by which ownership of an asset is efficient in the hands of that economic party that is in a position to maximize its value. If not in this position, firms should use external service providers to contract for the asset's services. In maturing industries, assets tend to lose their specific character over time and companies become more capable of measuring value contributions. This leads to an increased division of labour between companies, where downstream companies tend to source a growing share of services from upstream service providers which specialize in asset ownership. Industrial manufacturing is a case in point, where a growing range of assets is being managed by external service providers. For example, facility managers manage office and factory buildings, contract manufacturers undertake production, performance contractors guarantee performance levels, for example for the operation of an engine or the heating of a building.

To summarize, property rights theory holds as a guiding principle that firms should assume ownership over specific assets and crucial but hard to measure elements of the value creation process. Otherwise they should hire external business service providers.

Resource-Based View: Freeing Up Management Capacity to Focus on Growth Opportunities

The resource-based view emphasizes the aim for growth as a driving factor of the division of labour between firms, and highlights the role of management in shaping the competitive position of a firm (Wernerfelt, 1984, 1995; Prahalad and Hamel, 1990). According to the resource-based view, the firms themselves are the tools and sources for differentiation. In their pursuit of growth, firms strive to build unique capabilities in order to capture rents not available in undifferentiated markets. Penrose (1980) pioneered this approach by providing a conceptual framework for investigating the key factors that affect a firm's growth. She started from an assumption similar to property rights theory: resources are bundles of different uses and, consequently, resource value is derived from the services to which they are applied (Penrose, 1980). Firms differentiate themselves by developing unique capabilities for the use of resources. This perspective

makes management (in a broader sense) the decisive force that differentiates a firm and affects its growth.

One important strand of the resource-based view investigates how companies can cultivate resources that drive their differentiation. These resources include 'those (tangible and intangible) assets which are tied semi-permanently to the firm', such as brand names, in-house knowledge of technology, employment of skilled personnel, trade contacts, machinery, efficient procedures and capital (Wernerfelt, 1984, p. 172). A key force driving the growth of the firm is based on the perception of growth (or differentiation) opportunities by the firm's management (Penrose, 1980). Management shapes the growth opportunities of a firm in two ways: (1) a firm can only target that fraction of its growth opportunities that its management capacity allows it to address – unlocking management capacity is imperative for taking on growth (Penrose, 1980); and (2) the limited capacity requires a firm to prioritize its management attention on areas with the most promising growth opportunities and to delegate remaining areas to external service providers.

The resource-based view highlights the role of business services as building blocks of the intelligent enterprise where managers focus on entrepreneurial opportunities and delegate all complementing activities to world-class external service providers (Quinn, 1992).

The Entrepreneurial Theory of the Firm: Designing Boundaries in Order to Navigate towards Opportunities

Property rights theory and the resource-based view provide snapshots of situations where firms provide value. The entrepreneurial theory of the firm goes a step further by proposing the firm as the tool of entrepreneurs for exploring and exploiting business opportunities.

Research in economics (e.g., Schumpeter, 1934; Schmookler, 1966; Kirzner, 1973; Baumol, 1993; Lewin, 1999) and strategic management and organization (e.g., Shane and Venkataraman, 2000; Alvarez and Barney, 2004; Foss et al., 2007) has highlighted how entrepreneurs shape organizations and how organizations support entrepreneurial action, thus providing a framework for explaining the dynamic forces that affect the boundaries of the firm and the rise of business services.

Broadly conceived, entrepreneurial action is concerned with the exploration and exploitation of profit opportunities arising from either un/under-served needs or un/under-used resources in an economy (Kirzner, 1997; Shane and Venkataraman, 2000). Firms show a Janus-face, the front showing individual perceptions and visions of business opportunities, and the back consisting of organizational resources, rules and routines that help it to shape and exploit profit opportunities (Lewin, 1999). Kirzner (1973) highlighted the role of the entrepreneur as an agile agent who identifies opportunities overseen by ordinary market participants and takes action to profit from them. Arbitrage is the simplest form – buying low from ignorant sellers and selling dear to ignorant buyers. Kirzner maintains that arbitrage is just a simplified version of a universe of profit opportunities that can be exploited by more complex commercial activities such as manufacturing, trade or R&D. Entrepreneurs enhance the range of business opportunities by mobilizing capital and knowledge, and by developing efficient routines and processes through the means of business organization within a firm (Mises, 1949; Klein, 1999).

