

**Uncertainties in Nonownership Services - The contribution of Relational
Governance Mechanisms**

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ABSTRACT

Entrepreneurs, managers and consumers are attracted by the promise of nonownership services in the sharing economy - to enjoy benefits of assets without bearing the costs and downsides of ownership. In many cases, reality of nonownership does not live-up to the promised value propositions, as present in the struggle of companies like Uber, BP or the entire Biopharma industry to exploit the potential of nonownership. In this article we unveil the underlying paradox of nonownership, which aims at a smart allocation of uncertainty upsides and downsides between providers and clients. We identify the potential of relational governance mechanisms to handle the uncertainty challenges apparent in nonownership. We present a pioneering case study of Rolls Royce airplane engines which unveils the contribution of relational governance in unfolding the economic benefits of nonownership.

Keywords: Nonownership, business services, contracts, governance, uncertainty, interorganizational relationships, trust, system trust, commitment.

INTRODUCTION: NONOWNERSHIP - A VALUE PROPOSITION BUILT ON A PARADOX

The rise of new business models such as the sharing economy (Economist, 2013) or industrial services (Dachs et al., 2014) indicates that customers value obtaining benefits without buying ownership-titles for assets to produce these benefits. Many businesses and consumers value the option to rent or lease assets like cars, property or machines, and enjoy performance and benefits without the need to buy them.

While a growing range of businesses aims to benefit from nonownership offerings, some companies make mixed experiences. In the sharing economy, platforms like Uber or AirBNB find themselves in legal and public relations battles between clients who feel ill-served and providers who find their property damaged if not destroyed by clients (Economist, 2014). In B2B networks, seemingly efficient nonownership arrangements frequently dissolve into legal battles. Take for example the an oil-spill of the Deepwater-Horizon platform causing widespread pollution in the Gulf of Mexico and its shores.

While the damage happened in a network of outsourced companies, BP was held accountable and eventually had to agree to pay 18,1 Bn US \$ to US administrations, companies and citizens (Borchardt, 2010; Economist, 2015).

In this article we argue that the value proposition of nonownership is built on a paradox: While nonownership contracts come with the promise to allocate upsides and downsides of ownership between clients and providers, benefits and costs of ownership are uncertain and thereby to some extent unpredictable. Uncertainty bears potential conflict for providers and clients with the potential to damage service performance if not to invoke the complete dissolution of the client-provider relationship. Several authors have

highlighted the role of trust as a complement to contracts, furnishing parties to collaborate and solve potential conflicts in the face of uncertainty. We draw on relational contracting theory in order to identify social governance mechanisms that furnish contracting parties to realize the potential of nonownership.

This paper contributes to marketing research in the following ways. First, it identifies the role of uncertainty as a force driving nonownership value. Second, it proposes relational governance mechanisms that strengthen capabilities of managers to handle uncertainty in nonownership services and thereby empower parties to unlock value propositions of nonownership. Finally, this study extends existing contributions on relational governance towards its potential for handling economic uncertainties.

The paper is structured as follows: The first section sets the scene by elaborating the role of ownership for handling uncertainty and teases out value propositions of nonownership contracts proposed by economic theories. It then presents the challenges and limitations of nonownership, due to the principal limitations of contracts in the face of uncertainty. The following section discusses the potential of relational governance to address the limitations of contracting and to moderate the downsides of nonownership contracts. Then it elaborates the potential contribution of relational governance modes. A case study of Rolls-Royce airplane engines illustrates the role of relational governance. Finally, the paper presents research opportunities and a conclusion.

NONOWNERSHIP, THE RISE OF THE SERVICE ECONOMY AND ITS LIMITATIONS

Taking a closer look, nonownership is anything but a recent phenomenon. For long, some researchers have conceived nonownership as a signature attribute of services (see Judd,

1964; Lovelock & Gummesson, 2004, Rathmell, 1966).

Regarding assets like cars, property or machines, transfer of ownership draws the fine line between a goods business and a service business. In a goods business, the seller transfers ownership of the asset to the buyer, whereas in service businesses clients enjoy the benefits from a service operation without acquiring an ownership title (Lovelock & Gummesson, 2004; Ehret & Wirtz, 2010). Thus, several academic researchers have been suggesting nonownership as a key criterion for defining services. Indeed, economic statisticians have agreed to use nonownership as the defining characteristic for service industries (Eurostat, 2009; Jones 2013) . For example, Eurostat defines services as follows: “Service products are entities over which ownership rights cannot be established. They cannot be traded separately from their production” (Eurostat, 2009, p. 2). In that light, the economic growth of service industries indicates that nonownership has become the dominant mode of value delivery in developed economies, where service industries provide 60 to 90 percent of economic value added (OECD, 2008). The US economy shows some typical features of the rise of service industries: The service sector has been growing continuously, had reached almost 60 percent of GDP as early as 1947 and contributes now around 80 % of the Gross Domestic Product of the US (see Figure 1).

[Insert Figure 1 about here]

One key driver is the demand for business services, as apparent in the role of business and professional services in the growth of the service sector (see Figure 2 and OECD, 2008; Woelfl, 2005; Triplett & Bosworth, 2003). On the economy level, companies have have risen the share of services while reducing the share of goods in

their external sourcing. as measured by the share of service industries in economy-wide intermediate inputs for value creation.

The composition of the service sector changed significantly over time (see Figure 3). While the share of wholesales, retail and transport industries declined over the years, educational and social services as well as professional and business services have shown the highest growth of service industries (see Table 1).

[Insert Figures 2 and 3, and Table 1] about here

Both phenomena seem to reflect an underlying trend of specialization, where investment into human capabilities translates into specialized professional services (see Buera & Kabowsky, 2012). It also resembles the prominent role of business and professional services in the rise of the service economy, as evident in numerous empirical studies (Woelfl 2005; OECD, 2008)

But what appears as a long-term mega-development confronts researchers and managers with non-trivial challenges. Nonownership services bear the promise to relieve clients from costs and burdens of ownership. By renting, hiring, or leasing an asset, clients get access to its benefits and performance, but can avoid downsides of ownership like market obsolescence, technological obsolescence, monitoring or measurement costs and many more (Ehret & Wirtz, 2010; Lovelock & Gummesson, 2004; Wittkowski, Moeller, & Wirtz, 2013).

At the core of the nonownership value proposition is the nonownership contract.

This contract entitles clients to the benefits generated with that asset which is owned by the service provider. The service provider thereby relieves clients from the costs of ownership and gains the right to capitalize profits of asset operation. Thus, for many companies it becomes attractive to use nonownership contracts to get the benefits of assets and to delegate ownership to specialized providers (Ehret & Wirtz, 2010; Lovelock & Gummesson, 2004; Wittkowski, Moeller, & Wirtz, 2013).

Nonownership services have been transforming a number of industries, including cloud-computing where service providers own infrastructures for delivering IT-services; industrial markets, where equipment manufacturers maintain ownership of machines, production lines and even entire plants in order to sell performance to industrial client; and biopharma markets, where biotechnology firms take ownership of the intellectual property and the uncertainty underlying drug development and offer technology licenses to pharmaceutical companies whose focus and core competencies lie in on the downstream commercialization of drugs (Pisano, 2006).

However, there are numerous examples where nonownership contracts failed to deliver the expected benefits. The biopharma industry was built on the assumption that biotechnology companies drive up R&D productivity by taking on ownership for drug development and the resulting patents. Then, licenses were provided to pharmaceutical companies who would commercialize these drugs. Employing nonownership, pharmaceutical companies hoped to boost their R&D productivity and rebuild their vanishing drug pipeline. Industry reports and academic studies provide evidence that the biopharma industry failed to create value from these nonownership arrangements in the last decade. One particular reason is that the R&D process of drug development is

volatile and unanticipated results undermine the logic underlying the contractual arrangement. For example if results of clinical testing may change the type of treatment the drug will be used for, it might not fit to drug portfolio and sales capabilities of the pharmaceutical company. Eventually the pharmaceutical company ends up with a drug that generates less value than the firm hoped for when closing the licensing contract (Pisano, 2006; Ernst & Young, 2013).

