

Subscription-based business models in the context of tech firms: theory and applications

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Abstract

Purpose – This study analyzes how tech firms can implement the modern wave of subscription-based business model (SBBM), including value proposition, value creation, value capture and performance. In fact, these elements push tech firms to move from traditional to SBBMs.

Design/methodology/approach – To achieve the objectives of this study, we initially construct a theoretical framework for applying SBBM. Subsequently, we employ qualitative research to examine the current implementation of the subscription-based economy within tech firms.

Findings – A successful SBBM necessitates capturing value through sustainable revenue transactions and revising aspects of the value proposition, creation and capture. Continuous improvement through business value analysis is imperative. Additionally, an agile operations system is vital to address revenue complexities, enable data collection and enhance value proposition, service innovation, churn rate and customer retention, which are essential for SBBM maintenance.

Originality/value – This study delves into how the subscription-based economy is reshaping the business models of tech firms. Beyond exploring the theoretical foundation of this transformative path, this study offers actionable insights on enhancing the value proposition, creation, capture and business value within subscription-based economy frameworks.

Keywords Subscription-based economy, Sharing economy, Business model development, Business model innovation, Case study

Paper type Research paper

1. Introduction

Success stories of the sharing economy, which sponsors sharing of resources among communities and further assists in reducing negative environmental and societal impacts while lowering costs, have encouraged companies, including big brands, to rethink their business models (Govindan *et al.*, 2020). Moreover, the growing attention surrounding the subscription economy has expedited a new era known as “The End of Ownership,” where customers are less interested in owning goods and more inclined to obtain desired outcomes through easy-to-



access services (Tzuo, 2022). Subscription-based business models (SBBMs) have been around for decades, notably in the form of newspaper subscriptions and milk-delivery services. However, in today's landscape, the processes linked to the implementation and management of these business models are quite challenging and complex, as an overwhelming majority of subscription services are now linked to digital services (Klopčič *et al.*, 2020). Some of the current examples of the most popular SBBMs are Netflix and Spotify for content providers, Hello Fresh and Birchbox for physical products and Amazon Prime for services (Fosker and Cheung, 2021). The recent digitalization trend has undoubtedly helped SBBMs grow quickly and allowed them to collect, store and analyze customer data through new and modern digital infrastructure and payment services (Volpentesta *et al.*, 2023; Schuh *et al.*, 2020).

In fact, SBBMs allow firms to tailor their offerings to customers, enabling the behavioral shift from owning goods to accessing and using them (Tzuo and Weisert, 2018). For example, many software vendors have now shifted their offerings from traditional one-time payment strategies, which imply ownership by consumers, to a software-as-a-service model. In this model, the software is owned by the vendors and is used by the customers, who are attracted by a small upfront payment. Another emerging business model is manufacturing as a Service (MaaS) platforms, which deliver manufactured products by connecting their network of suppliers with customers on a digital platform. These models can potentially move towards a SBBM if they generate enough volumes for the suppliers and provide continued benefits to their customers (Chaudhuri *et al.*, 2021).

To implement a successful business model, firms adopting subscription-based approaches must set up and revise structures, managerial procedures, customer relationships and cultures, along with the entire set of key performance indicators (KPIs), to properly measure this new phenomenon (Lah and Wood, 2016). The present state-of-the-art view of SBBMs reveals that research is quite fragmented. Most contributions are highly specific to certain cases, such as the effects of home-meal-replacement products/online services on consumer attitudes (Lee and Kim, 2020), the introduction of subscription business models in machinery and plant engineering (Schuh *et al.*, 2020) and the advent of subscription-based options for boxes (Andonova *et al.*, 2021). Furthermore, much of the existing research relates to the concept of a sharing economy and does not directly discuss SBBMs (Schor, 2016; Puschmann and Alt, 2016; Richardson, 2015; Ritter and Schanz, 2019; Grieco *et al.*, 2021; Grieco, 2021).