While everyone has some potential for acting entrepreneurially, economic organization can provide a substantial leverage for entrepreneurial activity. For example, the evolution of the mass market for automobiles was not only driven by a visionary entrepreneur who perceived the potential for individual means of transportation, but also by the design of an organization that mobilized capabilities and resources for its exploitation. In a nutshell, entrepreneurs are the lifeblood directing firms to profitable opportunities, while firms provide entrepreneurs with capital, resources and an infrastructure that can enhance entrepreneurial opportunities and their exploitation (Lewin, 1999; Sautet, 2000; Foss et al., 2007).

This entrepreneurial perspective has decisive implications for the role of ownership and property rights in shaping economic growth and the demand for business services. From an entrepreneurial perspective, ownership is a tool for shaping and directing entrepreneurial processes like experimenting, exploring and exploiting business opportunities (Foss et al., 2007). Firms use ownership in order to direct resources to expected higher-valued uses, based on an entrepreneurial vision and a business model that contains a unique value proposition (Foss et al., 2007). Equity ownership is the instrument to reap the returns and bear the risk entailed in entrepreneurial projects and thus is used to attract resources for the deployment of entrepreneurial projects (Knight, 1921). Ownership is linked to the scope of entrepreneurial projects for a firm, and subsequently shapes its boundaries on resource markets. From an entrepreneurial perspective, resources and activities not related to the entrepreneurial focus of the firm should be sourced from external service providers.

In this entrepreneurial perspective, the opening up of business models and the rise of business services are flip-sides of the same coin. Their appetite for growth and the pressure of competition forces firms to direct their capital to the most promising business opportunities. This implies a continuous review of core activities and subsequent restructuring processes. Firms started with the outsourcing of routine operations and are now in a position to use external service providers for almost any conceivable function, operation or asset class. As a result, firms are transforming into 'intelligent enterprises' (Quinn, 1992) that can rent almost every conceivable activity or asset type as a service while focusing on areas of un/under-served needs of customers or underused potential of resources.

Summary of Economic Theories and the Value Propositions of Non-ownership

Service researchers are increasingly noting that services are a viable alternative to owning resources. Property rights theory holds that companies using services can avoid the costs of ownership when they are not specific for their business. The resource-based view maintains that business services free up valuable management capacity to focus on a firm's most promising opportunities. The entrepreneurial theory of the firm suggests that the legal boundaries of the firm should move with its exploration and exploitation of business opportunities. As a major implication of economic theories on non-ownership, business services empower managers to adjust the structure of their firms to business opportunities and organization costs. Business services are the backbone of service-based business models. Yet, the story untold by service research is how the offering of business services has become an entrepreneurial opportunity in its own right. We discuss these service-based business models next.

KEY ELEMENTS OF SERVICE-BASED BUSINESS MODELS

Shifting the Strategic Focus from Product Market Strategies to Business Model Design

By decoupling access to resources and competencies from ownership, business service providers open up a new strategic dimension: to organize a firm around business opportunities rather than products. Product market strategies build on cost advantages or differentiation of products. As products are becoming increasingly commoditized in hypercompetitive economies, business model thinking reverses the competitive strategy approach by starting from the opportunity in order to identify value propositions (Chesbrough, 2006; d'Aveni, Dagnino and Smith, 2010; see Table 8.1). Business services provide the backbone for business model design, by empowering their clients to delegate responsibilities to external providers.

From the business model perspective, business service providers offer their clients

Table 8.1 Business Model Versus Product Market Strategy

	Product Market Strategy	Business Model
Definition	Pattern of managerial actions that explains how a firm achieves and maintains competitive advantage through positioning in product markets	A structural template of how a focal firm transacts with customers, partners and vendors. It captures the pattern of the firm's boundary-spanning connections with factor and product markets
Main questions addressed	• How to segment the market? • Which customers to serve? • Which products to sell? • What position to adopt against competition? • What kind of generic strategy to apply (e.g., differentiated versus cost leadership)? • How to enter the market?	• How to connect with factor and product markets? • Which parties to bring together to exploit a business opportunity, and how to link them to the focal firm to enable transactions (i.e., what exchange mechanisms to adopt)? • What information or goods to exchange among the parties, and what resources and capabilities to deploy to enable the delivery of the value proposition? • How to control the transactions between the parties, and what incentives to adopt for each of the parties?
Unit of analysis	Firm	Focal firm and its exchange partners
Focus	Internally/externally oriented: focus on firm's core competencies and resulting competitive edge that then gets translated into a product market strategy	Externally oriented: focus on firm's exchanges with other providers in a network of capabilities that together deliver a powerful value proposition that is difficult for others to copy