Unanticipated change in the macro-environment may undermine the value propositions of nonownership contracts. At times, some industries reverse the trend of increased outsourcing. For example, while the automotive industry had driven up the share of external sourcing, it reversed outsourcing partly following the post-2007 crisis. One crucial factor was the overcapacity effect of weakening demand, driving manufacturers to maintain their capacity by reducing external sourcing (Drauz, 2014). In the IT industry technological changes frequently lead companies to revise their sourcing strategies (Drauz, 2014; Lacity, Wilcocks, & Feeny 1995).

Not least, black swan events, that is events with extreme low probabilities but high potential damage (Taleb, 2007), can undermine the economics of nonownership. For example, it did not help BP that it outsourced the operation of the Deepwater Horizon drill to a network of companies led by Transocean. Transocean was the legal responsible operator of the drilling. When the platform exploded, 11 workers died and 4.9 million barrels of oil spilled into the Gulf of Mexico, poisoning fishing and seafood waters, spoiling seashores and halting the major share of seafront businesses. BP was held legally accountable for the damage (Borchardt, 2010). Its nonownership contracts did not hold and did not protect it from claim damages. As a result, BP became the public face

associated with the disaster and had to take-on the bulk of the financial responsibility for cleaning up the sea and the coast and compensating businesses. Furthermore, BP took a hit on its brand reputation and potential higher political and legal barriers of future oil drilling operations and not least had to stand in for a total of 18,1 Bn US \$ for the damage that took place under the auspices of its service providers (Borchardt, 2010; Elkind, Whitford, & Burke, 2011, Economist, 2015).

These examples illustrate the conditions and limitations facing companies that aim to exploit the potential of nonownership services. They can be summarized as follows: First, as in the case of biopharma, uncertainty may undermine benefits of nonownership arrangements. In such cases, partners need to look for change in their contracts. (Pisano, 2006). Second, as seen in the automotive-outsourcing example, value propositions of nonownership contracts may be undermined by rapid changes of strategic contexts of providers and clients, thereby deteriorating the benefits for one if not all parties. Third, black swan events illustrate the general challenge underlying nonownership contracts. Because ownership and respective nonownership arrangements entail responsibility for all types of uncertainty, including radical uncertainties, they expose contracting parties to conflicts resulting from negative surprises.

These examples show different facets of the phenomenon of incomplete contracts that applies to nonownership. Incomplete contracts face limitations of parties to find ex-ante solutions for ex-post potential conflicts in the future collaboration (Ghosh & John 1999; Jap & Anderson, 2007; Jap & Ganesan, 2000). Relational contracting theory holds that incomplete contracts need to be complemented by relational governance mechanisms that create the "atmosphere" (MacNeil, 1978) in which contracts become effective (Ivens

& Blois, 2004; Jap & Anderson, 2007; MacNeil, 1978). While there is extant research on the contribution of relational governance in the context of interorganizational relationships, governance of the emerging phenomenon of nonownership remains neglected.

ECONOMIC THEORIES AND NONOWNERSHIP VALUE

Uncertainty and the Value of Ownership

Nonownership value can be traced back to the up-and downsides of ownership for dealing with uncertainty. Knight (1921) introduced the concept of uncertainty into economic thinking by distinguishing between genuine uncertainty (in the literature referred as "Knightian" uncertainty) and risk. While the major share of the future is unpredictable, some events follow a pattern that can be estimated with the help of statistics and extrapolation of probability calculations as practiced in insurance business models. In contrast, Knightian uncertainty entails a domain of the future that cannot be estimated with statistical approaches and holds genuine surprise for decision makers (Foss, Foss, & Klein, 2007; Knight, 1921; Taleb, 2007). Business activity takes place under conditions of uncertainty, bolding both opportunities and downsides for market participants. While business activity and related contracting partly succeeds in mastering or reducing uncertainty, it can never be totally eliminated (Harper, 2003, 2008).

Uncertainty is the common denominator of ownership-driven value propositions identified by property rights theories as well as entrepreneurship theory (Barzel, 1987, 1997).

First, Property rights theory elucidates the governance dimension of ownership. Property rights theory holds that ownership reduces the cost of writing contracts (Coase, 1960;

Grossman & Hart, 1986; Ghosh & John, 1999). Such costs arise under uncertainty, when contracting parties face difficulties in determining the value of an exchange. In absence of uncertainty, resource users are capable to specify rights according to their resource needs and negotiate contracts that reflect their valuation (Coase, 1960). Ownership simplifies contracting as it allocates all rights not specified in a contract to the owner who bears uncertainties of the owned assets. The owner enjoys an incentive to bear potential downsides, as ownership entitles to potential profits. While users abandon the profit potential entailed in asset-ownership, they also reduce their exposure to the downsides of ownership-related uncertainties.

Typical rights codified in such contracts are the right to use a resource (e.g., renting a car or a machine), to change it (e.g., extend performance of a machine), to earn income with it (e.g., commercial property) or to transfer ownership (e.g., a retailer commissioning for a manufacturer) (Furubotn & Pejovich, 1972).

While entrepreneurship theory partly overlaps with property rights theory, it assumes the entrepreneurship process of exploring and exploiting business opportunities as the crucial force shaping the benefits and costs of ownership (Barzel, 1987, 1997, Nooteboom, 1992, 1993). Ownership rights empower entrepreneurs to experiment with resources and new resource combinations, and thereby explore business opportunities. Thus, the key question for an entrepreneur is if the asset opens the door towards business opportunities or is the key to claim the profit from a business project (Foss, Foss, & Klein, 2007; Knight, 1920; Kirzner, 1996; Mises, 2007; Shane & Venkataraman, 2000). Empowered with the right to claim the residual income from their business project, entrepreneurs can capitalize opportunities into profits.

Business opportunities arise under conditions of uncertainty, when resources show potential that is currently not exploited in the market place or customers show needs that are not addressed well by current market offerings (Kirzner, 1996; Shane & Venkataramn, 2000). Business projects aiming to explore and exploit such opportunities open-up the option for profit but also hold the potential downside of loss.

From an entrepreneurial perspective, companies should refrain from owning assets that do contribute neither to exploration nor to exploitation of business opportunities.

Nonownership and the allocation of Uncertainty Exposure

Nonownership contracts are instrumental in defining and trading services generated with the help of productive assets for which ownership rights can be established. The contract assigns the provider the role of the owner of assets that are applied for generating the service outcome. For clients, the nonownership contracts defines the service outcomes they are entitled-to as well as the terms under which clients can use the service outcomes, i.e. rental, access or service fees (Lovelock & Gummesson, 2004, Ehret & Wirtz, 2010).

This allocation of titles and rights has substantial implications for the exposure of providers and clients to economic uncertainty. Providers bear the financial uncertainty of asset ownership, which can turn into profit as well as loss. Providers also enjoy authority over their owned assets as far as this is not specified in other contracts or limited by the law. This empowers providers to experiment with novel uses for assets, explore novel resource combination and not least, identify and commercialize services for commercial

trade. In exchange, nonownership contracts are instrumental in monetizing assets owned by the providers, thereby reducing some share of financial uncertainty. In absence of the deal with the service client, providers would need to search consider other options for capitalizing their assets, thereby increase financial uncertainty and possibly implying needs for additional investments.

By the same token, clients delegate uncertainty of asset ownership to service providers. However, their entitlement for service outputs and performance provides a resource for their own value creating activities.

