

SERVICE - DOMINANT LOGIC PERFECTIVE A CASE STUDY: MRO READINESS BUSINESS MODEL TRANSITION CONCEPT

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Abstract

Objective - The Service-Dominant Logic (SDL) concept was first promoted by Vargo & Lusch (2004a) because of a shift in marketing perspective that prioritizes services in the exchange process. The SDL perspective consists of eight aspects namely, operant resources, resourcing, servicing and experiencing, value proposing, dialogue, value-creation (Value Co-creation. Ontology — A Service-dominant Logic Perspective Value Co-Creation. Ontology — A Service- dominant Logic Perspective) networks, learning via exchanges and collaborative. Companies are recently affected by an ongoing change of customer behavior. Customers are no longer solely interested in product offerings but call for a provision of service solutions that accompany these offerings. This change goes along with a need for companies to redefine their idea of how to create and capture value. Against this background, as a result, we develop a set of propositions describing the influence of a company's service-dominant business logic on basic elements of a company's business model. Our research shows that a fundamental redesign of the business model is necessary to successfully implement service-dominant logic. Design/methodology/approach – This study uses Mixed methodological approach. First using survey data from aircraft manufacturer and second using literature study for choosing business model. MRO create with SDL for supporting. Findings - How does an increase in focus on service influence a company's business model? We examine this question based on the service-dominant logic concept as well as the business model concept and discuss possibilities how to adapt the business model to a service dominant business logic Originality/value - This development of the aircraft manufacturing companies to rethink their basic business logic by paying more attention to the crucial service aspect. Paper type - Conceptual paper

Keyword :

Service-Dominant Logic (SDL), Value Co-creation, Business Model

1. INTRODUCTION

In line with the product-to-service transition in the manufacturing industry, the dominant logic of service has emerged as the latest and most challenging scientific debate Kowalkowski (2010). Service science is an emerging discipline concerned with the evolution, interaction, and reciprocal cocreation of value among service systems dynamic configurations of

Maintenance, Repair and Overhaul (MRO) has an important role in the aviation sector because it is responsible for the airworthiness supervision

resources capable of providing benefit to other service systems Maglio and Spohrer (2008); Maglio et al. (2009); Spohrer et al. (2008), and themselves. The concept of value co-creation is one of the foundational premises (FPs) of service-dominant (S-D) logic proposed by Vargo & Lusch (2004).

function so that the aircraft can be fully used when needed by airlines with an estimated cost that is affordable and reasonable but still of prime quality. In general MRO will maintain or return aircraft

components to a state where it can perform certain functions. This includes a combination of all technical and administrative aspects that correspond with managerial concepts, oversight and error prevention activities. Most MRO activities are related to service, repair, modification, overhaul, inspection, and determination of the condition of the aircraft which is mainly carried out with regular maintenance. As soon as the aircraft is handed over to the MRO organization, it will be ensured that the aircraft will always be in an airworthy flight during operations and this requires regular inspection and maintenance activities. Maintenance of aircraft, engine, and also components and equipment may only be carried out by maintenance organizations that have been authorized by the authorities in accordance with section 145 regulations. The maintenance industry is unique if viewed from its business process, the maintenance industry is not only defined as an organization that has a function for production orientation because it carries out the remanufacturing process by means of production restoration to maintain reliability in carrying out a function according to its initial design, but also provides services in the form of maintenance services to Aviation industry in general. The development of aviation world that is increasingly advanced also influences the management strategy of the aircraft maintenance industry. The MRO industry can be described as the arm of the aviation industry that is primarily responsible for the retaining or restoring of aircraft parts to a state in which they can perform their required design function. This includes the combination of all technical and corresponding administrative, managerial, supervisory and oversight activities. MRO activities are principally the servicing, repair, modification, overhaul, inspection and determination of condition of the aircraft especially at scheduled periodic checks. The main role of the aviation MRO sector is summarized as essentially responsible for the provision of a fully serviceable aircraft when required by the operator at affordable and reasonable cost with optimum quality Ayeni (2011).