Source: Adapted from Zott and Amit (2008), p. 5.

options for the design of their business (Pisano and Teece, 2007; Chesbrough, 2011). The non-ownership value of business services builds on the strategic empowerment of business clients. Business models entail three crucial elements:

1. The *value proposition* describes the unique contribution of the firm in the value creation process. This is the main focus of management attention, investments and operations. The value proposition relates to the domain where the firm's management identifies business opportunities with the potential for value generation at a profit.
2. The *value-capturing mechanism* describes the revenue stream related to the value proposition and associated costs. Besides the customer's willingness to pay, managers must pay attention to the appropriability of profits against competitors, suppliers and customers.
3. The management of the *value network* is an almost logical consequence of the focus on a value proposition. The value network consists of connections with partners and complementors needed to mobilize complementary assets and capabilities, such as sales channels, supply channels, value-added services and many more.

In the following sections we take a closer look at the role of business service providers in the business model.

Value Proposition

The value proposition describes the offering of the provider from the customer's perspective, most importantly the offered benefits and their role in the customer's value chain. Business service providers offer a unique type of value proposition, entailed in the non-ownership value of services: they empower their clients to design their organizational boundaries and structure. As discussed in the introductory sections, non-ownership entails at least three types of value proposition. By using services, clients delegate ownership of assets, processes or entire operations to a business service provider (property rights theory), so that they can focus on their core competencies (resource-based view) and navigate towards the most promising business opportunities (entrepreneurial theory of the firm). Understanding value propositions directly related to the division of labour opens valuable strategic insights for service providers. For example, the aircraft engine manufacturer Rolls-Royce builds its service strategy on investments into information systems favouring its measurement costs and capabilities to track and manage engine performance. Outsourcing providers such as IBM ensure that clients can focus on their core activities or competencies and on the most promising opportunities rather than being distracted by the management of internal IT services. Not least, companies may orchestrate collaborating firms in order to navigate towards business opportunities. For example, consumer goods companies like Procter & Gamble involve external suppliers and designers in their product development process (Huston and Sakkab, 2006).

Business services provide a specific type of value proposition – the non-ownership value of designing a business in line with conditions affecting its performance (Chesbrough, 2011).

Value Capturing

Value capturing describes how a business intends to monetize its value proposition. Business service contracts provide particularly powerful tools for value capturing, as companies can use them to allocate profits across a network. Profit is residual, uncertain income, showing potential for both up- and downsides. Business service contracts are especially useful when a service provider has established a unique position to handle the up- and downsides of a business operation – take Rolls-Royce aircraft engines 'power by the hour' contracts, where this is most apparent. Airlines delegate the profit impact related to the engine performance to contractors like Rolls-Royce. Because Rolls-Royce is exclusively compensated on the effective hours an aircraft is flying, it has a strong incentive to keep it in the air. By the same token, the airline shifts a substantial share of the downsides of engine performance to Rolls-Royce (see Box 8.1).

BOX 8.1 ROLLS-ROYCE SOURCE AIRPLANE ENGINES TAKES OVER RESPONSIBILITY BY MEANS OF PERFORMANCE CONTRACTS

Many manufacturing firms enhance their competitive edge by providing superior value to their customers in the form of service. Rolls-Royce is one example. Rolls-Royce is a successful company because it focuses on technical innovation and makes world-class aircraft engines. Rolls-Royce engines power about half of the latest wide-bodied passenger jets and a quarter of all single-aisle aircraft in the world today. A very important factor for its success has been the move from manufacturing to selling 'power by the hour' – a bundle of goods and services that keeps customers' engines running.

Imagine this: high above the Pacific, passengers doze on a long-haul flight from Tokyo to Los Angeles. Suddenly, there is a bolt of lightning. Passengers may not think much about it, but on the other side of the world, in Derby in England, engineers at Rolls-Royce get busy. Lightning strikes on jets are common and usually harmless, but this one has caused some problems in one of the engines. The aircraft will land safely and could do so even with the engine shut down. The question is whether it will need a full engine inspection in Los Angeles, which would be normal practice but cause delays and inconvenience hundreds of passengers waiting in the departure lounge.

In an instant after lightning hits an engine, a stream of data is beamed from the plane to Derby. Numbers dance across screens, graphs are drawn and engineers scratch their heads. Long before the aircraft is due to land word comes that the engine is running smoothly, no engineer on the ground will have to examine it, and the plane will be able to take off on time.