That is, nonownership value resides on the smart distribution of the up- and downsides of ownership and output across co-creating firms (Ballantyne & Varey, 2008; Vargo & Lusch, 2004).

The following sections discuss value propositions driven by uncertainty asymmetries using three related economic theories of the firm.

Property Rights Theory – Contracting Efficiency

Property rights theory provides a theoretical explanation for the role of uncertainty in value creation of nonownership services. Ownership becomes valuable when a company resides on specific, difficult to substitute assets for its value creation. External sourcing would be detrimental because of potential hold-up (i.e., value extortion) by suppliers aiming to redistribute profits to their favour (Grossman & Hart, 1986). Once the asset loses its specificity character, the case for ownership diminishes, favoring sourcing by external suppliers.

For example, pioneers of automated manufacturing may enjoy a competitive advantage over their competitors rendering the equipment specific. When competitors

copy the process, the specificity character diminishes, eventually rendering the equipment a commodity. In this situation, opportunistic hold-up can be controlled due to competition of many suppliers in the market. Eventually, external sourcing becomes the favored solution. Such situations open an opportunity for suppliers willing to take-on ownership, thereby reducing uncertainty for their clients, supporting their clients to optimize their ownership structure while gaining profit opportunities on their own.

To summarize, as soon as potential clients are able to specify their service needs from assets, it becomes valuable for providers to assume asset ownership and economize the costs of ownership for the benefit of their clients (Grossman & Hart, 1986).

Resource-based View: Management Productivity

The resource-based view (RBV) holds that a company's ability to exploit business opportunities is constrained by its managerial capacity. Business opportunities are uncertain and reside on idiosyncratic insights, ideas or perceptions of entrepreneurs for value propositions. In early stages of the exploration and exploitation of opportunities, markets have not yet established valid valuations of such business ideas, which renders ventures uncertain. The RBV advises management to prioritize its energy on uncertain elements of value creation and the development of unique, hard to imitate resources (Barney, 1986; Penrose, 1956; Wernerfelt, 1984). In order to unlock scarce management capacity, the firm should use external sources for the comparatively "certain" domain of the value creation process in order to unlock its management to focus on business opportunities, which are genuinely uncertain.

The vision of RBV is the intelligent enterprise that unlocks its management

capacity for the pursuit of the most promising and profitable business opportunities, while delegating complementary activities to a network of external service providers (Quinn 1992; Ehret & Wirtz, 2010). Accordingly, companies should design their boundaries in order to focus on their core competencies and important business opportunities. As such, RBV contributes to explain the rising importance of business services by highlighting managerial capabilities as a crucial factor that limits a firm's growth opportunities. RBV provides a compelling argument for nonownership services to empower the management of client companies to focus on their most promising activities by releasing them from non-core responsibilities (Ehret & Wirtz 2010).

From a RBV perspective, nonownership value arises when two companies hold asymmetric management productivities in relation to the ownership of a resource. For example, the market for IT outsourcing services started to emerge once user companies struggled to differentiate themselves through self-managed IT-infrastructure. In contrast, specialized IT service providers experienced an opportunity by specializing on owning and operating IT resources, providing the key-value proposition by relieving their clients from the burdens of ownership (Lacity, Willcocks, & Feeny, 1995). Thus, nonownership value emerges when companies hold asymmetric perceptions of opportunities from specialization, where one company aims to specialize on a domain that the other considers as non-core.

Entrepreneurial Theory of the Firm: Complementary Business Opportunities

From an entrepreneurial perspective, nonownership contracts empower companies to capitalize on mutual dependent business opportunities (Foss, Foss, & Klein, 2007; Chesbrough, 2011). Typical examples are nonownership service providers acting as

entrepreneurs of upstream supply chains, while their clients take on the role of entrepreneurs of downstream distribution channels (Ghosh & John, 2009), technology providers focusing on R&D for technology discovery, catering to technology users focusing on commercializing technology (Arora, Belenzon, & Rios, 2014), or platform companies distributing software owned by software design-houses (Chesbrough, 2011).

In all these examples, business opportunities partly depend on the success of the partnering company, creating incentives for collaboration across contractual boundaries (Chesbrough, 2011; Wirtz & Ehret 2013). In the design of business models, companies aim to share uncertainties in a way that maximizes upsides and/ or minimizes downsides of business opportunities across a network. This partly overlaps with contracting and resource efficiencies. However, complementary business opportunities relate to a more orchestrated approach based on the purposeful design of business architectures that combine particular strengths of companies in line with business opportunities (Chesbrough, 2011; Wirtz & Ehret 2013).

Summary: Nonownership and the allocation of entrepreneurial roles in value creation

To summarize, the major value contribution of nonownership contracts is the allocation of up-and downsides of uncertainty of value creation between the service provider and the service client (see fig. 4). A crucial value proposition of nonownership contracts is the potential to strengthen contracting parties to focus on specific entrepreneurial opportunities, related to service assets or the use of service outputs. By assuming ownership and related costs of asset operation, owners become de-facto entrepreneurs of service assets. The economic fortune of providers depends on their

ability to identify and implement the highest valued uses of their assets. Thus, entrepreneurial focus of providers resides on identifying valuable services from assets, identify potential clients and assure a high value of asset utilization, i.e. by ensuring high added value by services as well as enforcing high degree of capacity utilization. In contrast, business fortune of clients resides on their ability to use service outputs as part of their value creation processes. In a value chain perspective, providers focus rather upstream, clients rather downstream.

(Insert Fig. 4 about here)

Economic theories of the firm illustrate various dimensions of the entrepreneurial roles and their implications for uncertainty impact on service businesses. Property rights theory highlights the role of asset-specificity, as providers bear costs of asset ownership for the benefit of their clients. The RBV highlights the potential for improved management focus, as nonownership contracts unlock management capacity of the client that can be used for strategic priorities further downstream. From the perspective of Entrepreneurship theory, the core contribution of nonownership contracts is to open-up business opportunities for asset operation and thereby support specialization of entrepreneurial activities.

In nonownership services providers take on uncertainties for the benefit for their clients, thereby getting an opportunity to generate profits. The key condition for

nonownership value is that companies hold asymmetric perceptions regarding the uncertainties of the use of a resource (see Table 2).

[Insert Table 2 about here]

Economic theories provide a strong rationale that nonownership contracts unlock value for both, clients and providers. In the following section we first investigate the conceptual limitation of nonownership contracts to realize their promised value proposition and explore the potential contribution of relational governance mechanisms.

THE PARADOX OF NONOWNERSHIP

Value propositions of nonownership contracts build on a smart allocation of ownership rights transforming uncertainty downsides (i.e., risks) of the client into profit opportunities for the provider. However, nonownership contracts entail a paradox: Ownership gains its value precisely because of the limitations of contracting under conditions of uncertainty (Coase, 1960; Ghosh & John, 1999; Jap & Anderson, 2007). Uncertainty entails elements of genuine surprise up to the dimension of black swan events which appear highly improbable but bear high negative outcomes (Knight, 1921; Taleb, 2007). Contracting parties face genuine limitations to anticipate such events and to develop mutually satisfying contractual solutions (Ghosh & John, 1999; Jap & Anderson, 2007).