2. Literature review

2.1 Definition of Business Model Innovation

The source of the business model concept lies in its development in corporate practice, (Lecocq et al., 2010; George and Bock, 2011). Thus, there is no generally accepted definition and understanding of the term (Zott et al., 2011). Despite increasing consideration of the concept within academia, no commonly accepted definition and understanding of the term have yet been established (Zott et al., 2011). Affected by the

dominant role of the internet and related e-commerce activities on the concept's development, most business model definitions focus on the concept's ability to explain "how a firm will make money" (Stewart and Zhao, 2000, p.290) and "how enterprises work" (Magretta, 2002, p.87). They are understood to represent the "design or architecture of the value creation, delivery, and capture mechanisms" (Teece, 2010, p.172) an enterprise employee. In consequence, business models serve to commercialize innovations by allowing firms to deliver the value of a service or product innovation to their customers meanwhile capturing the related revenues (Chesbrough, 2010; Teece, 2010). To do so, the business model concept neither limits its scope on firm internal nor external environmental factors, but rather provides a holistic perspective that allows managers to take an integrated view on their firm's activities. In this paper, we define a business model in line with Johnson et al. (2008), but aggregate the proposed facets into two dimensions: customer value proposition and internal value generation. Johnson et al. (2008) emphasize that the most important dimension of a business model is how the company and its offerings are perceived externally by its consumers. This external business model consists of the customer value proposition. This dimension refers to the product and service portfolio which is offered at the market. It determines which customer needs are addressed, which target customers are approached, and how and which distribution channels are used. Further, Johnson et al. (2008) discriminate an internal business model which captures the key processes (formal and informal) and key resources (tangible and intangible), which fulfil a potent value proposition in a profitable way. Further they emphasize that a profit formula has to align the internal cost structure with the prices and volumes which can be achieved at the market to ensure the profitability of a company. As processes, resources and the profit formula are intertwined with each other, we subsume their elements under the term internal value generation. However, internal does not mean that all processes take place in closed companies and do incorporate resources which are owned by the company. The internal value generation can as well make use of the resources, competences and knowledge bases of partners along the value chain. As such, when customers provide relevant resources to value generation, the boundaries between customer value proposition and internal value generation overlap (Vargo and Lusch, 2008, Baron and Warnaby, 2011). In the innovation strategy, making the business model a relevant unit of analysis in starting strategic strategy development. Trends

such as increasing customer- centricity replacing traditional supply-driven business logic (Teece, 2010) and the entry of new competitors that have revolutionized entire industries, such as airlines or low-cost retail markets (Johnson et al., 2008), have forced companies to realized that their conventional business model was failing. With the aspiration for a new and preferably sustainable competitive advantage, the capacity of a company to reinvent its own business model in anticipation of environmental changes is increasingly considered an important organizational competency for companies operating in volatile markets (Hamel and Välikangas, 2003; Amit and Zott, 2010). A conscious renewal of the company's core business logic is business model innovation that focuses on the specific characteristics of different service or product innovations, business model innovation emphasizes the commercialization of innovation that applies an integrated perspective of the elements of the company's extant business model and the value they offer to customers.

2.2 The Challenges for Maintenance, Repair and Overhaul Firms

MRO firms experience a situation in which opportunities and threats arise. First, customers (the airlines) tend to focus on their core activities and thus outsource an increasing number of tasks to dedicated MRO firms. Second, upstream actors (the OEM). The MRO business unit represent a crucial element to their operations as technical reliability and passenger trust in an airline's fleet management are crucial for any airline's success (Al- Kaabi et al., 2007). Furthermore, they account for a significant portion of an airline's cost structure (Freidl, 2009). MRO activities comprise the maintenance of all aircraft components and can be further differentiated in accordance to the effort intensity and frequency of the required works: (a) heavy maintenance requiring dismantling most of the aircraft's parts, (b) engine maintenance in response to defects and replacement of Life-Limited Parts (LLP), (c) line maintenance involving brief in-service repairs based on visual checks, (d) component maintenance focusing on specific maintenance intervals of isolated parts of the aircrafts and (f) modifications to implement technological upgrades throughout the lifetime of an aircraft (Al-kaabi et al., 2007); Freidl, 2009). MRO activities have historically been conducted inhouse by most airlines. Until today, most FSCs maintain their own MRO divisions, frequently operating as independent subsidiaries offering their services to affiliated airlines as well as openly to market. In addition, independent MRO service