Industry experts estimate that manufacturers of jet engines can make about seven times the revenue from servicing and selling spare parts over the lifetime of an engine than they do from selling the engine. Since it is so profitable, many independent servicing firms compete with companies like Rolls-Royce and offer spare parts for as little as one-third of the price charged by the original manufacturer. This is where Rolls-Royce has used technology and service to make it more difficult for competitors to steal its clients. Instead of selling engines and then later parts and service, Rolls-Royce has created an attractive bundle, which it branded TotalCare®. Customers are charged for every hour that an engine runs. Its website advertises it as a solution ensuring 'peace of mind' for the lifetime of an engine. Rolls-Royce promises to maintain the engine and replace it if it breaks down. The operations room in Derby simultaneously monitors the performance of some 3500 engines, enabling it to predict when engines are likely to fail and let airlines schedule engine changes efficiently and reduce repairs and unhappy passengers. Today, about 80 per cent of engines shipped to its customers are covered by such contracts. Although Rolls-Royce had engine troubles on its A380 Trent Engines, they have fixed the problem quickly and bounced back from the incident with many more orders for their engines.

Sources: Economist (2009, 2011); Lovelock and Wirtz (2011, p.18); www.rolls-royce.com (accessed March 2013).

The revenue base is a crucial element of the value proposition for the customer, directly affecting the financial value of the offering from the customer's perspective. At the same time, revenue constitutes the top line of the provider's profit calculation. Thus, defining the revenue base has a crucial impact for both the client's perception of the value proposition and the profitability of the provider.

Up-front investments to establish a service are another factor calling for a sound definition of the revenue base. Xerox's initial struggle to attract customers to its technically superior photocopying machines illustrates the challenge (Chesbrough, 2006). During the market introduction of the photocopier machine, Xerox struggled to attract demand. Potential customers perceived the up-front investment as a barrier, even though photocopying promised higher quality and lower costs. Xerox achieved the commercial breakthrough by installing the machines for free on its customers' office floors and charging based on the number of copies made. Xerox took responsibility by assuming ownership of the machine, thereby taking on investment and grant maintenance and repair. As Xerox is compensated on the quantity of copies made, it has an incentive to keep machines running. By the same token, its clients delegate substantial risks associated with the ownership of the machine to Xerox.

Another challenge for capturing value is the appropriability regime, which serves to protect the revenue base against free-riders and imitators (Pisano and Teece, 2007). This is particularly relevant for high-tech firms which mainly contribute knowledge, ideas and concepts to the value creation process. Legal instruments to protect this intellectual capital become toothless once knowledge is codified and easy to transfer. For the sake of value capturing, even extremely outsourced companies employ physical products to enforce their value claims. Take Qualcomm – now one of the most profitable technology companies. As a pioneer in digital mobile communication, Qualcomm started to design and build entire mobile communication networks, including handsets, antennae and networking technology. During the market expansion stage of 3G mobile services, Qualcomm licensed out the patents on its digital mobile standard to handset manufacturers and infrastructure builders, effectively offering technology as a service. For Qualcomm, the vast investments of its collaborating manufacturers and network companies work as leverage that locks out competitors and renders Qualcomm outrageous returns. While Qualcomm has reduced its investment in physical assets massively, it protects its share of the value pie by both intellectual property and physical products, like micro chips (Mock, 2005).

To conclude, clients use business services to transfer downside risks on profits to providers of business services. Providers aim to transform this risk into an opportunity by developing superior capabilities and technologies enabling them to deliver the service.

Value Network Design

Value networks of independent collaborating firms hold the potential to outperform vertically integrated firms by unlocking benefits of specialization. However, the value of sharing resources and responsibilities across a network comes at a cost of integrating all contributions to a consistent and compelling customer experience (Hunt and Morgan, 1994; Wuyts et al., 2004). To make this happen, at least three types of players must be

Table 8.2 Roles of companies within value networks

	Network Architect	Hybrid Contributor	Technology Provider
Scope	Vision for positioning the system, accountable for system performance	Differentiation in a selective section of the system (e.g., offering a specific app)	Technology specialist
Governance	Network architect, sets the rules	Compliance, follows the rules set by the network architect	Compliance, follows the rules set by the network architect
Technological interface	Defines interfaces between network participants and between network and end-users	Adapts for compatibility in the network	Adapts for compatibility in the network, may contribute to maintain interfaces
Appropriation regime	System performance with multiple appropriation options, through sales to end-customers	Core offerings (services or products) to end-customers	Intellectual property like patents plus protection mechanisms, like ownership of core assets or infrastructure

present in the network: (1) a *network architect*, who integrates the network for a coherent customer experience; (2) *hybrid contributors*, who strengthen the attractiveness of the network; and (3) *technology providers*, who manage the underlying infrastructure and facilities.