Furthermore, the smart allocation of nonownership creates mutual dependencies for both parties (Ghosh & John, 1999; Jap & Anderson, 2007), such as upstream performance of R&D on downstream performance of commercialization, supply-chain-

performance on distribution-channel performance, and indivisible processes communication interfaces shared by client and provider. To the extent that nonownership services aim for the long-term, clients and providers are exposed to negative surprises caused by uncertain events. Contracts bear the dilemma that ex-ante estimation of future conflicts of nonownership parties is costly if not unfeasible (Ghosh & John, 1990; Grossman & Hart, 1986; Jap & Ganesan, 2001). Uncertainty implies costs as well as pressure on nonownership partnerships to the extent of eventual break-up. In particular, the principal limitations of contracts limit the value propositions of nonownership implied by economic theories (see Table 1):

- ***Contractual uncertainties impede contracting efficiency:*** Nonownership services may entail the investments of resources for the exclusive use in the client-provider relationship that lose value outside this relationship, such as communication interfaces, specialized employees like key-account managers, or special equipment like customized manufacturing plants. Such relationship-specific investments expose partners to hold-up and opportunism (Fang et al. 2008; Ndubisi, 2011; Williamson, 1985).
- ***Resource uncertainties jeopardize management productivity:*** Nonownership services reside on both, client and provider, specializing on particular domains of the value creation process. Specialization creates coordination problems as both provider and client aim to develop hard to imitate resources and processes. Because of the uniqueness of specialized resources, knowledge of those resources cannot easily be codified and transmitted by the means of information technologies, rendering it the character of "tacit" knowledge (Polanyi, 1983;

Nonaka, 1994). Ensuring service performance relies on interoperability of processes and resources of providers and clients, e.g. synchronizing providers' outbound logistics with clients' inbound logistics, or technology providers' basic research with the clients' product development. Because tacit knowledge is difficult to codify, contracts face a limitation in coordinating clients and providers.

- ***Business uncertainties diminish complementary business opportunities:***
Complementary business opportunities reside on the expectation of both, the client and the provider that their business opportunities have mutual positive impact. (Arora, Belenzon, & Rios, 2014; Chesbrough, 2011). Identifying joint opportunities is not trivial and goes beyond codified information used for writing contracts. In addition, expectations entail uncertainties and the chance of failure, making contracts potentially inefficient. For example, one limitation of the performance of partnerships between biotechnology and pharmaceutical firms is that drugs developed by biotechnology firms prove useful for treatments of different treatments than originally expected. As a consequence, the licenses of their pharmaceutical partners prove less valuable than originally expected (Pisano, 2006; Ernst & Young, 2013).

These uncertainty challenges present a potential limitation to the employment of nonownership services.

RESOLVING THE NONOWNERSHIP PARADOX **Complements to contracts for handling uncertainty**

Nonownership contracts hold a paradox. The institution of ownership emerged as a response to the limitations of written contracts in aligning interests. Relational contract

theory holds that written contracts become effective as an element of a more complex set of social arrangements to orchestrate activities, align interests and resolve conflicts.

The reasoning in the prior paragraphs applies to rational choice scenarios projected in classical contract theory that assumes that contracts are optimal bargaining solutions under sufficient information (Haase & Ehret, 2012; MacNeil, 1978). However, relational contracting theory conceives contracts as elements of relationships, and instruments of collaborating parties to take on opportunities through collaboration. As a consequence, relational contracting theory conceives the impact of relational governance norms that work beyond the written agreement and provide the social context for its performance. In essence, relational contracting theory assumes that contracts become effective through a social environment that makes incentives and sanctions effective (Ehret & Haase, 2012; Ivens & Blois, 2004; Macneil, 1978; 1980).

Relationship Quality: Trust and Commitment

The following section extends research on relational governance mechanisms to their potential contribution to handle uncertainties. It builds on the MacNeils general proposition that the relationship atmosphere shows an impact on the performance of contracts (see Figure 4). In the context of nonownership, relational governance mechanisms help providers and clients to address conflicts beyond the limited framework of contracts. Thus, relational governance complements contractual governance through the formation of trust and commitment.

[Insert Figure 5 about here]

Relational governance takes place when co-creating parties maintain social relationships for long-term gains, and accept and tolerate short-term sacrifices. This

makes commitment, where partners invest in order to maintain a relationship, the core characteristic of a relationship (Morgan & Hunt, 1994; Moorman, Deshpandé & Zaltman, 1993). Trust is the other core governance mechanism shaping interorganizational relationships (Morgan & Hunt, 1984). Marketing conceives trust as a key enabler of relational exchanges beyond pure "goods for money" transactions (Boulding et al., 2005). Accordingly, marketing has adopted a relational concept of trust as "a willingness to rely on an exchange partner in whom one has confidence" (Moorman, Zaltman & Deshpandé's (1993). Social sciences ground theories on trust in its potential to transform uncertainty in social relationships. This goes in hand with a broader understanding of trust that conventionally is used in marketing. "Trust (Vertrauen), in broadest sense of confidence in one's expectations, is a basic fact of social life. In many situations, of course, man can choose in certain respects whether or not to bestow trust. But a complete absence of trust would prevent him even from getting up in the morning" (Luhmann, 1979: 4).

This makes trust crucial in situations where information is incomplete or costly, enabling decision makers to act and unlock resources (Gigerenzer & ABC Research Group, 1999, Möllering, 2001; Simmel, 1990). Trust becomes particularly valuable in the context of nonownership contracts, as core value propositions of nonownership are driven by uncertainty. Trust empowers providers and clients of nonownership services to face uncertainties beyond the pure contractual level (Botsman & Rogers, 2010; Fang et al. 2008; Luhmann, 1979).

Relational Governance in the context of Nonownership

There is a rich body of research that shows both, rationale and evidence for the contribution of relational norms to the quality and performance of interorganizational

relationships. As discussed in the previous section, nonownership contracts come with particular challenges for providers and clients. First, left to their own terms contracts come with limitations to allocate uncertainties, as providers and clients are unable to anticipate significant events with negative downsides for one or all parties. In addition, nonownership is built on a seemingly smart configuration of asymmetries, as asset ownership tends to imply particular business orientations, like upstream focus, exploration of asset technology potential or more general maximization of asset value, whereas clients benefit from focus on service outputs, thus exploiting technologies and targeting downstream markets.

Relational contracting theory holds that relational governance mechanisms complement written contracts in aligning interests of economic actors. Thus, relational governance mechanisms empower clients and providers to transform uncertainties through social interaction and resolve conflicts from downside uncertainties. In the following section we discuss the specific relationship challenges arising in nonownership relationships and the potential contribution of relational governance approaches for resolving these conflicts.

Communication

In nonownership services providers' assets constitute the platform for service benefits for the clients' value chain. Thus, nonownership services tie provider assets to client processes. Information is crucial to link asset outputs to client requirements. This makes communication and information sharing an essential element of nonownership services.

Relationship marketing research frequently identifies communication as a factor with positive impact on trust and commitment to relationship partners. Relationship

Communication is defined as the sharing of information between supplier and customer

(Ndubisi, Malhotra & Wah, 2009; Jap, S. D., & Anderson, E. (2007). With regard to uncertainty, communication supports an understanding of interests, motives, as well as a means to coordinate activities of clients and providers. In the early stages of a nonownership relationship, communication of references and reputation helps to reduce uncertainty of the trustworthiness of a potential relationship partner (Jap & Anderson, 2007). During the relationship, effective communication reduces uncertainty regarding actual service performance. In the case of industrial nonownership services, information sharing like real-time information on machine or plant performance enabled by sensors and internet technologies have been key features of nonownership services created around manufacturing assets like machines or plants (Grubic, 2014; Smith, 2013). Providers strengthen their capabilities to offer and achieve services levels if they are able to track performance of services under their operation across company boundaries.

Conflict resolution handling

Nonownership services are particularly exposed to potential conflicts. Contracting parties face a general limitation for anticipating events with potential downsides for nonownership services. Thus, nonownership contracts hold negative surprises while tying provider and client processes together for the service delivery. In addition, the structure of nonownership contracts implies asymmetric interests between owner-operators and nonowning clients. The promise to exploit the virtues of asymmetric ownership, by enforcing benefits from specialization comes with potential downsides.