Shifting to a SBBM requires careful concentration on the three main components involved in devising a business model (value proposition, value creation and value capture), in addition to assessing the business model's performance, continuously monitoring sustainable value capture and analyzing business health metrics. However, the literature on SBBMs remains silent regarding value proposition, creation and capture. Since there is no theoretical framework on SBBMs, we seek to propose a theoretical scheme by answering the following research questions:

- RQ1. Which factors are considered part of tech firms' value proposition within the subscription economy?
- RQ2. What are the most significant value-creation aspects for tech firms within the subscription economy?
- RQ3. What is the value-capturing process for tech firms within the subscription economy?
- RQ4. What are the key business value analysis metrics used by tech firms within the subscription economy?

This study investigates the primary dimensions of SBBM based on the experience of two companies that moved from a traditional business model towards SBBM. The study aims to clarify the main changes following the transition towards SBBM by discussing the primary shifts and focus points of the case studies in implementing and assessing their SBBMs. Therefore, this study establishes a theoretical framework for shifting from traditional to

SBBMs and apply it to two tech firms. The results will help firms and policymakers to have a verified framework to be used when implementing SBBM.

Our findings indicate that companies seeking to shift to an SBBM should focus on capturing value through revenue capture. This requires implementing an agile operations system to control revenue streams and continuously collect data from consumers. These components enable an SBBM to monitor and analyze all transactions with consumers, including access and usage rates of the service. By leveraging this information, firms can enhance the triple aspects of value proposition, value creation and value capture, successfully implementing a monthly recurring revenue (MRR) system. This, in turn, significantly enhances customer relationship management and extends the product lifetime value.

The remainder of this study is organized as follows. [Section 2](#) provides the literature review and [Section 3](#) describes the methodology used. [Sections 4 and 5](#) present and analyze the outputs of the semi-structured interviews and discuss the findings. [Section 6](#) concludes and also identifies future research directions to be undertaken in the field.

2. Literature review

In this section, we study the most relevant articles by providing three subsections including: sharing economy, subscription business models and subscription business model ingredients.

2.1 *Sharing economy and business models*

In recent years, the sharing economy has emerged as a disruptive business innovation, drastically changing both the way in which the world consumes content, goods and services, as well as the overall economy's perspective of value creation. Contrary to the traditional market model, which is primarily based on ownership, the sharing economy consists of the use and sharing of products and services ([Puschmann and Alt, 2016](#)). By embracing the sharing economy, goods and services can be efficiently shared among different entities or customers through various business models, facilitating collective achievements in areas like housing and access to goods ([Al-Yafei et al., 2021](#)). The advent of the sharing economy has been possible due to new digital technologies and platforms, which have completely transformed the business world and classical economic theories: the eco-system has undergone considerable modifications and transformations, followed by the emergence of increased global regulations, rules, standards and governmental policies. For example, the sharing economy is considered the solution to climate crisis, as well as the authentic action needed to move energy transition toward the circular economy model ([De Giovanni and Folgiero, 2023](#)). The new technologies provide different solutions to companies to implement circularity ([Quiroz-Flores et al., 2023](#)) and implementing sharing economy using the new platforms can enhance circular practices. These achievements are possible by granting to stakeholders and the community at large access to services and goods rather than building a business model based on ownership ([Puschmann and Alt, 2016](#)).

Considering the sharing economy's disruptive effect on business models, [Ritter and Schanz \(2019\)](#) assess its features by analyzing two dimensions: value creation and value capture. They identify four ideal market configurations within sharing economy systems: singular transaction models, commission-based platforms, unlimited platforms and subscription-based models. Singular transaction models involve dyadic relationships between supply and demand, with utility-bound revenue streams. A prime example is public bike-sharing systems, where users rent bikes for short distances ([Vishkaei et al., 2020, 2021](#)). This business model offers standardized and limited value propositions, primarily driven by quality and price ([Hagiu and Wright, 2015; De Giovanni, 2021](#)).

The second sharing economy business model is commission-based platforms, characterized by a triadic relationship among consumers, providers and intermediaries,

with utility-bound revenue streams (Ritter and Schanz, 2019). Customers can take on both consumer and provider roles, actively contributing to value creation and delivery, while third parties facilitate these processes (Hagiu and Wright, 2015). These platforms are often referred to as “sharing platforms” and are seen as effective tools to address climate change issues (Constantiou *et al.*, 2017).