providers that differentiate themselves through high levels of flexibility and degrees of specialization serve the market. OEMs have expanded their activities into the aftersales market. Manufacturers have previously focused on the development and commercializing of technological innovations as potential source of differentiation and competitive advantage (Franke, 2007; Bessant, 2009; Goldman and Nagel, 2009). Pressured by constant shortening of product life cycles and high costs for R&D activities to cope with the rapidity of technological developments (Goffin, 1998; Homburg et al., 2002), manufacturers have started to explore additional value sources by providing services related to their products (Gremyr et al., 2010; Lay et al., 2010). Despite manufacturers' obvious economic and rising customer demand due to an increasing trend of concentration on core competencies (Oliva and Kallenberg, 2003), it was not until recently that manufacturers' interest in service offerings increased (Jacob and Ulaga, 2008). Within the aviation industry, OEMs, such as General Electric, Rolls Royce, and Pratt and Whitney provide examples of such activity expansion into the aftersales market. With the entry of OEMs into this market, MROs have recently experienced the emergence of a new rival providing a different level of competition to the market. Therefore, besides the opportunities arising through new customer demands, MRO firms have to respond to competitive pressures.

2.3 Maintenance, Repair and Overhaul (MRO) Fundamentals

MRO may be defined as "all actions that have the objective of retaining or restoring an item in or to a state in which it can perform its required function. The actions include the combination of all technical and corresponding administrative, managerial, and supervision actions" (Kinnison, 2004), states that maintenance can be described as the process of ensuring that a system continually performs its intended functions at its original level of reliability and safety (Viles et al. 2007) emphasize the goal of maintenance is not only to reduce repair time but also to improve product reliability, as well as to capture relevant information for analysis.

It is a complex process that has stringent and precise requirements to ensure the safety of passengers and crew in the fast-moving MRO business market. Where forced maintenance is an important part of the airworthiness criteria of an aircraft; its primary goal is to ensure the aircraft is full service, operational and safe. Reliable and disciplined maintenance is an important contributor to the high level of safety experienced today on the other persecution can have tragic

consequences. "A number of entrepreneurial operators and support providers have adopted a new group of postproduction support strategies, in-house airline maintenance capabilities (Carpenter and Henderson, 2008) explain that commercial airlines can establish MRO services in their own fleets and operate as profit centers; although, it is not uncommon for airline operators to spin-off these MROs and act as a separate, corporate activity. "Third Party Independents perform similar functions as In-house MROs but are not affiliated to an airline operator. Independents often provide these services at a lower price. Therefore, independents market themselves as the value proposition over the OEMs and In-house MROs". From book: "Aviation Maintenance Management" Second Edition by Harry Kinnison, Analyzing the operation side, (Kinnison, 2012) explains that aircraft maintenance can be divided into scheduled and unscheduled maintenance. Scheduled maintenance is a preventive action to ensure that a product functions properly at pre-set intervals. Unscheduled maintenance is not planned or programmed, but it is required when an item has failed or broken down. Kinnison and authors clarify that scheduled maintenance includes routine and detailed inspections called transit, 48 hours, "A", "B", "C" and "D" checks, subdivided in line and base categories, as detailed in Table 1. The aircraft will carry out the external maintenance by removing equipment and components and replacing them with a serviceable unit. The unit that was moved was then directed to a repair facility. The speed may be slower than in aircraft maintenance, but its short turnaround for maintenance (meaning time for repairs) is important and sometimes necessary. Aircraft repair types according to Aviation Safety Bureau regulations describe:

1. Aircraft Structural Repair: structural repairs are carried out on aircraft which are damaged in the structure (eg, outer shells, stringers, formers, bulkheads, etc.). There are several causes for structural damage to aircraft. This is usually caused by servicing equipment on the ground, maintenance premises, bird strikes, or lightning strikes.

2. Component repairs: component repairs range from simple part replacements to an entire overhaul.

2.5 Customer

2.5.1 Commercial Aviation Industry

Approximately 230 major airlines operate throughout the world and are registered with the International Air Transport Association (IATA). The commercial aviation industry is composed of airline companies that offer passenger and cargo

If a component fails to operate properly, it is removed from the aircraft and replaced by one that operates properly. The removed component is then repaired. The complexity of MRO management, which requires in-depth and specialized expertise to handle inventory management, forecasting, supply management, return and repair flows etc., forces companies to rethink their MRO strategies. (Karadžić et al, 2019). State that due to the highly intensive workforce industry, attracting and maintaining technically proficient workers is one of the many challenges. To obtain cost savings and improve reliability, airlines are outsourcing partial or full MRO management to third party companies.