Dwyer, Schuhr & Oh (1987) define conflict handling as the ability of a relationship partner to minimize the negative impact of conflicts. Kaufmann points out, that effective conflict resolution builds on flexible, informal or interpersonal mechanisms. In essence,

partners need to be prepared to align interests beyond codified contracts (Ivens, 2006).

Restraint in the Use of Power

In nonownership services partners delegate a considerable share of power to each other. The client gets a limited authority over the providers' assets, as most apparent in the renting of assets like property, vehicles or machines. As clients use outputs for operations in their own value chain, providers gain considerable powers over the value creation process of their clients. Thus, for both parties the value of nonownership resides on a restriction to exercise power, i.e. to limit potential downsides and damages caused by the exercise of power.

MacNeil (1978, 2000) holds that relational contracts, contracting parties delegate power to each other. Thus, providers and clients need to restrict their exercise of power for the benefit of relationship performance (Ivens, 2006; Kaufman & Dant, 1992;

Long-term orientation

Nonownership contracts enable the sharing of assets across organizational boundaries. Not every nonownership contract relates to longterm relationship, as apparent in short-term car-rentals. However, for some clients nonownership contracts open the opportunity to shift entire business processes to specialized service providers (Quinn, 1992). While some nonownership transactions might be closed for short-term use of assets, such contracts enable long-term outsourcing of resources operated by the provider. When parties seek benefits of nonownership over the longterm, aims for short-term gain jeopardize commitment and trust in a relationship (Ganesan, 1994; Ivens, 2006). Thus, long-term orientation of relationship partners will show a positive effect on commitment and trust, thereby driving the value of nonownership.

Mutualism

In nonownership services, partners seek to exploit advantages resulting from asymmetries, i.e. one party actively pursuing ownership and its implications for positioning within value chains and technology exploitation, while the other party aiming to avoid ownership and its consequences at the same time. While nonownership value builds on expected virtues of such asymmetries, specialization of nonownership parties can also create conflicts. Dant and Schul define mutualism as an actor's attitude that the realisation of one's own success passes through the partner's common success (Dant and Schul, 1992). Thus, mutualism entails elements of solidarity and creates an atmosphere of "we'ness" (Jap & Anderson, 2007) across organizational boundaries (Ivens, 2006; Ndubisi, Malhotra, & Wah, 2009). In the context of nonownership, mutualism shows in providers who are conscious that their performance resides on the performance of their clients, while clients are aware of the condition of their suppliers wellbeing as a condition for their own success.

Satisfaction

Relationship research has shown theoretical rationale as well as strong empirical evidence that customer satisfaction supports the willingness of partners to maintain a relationship (Ndubisi, Malhotra & Wah, 2009; Anderson, 1994). Marketing researchers define satisfaction as the confirmation of expectations, whereas negative disconfirmation harms satisfaction (Hirschman, 1970; Richins, 1983; Singh, 1988). Thus, positive satisfaction with nonownership services will reduce uncertainties for clients and providers and will show positive effect on commitment and trust. Providers and clients

with a history of positive experiences will show a higher tolerance for negative incidents, compared to partners with negative or absent experiences (Lovelock, Patterson & Walker, 1988).

Drawing on MacNeil (1978, 2000), marketing researchers identify relational norms as solidarity, long-term orientation, information exchange, flexibility, monitoring, planning behavior, mutuality, conflict resolution, and the use of power as the main norms that cater to the performance of a relationship (Ivens & Blois, 2004; Jap & Anderson, 2007). Relational norms become particularly important in situations when short-term sacrifices endanger the capabilities of parties to collaborate for long-term gain.

**RELATIONAL APPROACHES AND THE EXPLORATION AND
EXPLOITATION OF NONOWNERSHIP VALUE -THE CASE OF ROLLS
ROYCE AIRPLANE ENGINES**

Rolls-Royce, one of the world's largest aircraft engine manufacturers, is an industrial pioneer of nonownership services. In addition to its offering of engines, Rolls Royce has started to offer services to the point where it becomes part of the operation of a flight. This service business has been growing in both, the defense as well as in the commercial businesses since 2004, the year Rolls Royce started to report its service revenues. While service revenues grow continuously and revolve between 50-60% of total revenue, industry reports suggest that they contribute to around 70% of total profits of Rolls-Royce aviation business. (Economist 2011; see fig. 6 and 7)

Insert fig. 6 and 7 about here

In its “Power-by-the-Hour” business model Rolls-Royce takes on uncertainties of airlines in operating aircraft engines, literally becoming an entrepreneur of flight operation-uncertainties, while airlines take on the role of entrepreneur of flight-commercialization uncertainties. Client airlines pay Rolls-Royce only for the time the airplane engines are effectively in the air. Thereby, Rolls-Royce takes-over uncertainties of its clients related to the operation of the flight, while it gains opportunities from enhancing reliability and increasing efficiency of operations.

The benefits of this scheme became apparent from the first Power-by-the-Hour contract Rolls-Royce closed with its pioneer customer the US navy. In the first year the US navy was able to raise availability of airplanes from 70% to 85 %, and the average time the US navy could use an engine before it needed to be removed increased from 700 to 900 hours. At the same time, maintenance costs of the US navy where transformed from an uncertain cost driven by aircraft contingencies, to a pre-agreed cost for Rolls-Royce’s services (Smith, 2013). The role of these pioneering projects highlights also the role of satisfaction in transforming uncertainties, showing evidence that the nonownership service is feasible and beneficial for both parties.

Rolls-Royce and the US Navy built these results on prior relationships. Rolls Royce pioneered the system with key customers, first as an element of military contracts. In the first three years of the contract the US navy could achieve annual cost savings from

USD5 million to USD18 million (Smith, 2013). Prior established personal relationships where key in pioneering the nonownership contract and implement its benefits. This illustrates how becoming an owner transforms the responsibility of the supplier and its impact on service quality. It also shows the impact of interpersonal relationships in identifying value propositions of nonownership services and establish interorganizational relationships for their exploitation. Personal relationship where instrumental in the use of communication to build up trust and create a relationship atmosphere conducive for the performance of nonownership contracts.

If things go wrong, both parties are harmed, but the potential damage is typically much higher for the client. For example, the entire A380 fleet of Qantas was grounded because engine problems; or a manufacturing line will be at a standstill as long as a malfunctioning supplier-operated machine cannot be repaired. While in many cases like these, companies find themselves in front of courts, Rolls-Royce showed commitment and engaged swiftly in solving the problems. This highlights the role of mutuality and mechanisms for conflict resolution in enabling nonownership services

Power-by-the-Hour was made possible by investments into information systems that allows Rolls-Royce to track the performance of its engines in real-time (Smith, 2013). These monitoring and tracking systems are also key elements in fostering systems trust of Rolls Royce clients. As predicted by property rights theory, reduced information costs made supplier-ownership feasible. In addition, airlines and Rolls-Royce where able to strengthen their managerial focus, either towards passenger service in the case of the airlines, and on technology in the case of Rolls-Royce. In the case of Rolls-Royce, it also shifted its focus on the long-term reliability of its engines, thereby driving down the costs

of repair and maintenance, thus directly increasing profits for Rolls-Royce in the short-term, but enhancing system efficiency for all players in the long run. Thus, long-term orientation played a key role in establishing the service.

Contracts do not suffice to unlock the nonownership benefits for Rolls-Royce and its clients. One prime mover is Rolls-Royce's commitment. This becomes credible by Rolls Royce's investment in global information and tracking systems that are a lock-in for Rolls-Royce and tie its fate on the performance of its services. Rolls-Royce complements this by investments into its corporate brand and its "Power-by-the-Hour" label that tie the fate of its service-business to an audience in the sense of an institutional commitment (Lohmann, 2005). Rolls-Royce's financial performance that demonstrates the attractiveness of its Power-by-the-Hour service and its substantial pricing power are shown in Tables 5 and 6)

[Insert Tables 5 and 6 about here]

RESEARCH OPPORTUNITIES

Trust as the Key to the Potential Market for Nonownership Services

In his pioneering contribution on the social context of economic reality, Granovetter (1985) showed the downsides of underestimating as well as overemphasizing the impact of social relationships on economic value. In a similar vein, managers and researchers need to look at the interplay of contracts and relationships in unlocking the value of nonownership and the sharing economy.