Within the value network, companies assume different roles depending on their capabilities and strategic position. For example, Apple assumes the role of the network architect in the iOS network and orchestrates contributions, shapes the network personality, and rules technical standards and governance mechanisms. App providers are hybrid network participants who design crucial elements of the user experience and thereby contribute core offerings to the value proposition of the network, but do not govern network architecture. Finally, SAP plays the role of a technology provider that enables and supports network collaboration and, in this case, maintains the payment infrastructure (see Table 8.1).

To the extent that competition moves from the domain of the individual firm to the domain of a value network, choosing the appropriate network becomes essential. Performance and attractiveness, as well as the position within a network, determine how strongly a company can thrive by network collaboration. For example, software programmer Rovio almost went bankrupt within the PC-gaming network, but thrived by offering one of the most popular iOS apps with its 'Angry Birds' app (see Box 8.2).

SUMMARY AND CONCLUSIONS

Contrary to common opinion, business services rather than consumer services are the main driver of the rise of the service economy. As economies develop, competition

BOX 8.2 ORCHESTRATING A NETWORK THE CASE OF THE APPLICATION ECONOMY

The application economy is a crucial backbone of Apple's leading position in the mobile communication industry and the rise of the smart phone as a computer platform. While users may love or loathe gadgets like Apple's iPhone, iPad or iPod, a diverse set of companies collaborate for the user experience. Many of those companies go unnoticed as users order software with the swipe of a finger. Without the payment systems licensed by German software vendor SAP, software houses and content providers would see little reason for placing their offerings on the iTunes store. Content providers further drive attractivity of the network by enriching the content and providing user experiences. In some cases, the application economy has opened up a new distribution channel for creative software houses like Angry Birds designer Rovio, which before could not bypass market-dominating software houses like gaming studio Electronic Arts (EA). Meanwhile, Apple orchestrates the application economy for ensuring a consistent and compelling user experience. Apple achieves this through communication and branding, upgrades and new applications stimulated by R&D and software development, and supporting collaborating firms (e.g., through developer software support and developer conferences). Many different elements have to come into place to make a network thrive. Some computer companies have had to learn this through painful lessons when they tried to catch up with Apple through quick fixes, as Hewlett Packard did through the misguided acquisition of the mobile computing company Palm Inc.

Sources: Harper and Endres, 2010; http://investor.apple.com (accessed 5 March 2013).

intensifies and forces businesses to focus their management attention and investments into the areas with the most promising opportunities given the firm's capabilities and core competencies.

The pressure on businesses to increase focus opens up huge opportunities for business service providers. Business service providers offer their clients a unique value dimension – to direct management attention and investments to their most promising opportunities and draw support from world-class service providers. Service research has started to note this non-ownership value where providers take on responsibilities for assets, processes and operations, and even the results of operations on behalf of their clients.

Economic theory elucidates unique value propositions of business services. According to property rights theory, companies delegate governance and measurement costs to business service providers. The resource-based view highlights that business service providers empower their clients to focus their management attention and investments on the most promising opportunities. Not least, the entrepreneurial theory of the firm elucidates the contribution of business services for exploring and exploiting business opportunities.

Business models provide a strategic framework for service providers to transform the non-ownership value of their offerings into profits. Design of business models builds on three key areas: (1) the *value proposition* describes the domain where the service provider maintains unique competencies and assets in order to provide benefits to client firms; (2) the *value-capturing mechanism* describes the revenue base and how the provider company claims and protects its share; (3) the *value network design* describes the role the provider intends to play in the network. However, non-ownership value resides in

integration of a network by different types of participants, such as network architects, hybrid contributors and technology providers.

The concept of non-ownership value holds substantial promise for research and management. In service research, non-ownership value provides a theoretical foundation for analysing and designing the division of labour between firms across a service system (Maglio and Spohrer, 2008). In industrial services, non-ownership value provides a theoretical lens for elucidating service infusion in industrial firms (Ostrom et al., 2010). Businesses find a growing range of opportunities by using e-services (Rust and Kannan, 2003) as elements of business models for sharing valuable assets like machines, cars or real estate (Economist 2013). Another research opportunity is to study the role of non-ownership value as a factor impacting the upgrading decision of business customers (Bolton, Lemon and Verhoef, 2008).

NOTE

1. This chapter draws on Ehret and Wirtz (2010) and Wirtz and Ehret (2013). It is an updated and extended version of these earlier publications.

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