2.4 Uniqueness to the Aviation Industry

If you study the very complex supply chain in the aviation industry. Every component of an aircraft must be certified by an airworthiness authority, with stringent requirements to ensure safety. Due to the high level of requirements to qualify for suppliers, very few companies are authorized to provide parts and services in the aviation industry. This predicament leads to limited options when selecting a supplier for a new aircraft program and results in a lack of leverage to negotiate commercial conditions. Additionally, the same system suppliers operate in different sub tiers, so they become suppliers of their competitors, which may negatively impact the relationship between them and, ultimately, the final customer. Figure 1. Reflects the above scenario, showing production and spare parts and the MRO services flow aeronautical industry. Essentially, there are four stakeholders: sub tier suppliers/ suppliers, aircraft OEMs, customers and MRO repair shops. The business model recently applied by aircraft OEMs provides for key suppliers working as system integrators. This means that instead of having hundreds of suppliers to address, aircraft OEMs have approximately 50 system suppliers. They can produce or purchase from multiple suppliers and be responsible for delivering an integrated system (Raju et al, 1996). Corroborate that the modern-day military and commercial aircraft systems are an integration of a large number of sub-systems components.

transportation services. Boeing explains that the industry continuously adapts to various market forces. Key market forces that impact the airline industry are fuel prices, economic growth and development, environmental regulations, infrastructure, market liberalization, airplane capabilities, other modes of transport, business

models, and emerging markets. Each of these forces can have both positive and negative impacts on the industry.

2.5.2 Business Aviation Industry

Since the introduction of the jet business, in 1965, and the first turbo propeller business by the Lufthansa Convair CV-440 „Metropolitan“, 1957, the business aircraft market has experienced a very high cycle. The crisis in financial markets at the end of 2008 triggered a sharp decline in the airline business and orders for new business planes. Bombardier estimates that more than 800 orders across all manufacturers were cancelled in the Light to Large categories in 2009. Bombardier predicts 24,000 business jet deliveries valued.

2.5.3 Military Aviation Industry

America and Europe account for about 80% of global defense spending. Political decisions determine when and how the military, as a whole, will be hired and these jobs have a direct impact on the MRO industry. However, the global economic downturn, the US economic crisis and the European debt crisis are expected to negatively impact defense spending and lead to cuts in the defense budget. As a result, the allocations for military aircraft are not expected to grow significantly over the forecast period due to the financial constraints faced by most of the leading defense spenders.

2.5.4 MRO Repair Shops

The aircraft maintenance and repair work majority is carried out by workshops (80%). MRO workshops are small and medium enterprises. "The maintenance of the heavy airframe, which is very labor intensive, offers the opportunity to reduce costs by way of off-shoring to low-wage countries such as Eastern Europe and Asia." According to Aviation Week and Space Technology (AW&ST), the real market is dominated by Asian companies and the majority of the top 10 global MRO players are located in this geographic area, Singapore Technologies Aerospace is the largest airframe maintenance company in the world, having accumulated 11.5 million maintenance man-hours in 2012, followed by Haerco Group, from Hong Kong, which had 7.4 million maintenance man-hours. Lufthansa Technik, the largest airframe maintenance company in years past, has lost market share and is now in fifth place. MRO providers are expanding their geographical reach and capabilities in a bid to become regional and global full-service providers. The number of MRO

businesses in emerging countries is increasing due to low labor costs and joint ventures between system suppliers and aircraft manufacturers. Some examples are Pratt & Whitney and China Eastern, General Electric and Singapore Technologies Aerospace, Boeing and Shanghai Aviation Services Co., and Bombardier and Tianjin Airport.