The challenges become apparent in current business models aiming at the widespread diffusion of nonownership services. For example, cloud-based services like AirBnB, Salesforce.com or Uber demonstrate the potential of smart IT-design to enhance

the feasibility and reliability of resource sharing, engineer conditions that favor the realization of nonownership value propositions and reduce the costs of resource-sharing. At the same time, current challenges of these services clearly demonstrate the need to maintain the human factor in these systems. The current challenges of sharing services to win the trust of potential customers provides promising opportunities for interdisciplinary research in particular at the interface of the social sciences and IT engineering. The challenges of the sharing economy underscore the need to develop the social dimension of the business. For researchers this is a fascinating opportunity to unveil the dimension of social relationships and show evidence for relational approaches as well as their impact on performance of nonownership and sharing businesses.

Uncertainty Sharing and the Organization of Value Co-creation

Service research has made significant progress by identifying co-creation as a key element of service processes (Vargo & Lusch, 2004; Ballantyne & Varey, 2008). However, the almost unaddressed questions still to be answered by service research is why and how co-creation should be divided between companies or between consumers and companies. In other words, why and to what extent does economic organization matter for co-creation and the provision of services. Nonownership approaches (Lovelock & Gummesson, 2004; Ehret & Wirtz, 2010; Wittkowski, Moeller, & Wirtz, 2013) provide the inroad to address these problems. They are both starting points for more comprehensive and consistent theories of co-creation as well as implying practical means for uncertainty transformation, such as the design of contracts, the use of IT-systems, the exploration of technologies or the cultivation of social relationships. While it is apparent, that uncertainty plays a key role in the different modes of value

cocreation, this opens significant opportunities for researchers for unveiling various approaches to handle uncertainties in value cocreation. Some of the most interesting are the contribution of IT-systems in sharing uncertainties across organizational boundaries, the use of real-options for the financial valuation of uncertainty in value cocreation and not least the contribution of social relationships for handling uncertainties (as outlined in this article).

SUMMARY AND CONCLUSIONS

Economic theory identifies three types of value propositions offered by nonownership services. They are (1) to enhance contracting efficiency, (2) to foster management productivity, and (3) to empower companies to explore mutual beneficial business opportunities. Nonownership contracts are the core building block of value propositions of nonownership services as they transform downside uncertainties of clients into business opportunities of providers. However, written contracts entail severe limitations because uncertainty defies ex-ante specification.

In a classical contract law perspective, nonownership contracts appear as a paradox, as the institution of ownership becomes valuable in situations where it is impossible or too costly to write contracts. In contrast, relational contract theory conceives contracts as legal elements of social relationships. From a relational contracting perspective, social relationships enable contracting parties to handle uncertainties which cannot be captured by contracts and thereby enable the exploitation of nonownership service value propositions.

Relational governance mechanisms help parties to handle uncertainties beyond the limited domain of written contracts. Because nonownership contracts aim to provide a

response to uncertainty, relational approaches enhance the sustainability of nonownership. Because of the high potential for conflicts apparent in nonownership, relational governance mechanisms are a crucial, but oftentimes neglected element of nonownership business models.

This paper extends literature of relational governance by elaborating its potential for uncertainty sharing. It contributes to the growing body of research on nonownership services by elaborating the role of governance mechanisms to help to fulfill the promise of specialization for business opportunities.

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Table 1: Growth index for US Service Industries 1947-2013

Service Industry	Relative growth between 1947 and 2014 ¹
Wholesale trade	0,67
Retail trade	0,44
Transportation and warehousing	0,36
Information	1,17
Finance and insurance	2,14
Real estate and rental and leasing	1,14
Professional and business services	2,55
Educational services, health care, and social assistance	3,08
Arts, entertainment, recreation, accommodation, and food services	0,80
Other services, except government	0,51

¹ (levels above 1 indicate higher share within the service sector, values below indicate a reduced share within the services sector)

Table 2: Nonownership contracts and the allocation of Entrepreneurial roles

Types of Uncertainty Asymmetries	Provider (Owner)	Client (Non-owner)
Entrepreneurial Role in the Service Process	Entrepreneur of Service Assets	Entrepreneur of Service Outcomes
Asset utilization	Create outputs from assets (e.g. airplane engine)	Use asset outputs as inputs for business operation (e.g. airline)
Orientation in Value Chain	Upstream	Downstream
Scope of Entrepreneurial Activity	Asset operation	Asset exploitation
Role in Technology Commercialization	Technology Exploration	Technology Exploitation