Unlimited platforms, similar to commission-based platforms, rely on at least triadic relationships among consumers, providers and intermediaries, but they focus on creating strong network effects with unbounded utility revenue streams (Dastane *et al.*, 2023). To sustain revenue, these platforms involve non-paying users who contribute data and clicks in exchange for services provided by intermediaries. Advertisers, premium users and other entities cross-subsidize the non-paying users (Ritter and Schanz, 2019).

The final model configuration is the SBBM, characterized by a dyadic relationship between supply and demand and unbounded utility revenue streams. These models require a high level of control over the value proposition creation process and vary depending on the context, such as limited product use (subscription boxes, limited phone data plans), unlimited product use (rental cars), or unlimited services from one supplier (Netflix, Spotify) over a specific timespan (Ritter and Schanz, 2019). Subscription-based models impact consumers’ consumption habits; once subscribed, consumers feel the need to use the value proposition frequently to justify their investment (Grewal *et al.*, 2010). This often leads to contract lock-ins with high switching costs (Ritter and Schanz, 2019).

2.2 Subscription-based business models

Considering the increasing importance of modern waves like globalization and digitization, many organizations have modified their business models from traditional, one-time payments to recurring subscription-based billing strategies. The subscription model implies the use of a recurring payment in exchange for content, products, or services. Specifically, these implementations have proven that changes in the subscription economy can be financially and operationally beneficial. For instance, when Microsoft made its Office 365 program into a subscription service, it resulted in year-on-year growth of 27% (Wilhelm, 2020).

These businesses often offer additional services included with the subscription, such as improved customer support, personalization, continuous updates and the periodical launch of new content or products (Freed *et al.*, 2022). As a result, businesses with such offerings often place a greater value on retaining customers rather than finding new ones. Recurring characteristics of these firms include a high degree of responsiveness, constant customization, continuous improvements to their products and services and an emphasis on building long-term relationships with their customers.

In SBBMs, customers pay over time, which appears more cost-effective than purchasing. Subscriptions also offer the flexibility of cancellation. While using a new product or service, customers often uncover additional applications, exposing them to more purchasing opportunities within the company’s offerings. Companies strategically engage with customers, providing recommendations and personalization based on aggregated and individual subscription data, enhancing the value proposition (Freed *et al.*, 2022).

Retention challenges in the subscription model are a common hurdle, making customer retention more vital than acquisition for sustained business health. While these challenges are prevalent across subscription businesses, product subscriptions face added complexities in managing product returns after subscription ends (Fosker and Cheung, 2021). Return costs and rental fees impact customer behavior (Yuan and Shen, 2019), suggesting the need of dynamic approaches to translate the value propositions into effective value capture.

According to Riesener *et al.* (2020), implementing SBBM involves several stages. The first stage encompasses conceptualizing the selected subscription model, gaining customer insights and identifying the appropriate model. The second step is implementing the chosen SBBM and

using software services for data collection, recording and analysis. Collected data undergoes review, while software continues to update for improved data collection and customer needs understanding. The SBBM serves as a systematic framework guiding firms' strategies and decisions. To facilitate framework adoption, Schuh *et al.* (2020) recommend considering four key attributes: (a) continuous performance improvement and customer benefits, (b) nurturing long-term collaborative relationships with customers and partners, (c) implementing periodic/recurring payments and (d) grasping evolving customer values. Thus, SBBM necessitates specific metrics to monitor customer experiences and service journeys.