2.5.4.1 The Dominant Logic of the Service

The importance of services that are increasingly strategic is very much noticed by practitioners and management science researchers. Thus, it is not surprising that the management literature emphasizes the need to refocus corporate activities to a more service-oriented perspective (Gebauer et al., 2005; Karpen et al., 2012; Schneider et al., 2013). Simultaneously, the SDL introduced by Vargo and Lusch (2004) has increasingly attracted interest in the marketing literature. Framework supportive of SDL research (Lusch, 2011). Vargo and Lusch (2010, p. 172) summarize SDL in two tenets:

1. "Fundamentally, economic (and social) exchange can best be characterized as service- for-service exchange that is, service is the basis of exchange,"
2. Value is created collaboratively and inputs (resources) must be integrated in order to realize value.
3. In contrast, the S-D logic views all exchange as based on service and that "when goods are involved, they are tools for the delivery and application of resources" (Vargo & Lusch, 2006 p. 40), which means that goods are service delivery vehicles (Vargo et al., 2008). Key resources for competitive advantage are knowledge and skills (Johnson et al., 2005). In contrast to G-D logic, S-D logic states that value is at all times co-created with the client (Vargo and Lusch, 2008) as detail in table 2. For S-D logic, value comes from the favorable use of operand resources, which are occasionally transmitted through operand resources or goods (Vargo and Lusch, 2004). Thus, from this view, value is co-created by the mutual effort of companies, personnel, clients, stakeholders, government agencies, and other entities connected to any given exchange, but is always decided by the receiver (e.g., customer) (Vargo et al., 2008) as detail in table 3.

Table 2: Differentiation Good Dominant Logic between Service Dominant Logic

Goods Dominant Logic	Service Dominant Logic
Product something	Support clients in their own value co-creation process

Table 3: Shift for practitioners (Vargo and Lusch, 2008).

Value Created	Value co-created
Client as isolated object	Clients in context of their own system
Company's resources mainly as operand	Companies resources mainly operant
Client as targets	Client as resources

2.5.4.2

SDL and Business Model Design

The design of a new business model is influenced by the increasing importance of services (Kastalli et al., 2013; Nenonen and Storbacka, 2010; Storbacka et al., 2012). In recent years, prominent service-related business models have been developed. Johnson (2010) for example proposes a set of 20 types of business models - seven of which include a clear service focus.

Additional solutions outside of a traditional product and service portfolio to improve customer satisfaction or 'Service products': replacing a one-time product transaction with a long-term service agreement). Many types of business model positioning services are geared towards maximizing value in a long-term context. Individual goods and services are primarily understood as a type of platform model that allows for building a co-creation of value (Vargo and Lusch, 2008b).

Controlling services as prominent provides insight into aircraft health, improve maintenance planning, and create industry platforms. The technical advantage goes to OEMs, who, unlike MROs, make heavy investments to support their new business models.

3 Conceptual Design Model

3.5 Value Co-creation

This research aims to understand customers motivation and to understand provider customer interaction, many models were also developed based on one of the key components of value co-creation. Value co-creation is defined as the set of values that most people like a consequences of information exchange, deliberate communication, intensive knowledge interactions and other goals (Mayangsari et al., 2015; Spohrer & Maghlio, 2008). Goda & Kijima (2015) identify three phases of the shared value creation process of a service ecosystem: network, resource integration, and service exchange. The service ecosystem is a relatively self-contained and self-adapting actor system that integrates connected resources with shared institutional logic and shared value creation through service exchange. Stakeholder integration will form an ecosystem that integrates multiple resources to create service value. Then, by interacting, they exchange service values with each other. These phases are modeled as a cycle (see Figure 2)

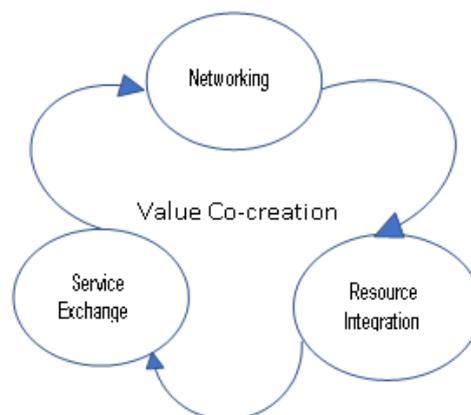


Figure 2: Value Co-creation Cycle

3.6 Conceptual Framework

This research will review, how to define and manage the logistics manufacturing interface and value co-create is an important issue for the success of manufacturers. The Service Dominant logic with the key of service and value co-creation appears to benefit this inter-organizational relationship. Therefore, this paper aims to apply Service Dominant Logic to identify and define the

interface of manufacturers and to identify the enablers to coordinate and manage the interface. As discussed above, most of the current literature on interfaces is focussed primarily on process, information and design; hence this paper will concentrate on the same three levels. The conceptual framework of this research is outlined in Figure 1.