d

**Figure 1: The share of goods (primary and secondary sector) and service industries
in US GDP**

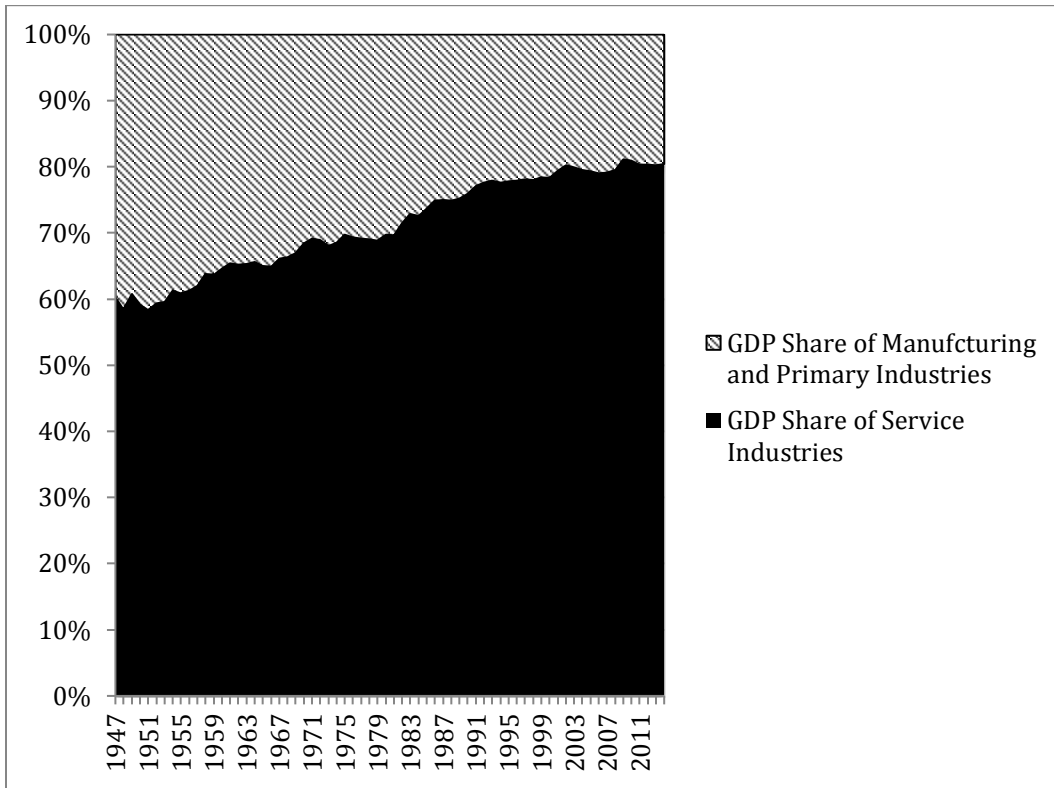


Figure 2: Composition of US Service Industries from 1947-2014

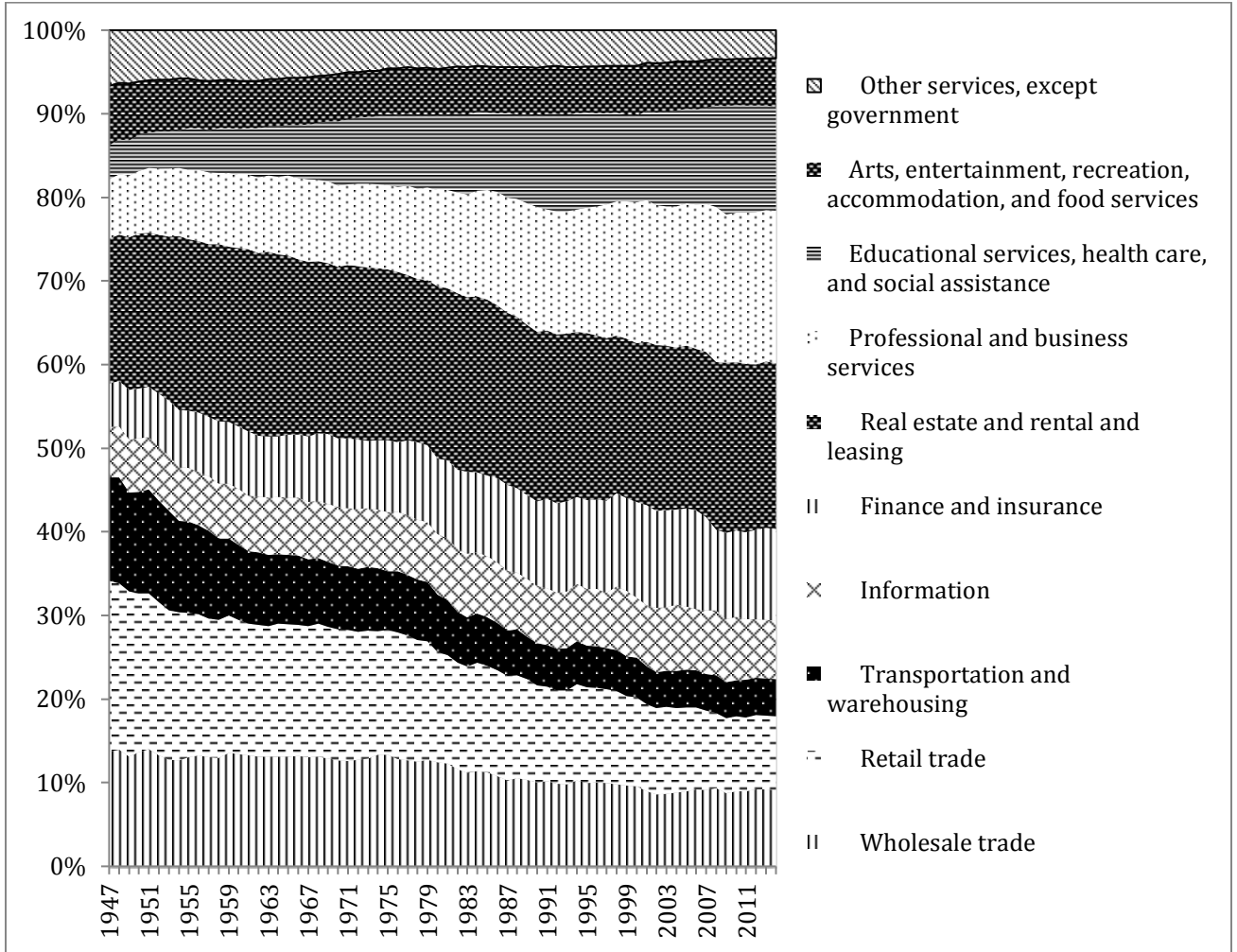


Figure 3: The share of goods and services industries in intermediate inputs for value creation.