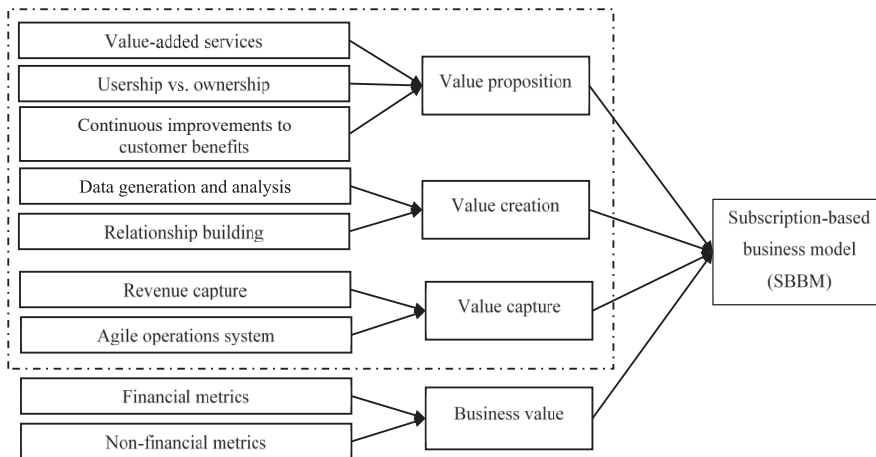
2.3 The characteristics of the subscription-based business model

Business models are under constant and rapid innovation pressure from many forces in the eco-system, especially from competitors. Innovating a business model implies a reconfiguration of the model's elements, which includes changes in the content (selection of activities), structure (linkages or sequence of activities) and governance overseeing the activities (Kindström *et al.*, 2013). The current modifications of business models can involve either physical or digital goods, along with services; in any case, the corporate strategy requires full modification and adaptation (Cesaretto *et al.*, 2021). Innovating a new business model, or altering an existing one, requires a consensus to exploit current business opportunities before exploring new and emerging opportunities (Kindström *et al.*, 2013).

Three business model ingredients can be identified as common throughout most industries and companies, specifically, value proposition, value capture and value creation. These can explain how firms position themselves to best capture market share and stimulate growth (Osterwalder and Pigneur, 2010). By using these three dimensions, Teece (2010) considers the business model as "the firm's architecture mechanisms for creating, delivering and capturing value." Several authors, such as Teece (2010) and Leroi-Werelds *et al.* (2021), define value proposition as "an outcome of strategic decisions made by management based on what customers value the most and what the firm can deliver to achieve competitive advantage." Along with value proposition, value creation consists of a "set of activities that enable providers and customers to progressively achieve higher value" (Sjodin *et al.*, 2020). Finally, value capture consists of "the set of activities that enable providers and customers to determine how the value created should be distributed among them" (Dyer *et al.*, 2018). The value-capture process corresponds to the origin of revenues, the ways the organization receives money in exchange for its services, as well as the cost structure of the organization (Richardson, 2005; Osterwalder and Pigneur, 2010).

As explained by Tzuo and Weisert (2018), a subscription economy primarily focuses on customer relationships and aims to develop a recurring revenue stream for long-term growth. After the subscriber experiences the service, firms and policymakers should identify a retention path that includes additional and complementary service offerings, along with ad-hoc deals and physical assets. Therefore, an additional ingredient connected to business model innovation in a subscription economy should complement the three components of value proposition, creation and capture and business value should be assessed for performance evaluation. One of the main reasons businesses fail is a poor evaluation or weak assessment due to inadequate key performance indicators (Batocchio *et al.*, 2016). Performance measurement can be achieved through various financial and business indicators and using proper metrics is crucial for the company's managerial decisions and overall performance (Júnior *et al.*, 2023). It is essential to constantly analyze the health of the subscription model to ensure it truly serves both customers and firms. SBBM relies on recurring transaction flows and maintaining existing customers, which necessitates sustainable performance in terms of financial and non-financial characteristics.