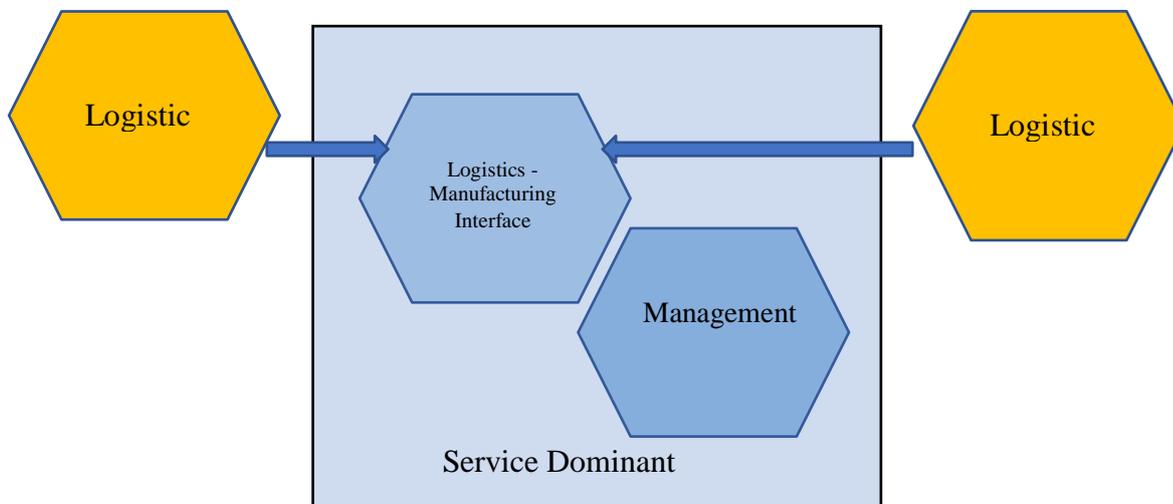


Figure 3: The Conceptual Framework

4.

Preliminary Analysis and Discussion

4.1 Preliminary Analysis

According to Service Dominant Logic, services and not goods should be the fundamental unity for value exchange. Thus, goods would be simply vehicles that embody and allow the transmission of services, acting as a medium for the customer to benefit from a firm's competencies (Vargo and Lusch, 2008). An evolution of this theoretical perspective is service logic (SL), a specific field of service sciences (Grönroos and Gummerus, 2014). According to SL, value can only be created by the consumer when he or she is using the product or service. The provider does not create value but proposes it. Consequently, if the provider is able to create the required enabling and facilitating conditions, it can be part of the value creation process alongside the consumer. In this perspective, the value co-creation process becomes dynamic and cyclical as the value captured by the actors turns into a new input for the value co-creation process and reinforces actors' motivations and intentions for participating in it (Reybens, Lievens, & Blazevic, 2016). Thus, we include value capture in our theoretical model as complementary to the main value co-creation process, linking outcomes and antecedents. Figure 4 shows the value co-creation process that emerged

from the systematic review. Management In the management dimension, there are elements that characterize the actions that must be undertaken by a firm to promote or orchestrate the value co-creation. In tune with the central element of the co-creation process, the first action that emerges in this dimension is 'promote interaction,' by management roles meaning that the firm intending to implement the value co-creation mechanisms should be the responsible for engaging the actors in continuous interactions by defining, maintaining, and improving the channels of interaction and the dialogue structures. The value is realized at the final assembly line when the logistics services are accomplished, which means the value is perceived and measured by the customer.

Business Models for Subsidiary Networks

Value co-creation business models require adaptation and active participation from other actors, considering how new or reconfigured business models can be introduced into the actor network. By considering 2 aspects. First, it is necessary to match the intra-actor and inter-actor configurations to enhance co-creation. Second, redefining market practices to improve.