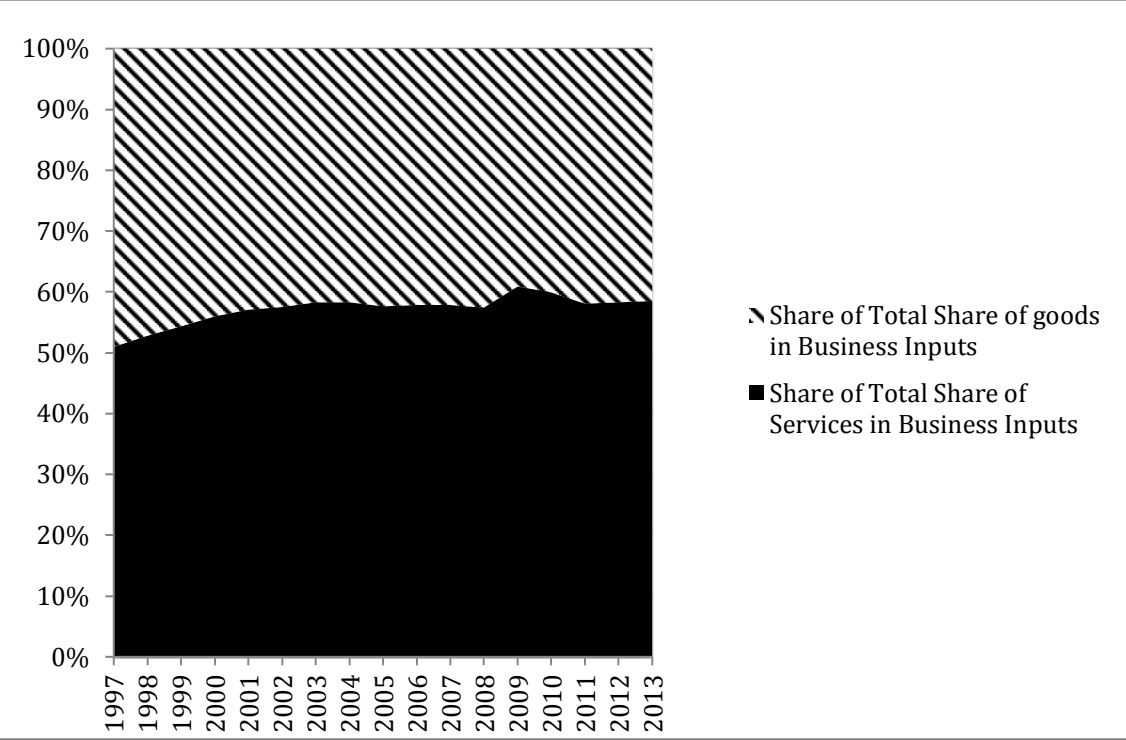


Figure 4: The Allocation of Entrepreneurial roles by Nonownership contracts

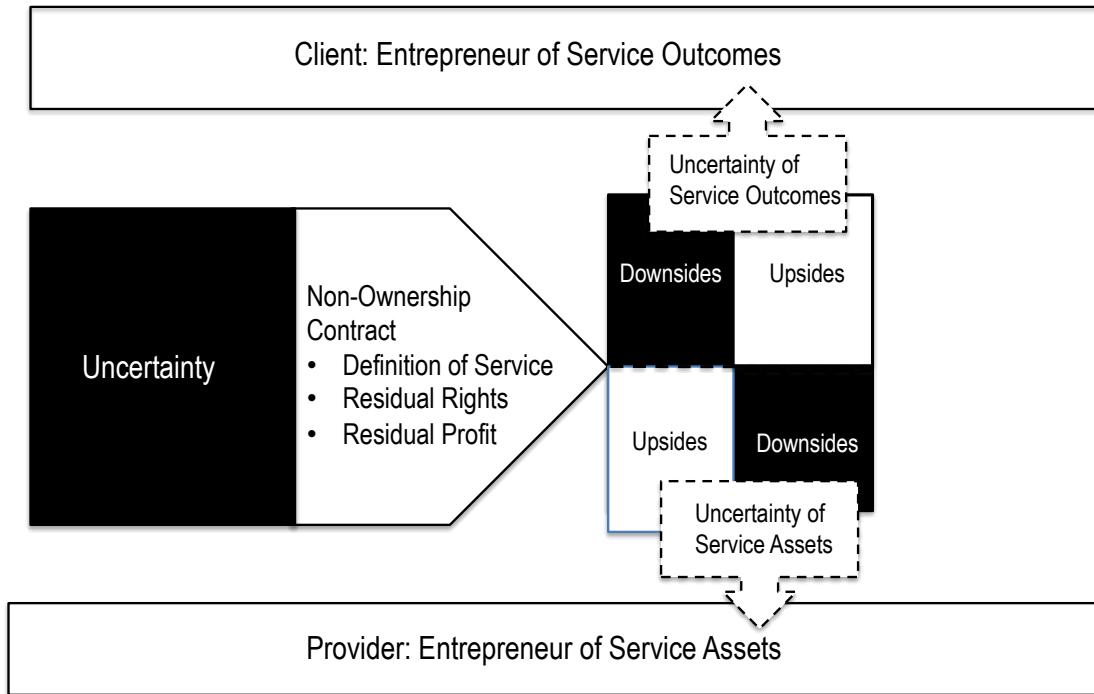


Figure 5: The impact of relational governance mechanisms on nonownership value

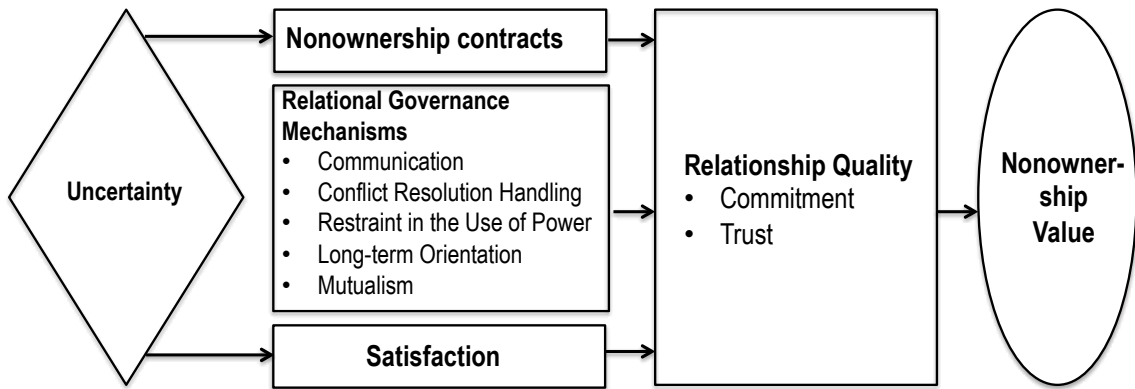
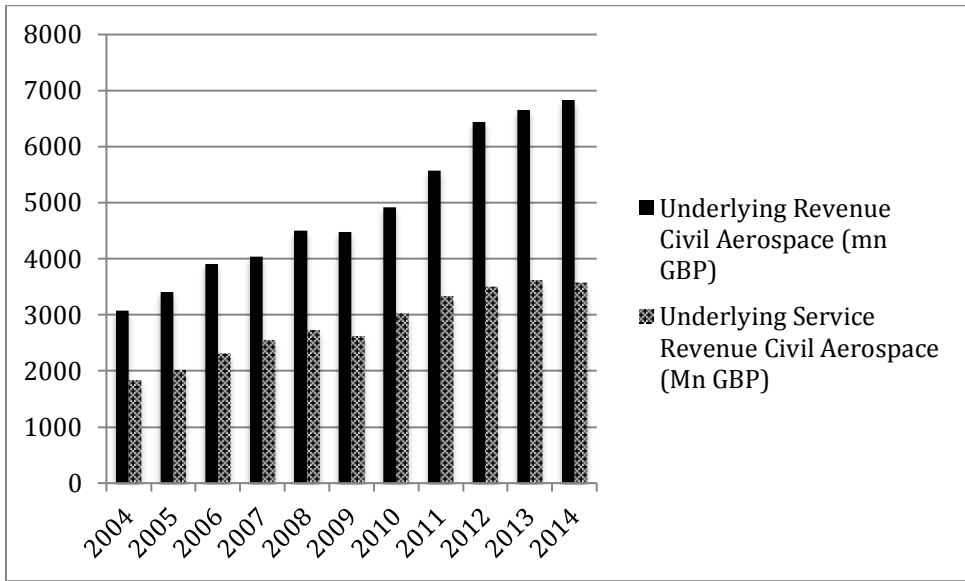
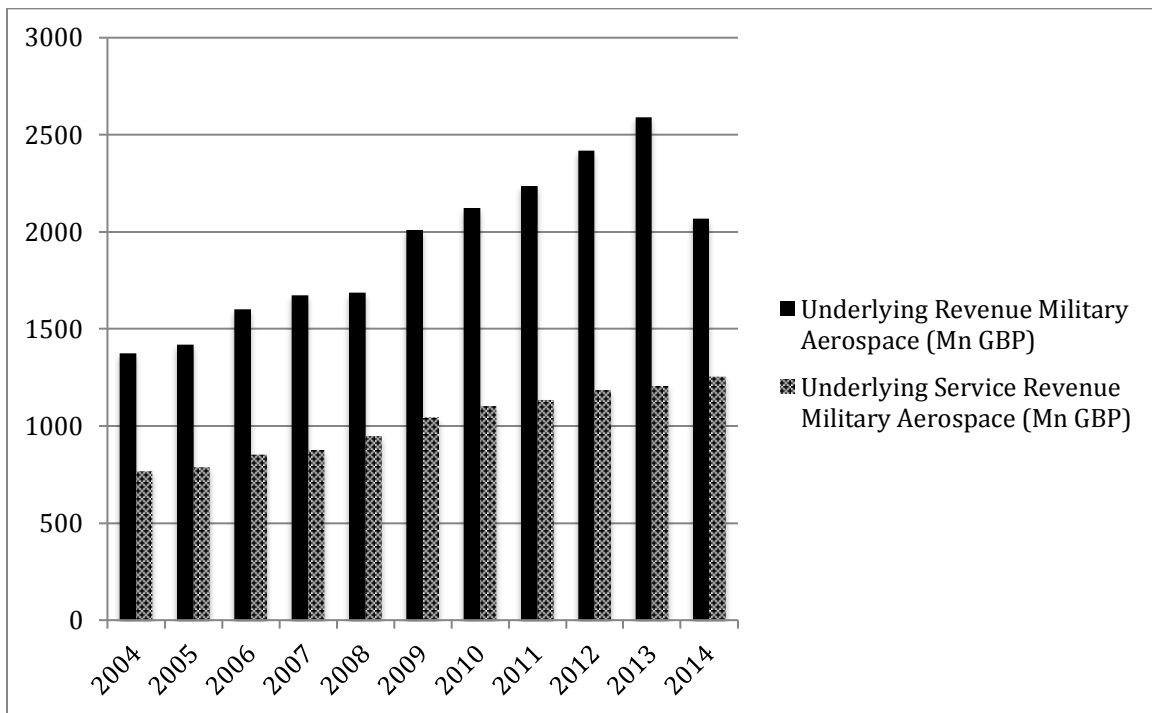


Figure 6: Underlying Revenue and service revenue of Rolls Royce CivilAerospace.



Source: Rolls Royce annual reports.

Figure 7: Underlying Revenue and service revenue of Rolls Royce Defense Aerospace.



Source: Rolls Royce annual reports.