Hence, this study presents a comprehensive framework (depicted in Figure 1) that highlights the paradigm shift from traditional business models to the emerging landscape of



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Figure 1.
The theoretical
framework of this
study to
investigate SBBMs

SBBMs. This framework navigates the multifaceted dimensions of value proposition, value creation, value capture and business value, thereby presenting a holistic blueprint for strategic advancement. Specifically, the value proposition aspect involves key elements such as value-added services, the balanced interaction between usership and ownership and a consistent focus on enhancing customer benefits. Similarly, the value creation phase entails the careful orchestration of data generation and analysis, entwined with the strategic relationships that underpin innovation. Moving forward, the value capture dimension assumes prominence, shedding light on the finesse of revenue capture strategies and the flexibility demonstrated by operational systems, contributing to a harmonious amalgamation that supports sustained growth. Finally, the composition of business value brings together a comprehensive narrative by blending financial and non-financial metrics, yielding a coherent grasp of organizational prosperity and operational excellence.

To explain in more detail, consumers are willing to pay the expected value for the service and they are naturally willing to pay only their realized value (Cachon and Feldman, 2011). Value-added services are the extra features or additional services that add value to a product and increase consumers' perceptions of how much they are willing to pay. Different value-added services in SBBMs can improve customer experience by immediate offerings and services connected to them, with a less complex billing structure. A recurring characteristic of the subscription economy is access over ownership, which is the same for the sharing economy (Bardhi and Eckhardt, 2012). This is not simply providing access to products or services without owning them and it is important to offer flexible options for accessing products and services in terms of movement and types of usage to customers in a way that they will prefer usership over ownership. Companies with SBBMs need to understand changes in customer values and trends while employing a customer-centric value proposition (Schuh *et al.*, 2020). Replacing traditional business models with SBBMs requires constant improvements in satisfying customers' needs to maintain current customers and attract new customers by making them interested in usership instead of ownership.

In SBBMs, as the value proposition is offered over several periods of time instead of a single period, more data is generated due to recurring communication and touchpoints between consumers and firms, which leads to a better understanding of customers' needs and necessary improvements to value creation (Riesener *et al.*, 2020). Collaborating with

customers and partners is an essential component of SBBMs (Schuh *et al.*, 2020). Customer relationships are a key factor for extending customer lifetime value, which is important for SBBMs, as they require constant connections with customers, at least during the rental period, and they can improve customer engagement and increase communication through cross/up-sales and new services.

The payment structure for subscriptions is related to charges based on a pre-determined billing period, considering different prices and discounts. Recurring billing is a crucial part of the value-capturing process in SBBMs (Schuh *et al.*, 2020). On the other hand, subscriptions can help smooth out yearly sales curves and make revenue streams more stable and predictable, which is useful to businesses (Damodaran, 2012). Implementing software is important for SBBMs to gather, record and analyze data, and it must be included as a service (Riesener *et al.*, 2020; Schuh *et al.*, 2020). Moreover, an agile operations system is required to address complicated payment structures and transaction intensity related to recurring revenues and to analyze business performance using calculations of various relevant metrics.

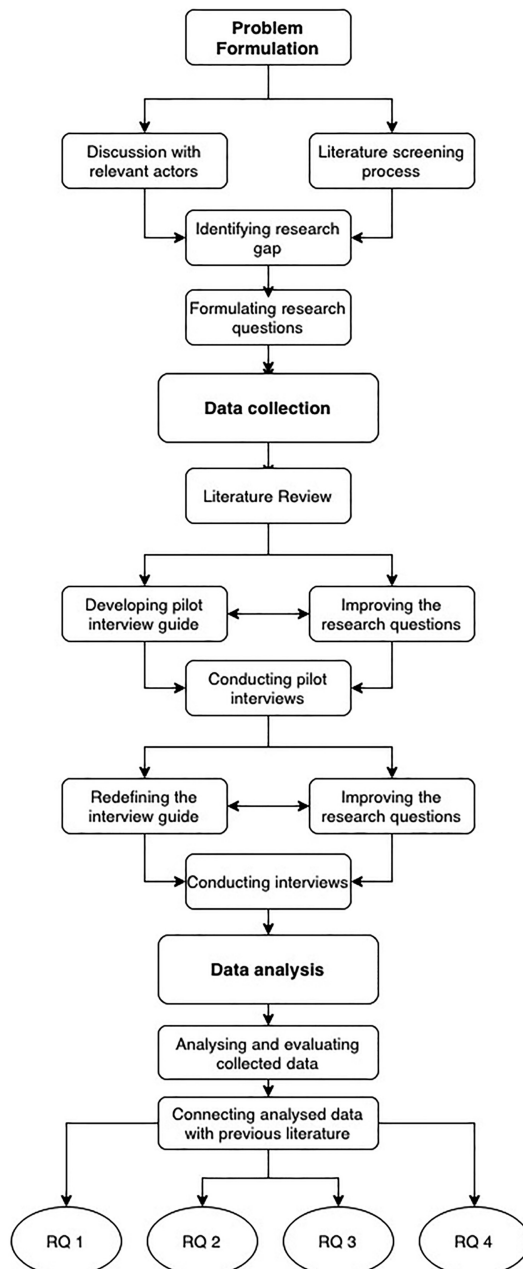
The assessment metrics should be revised from traditional models to new metrics that offer a better understanding of the business model, explaining specific variables and indices relevant to the subscription economy (Tzuo and Weisert, 2018). Additionally, the choice of metrics depends on what firms consider crucial for enhancing their product or service from the perspective of consumers. Metrics play a vital role in making performance values more tangible, especially when it comes to customer values and behavior (McGrath, 2010).