Intra-actor and Inter-actor Business Model Suitability

Increased co-creation will require actors to reconfigure their business models to allow for increased resource density. Freytag and Clarke (2011) argue that the new business model implies changes not only in the focal actor but also in the focus actor's relationship with other actors, and in the business model of other actors. In the business-to-business context, it can be said that all interactions between actors are actually business model interactions between actors (Storbacka & Nenonen, 2011).

The business model defines the practices carried out by the main actors and these practices affect

other actors. Therefore, changing business models related to co-creation will require focused actors to engage in processes where they 'negotiate' resource and capability configurations within specific actor-to-actor pairs and within the larger network. Actor configuration (i.e., the fit between the various elements and practices of the business model) and the congruence between the actor configuration (i.e., the fit between their own business model and practices and those of other actors). Configurable compatibility between actors allows for increased resource density, and thereby enhances value creation for multiple actors simultaneously.

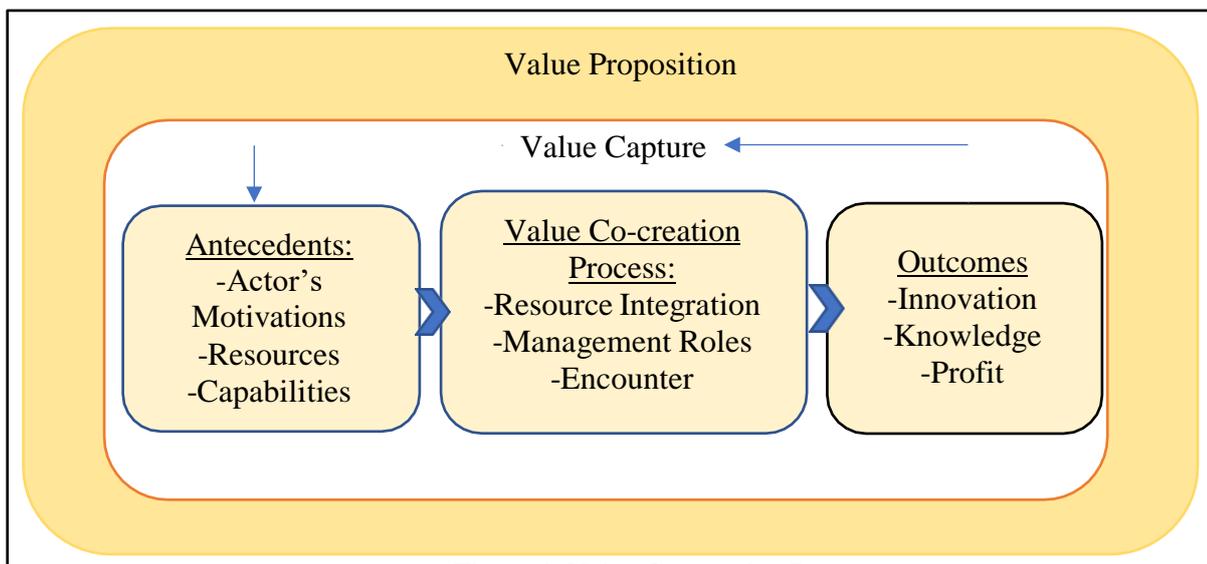


Figure 4: Value Co-creation Process

4.2

Discussion

This research focuses on developing an understanding of the evolution from value created and distributed by aircraft manufacturing companies for new aircraft maintenance (MRO) divisions, to value created together in a network. Thus, this chapter attempts to fill a research gap by developing a framework that helps companies engage customers and other actors in purposeful shared value creation. We argue that values are not passed by one actor to another. Value is co-created when actors integrate resources into practice – making practice the basic unit of value creation. An actor can increase use value creation by providing resources and helping other actors to integrate these resources with other existing socio-cultural resources. Greater density of resources, relevant to the particular practice and to the focused actor's goals or missions, corresponds to an increase in value. The provider's role is to support the customer in their value creation by providing resources that are 'in line' with the customer's practices. Therefore, the customer is not seen as an

extension of the company's production process – rather the company needs to be seen as an extension of the customer's value creation process.

We also conclude that focal actors need to strive for conformity of intra-actor and inter-actor configurations to enable purposeful co-creation. As a place where value creation transcends organizational boundaries, compatibility between actors is critical.

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