3. Methodology

Based on the work of Preeker and De Giovanni (2018), a case study approach supplies useful findings when the boundaries of a phenomenon are unclear and are not under control. The boundaries in this study, which are the factors and aspects of value proposition, value creation, value capture and business value for tech firms that want to transition to a SBBM, are vague.

Figure 2 summarizes the main steps of the research process. The research process initially started with the authors' interest in investigating new aspects of SBBM and providing a framework that offers a better understanding of the proposed business model to help firms and policymakers implement it. Once the topic was established, the literature review screening process began, resulting in identifying the research gap. Then, through a few brainstorming sessions and discussions with experts (managers, CEOs, professors and PhD. students), we developed relevant research questions aligned with the research gap. In the next step, conducting a thorough literature review on the topic helped improve the research questions, and we developed the initial version of the interview guide. Subsequently, we conducted pilot interviews and used the feedback to finalize the research questions and interview guide. This was done to ensure that the research questions are aligned with the research gap and that the interview outcomes cover the main research goals.

Next, we conducted 11 interviews (each consisting of three rounds and conducted in person) with the CEOs of two well-known companies that transformed their business models to SBBMs. The reason for selecting these companies was their successful story in shifting to SBBMs and improving their performance. We aimed to conduct comprehensive interviews with the CEOs of the case studies as they possess significant experience in both types of business models. Additionally, using semi-structured interviews allowed us to ensure that the findings cover all the research questions, and we asked the participants to participate in interviews in three steps to provide sufficient time for analysis and follow-up clarifications. After conducting the interviews, we analyzed the data to answer the chosen research questions, using the Gioia method (Gioia *et al.*, 2013) which provides a systematic order to process and structure raw data into manageable data nodes that are easier to analyze.



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Figure 2. The research methodology

Note that, the primary data were obtained through semi-structured, qualitative interviews, as well as relevant secondary data from previous research in business model innovation, the subscription economy and performance measurement. One of the main advantages of choosing a semi-structured interview strategy is the flexibility accorded the interviewer with regard to adjusting the questions and the focus during the interview, depending on the topics that arise (Eriksson and Kovalainen, 2008).

4. Analysis and results

This section reports the main findings from the interviews for two analyzed case studies, focusing on value proposition, value creation, value capture and business value analysis. Figure 3 summarizes the dimensions that were observed within the case studies. In other words, we extracted them from the outputs of the interviews and all of them are the critical dimensions that are mentioned by both of the case studies.

Value Proposition		Value Creation		Value Capture	
<i>Value-added services</i>	<ul style="list-style-type: none"> ■ Consider producers and customers as partners ■ New and support services ■ Better financial control ■ Various payment options ■ Lower CAPEX absorption 	<i>Data generation and analysis</i>	<ul style="list-style-type: none"> ■ Service innovation by customer behavioral analysis ■ Improving products/services via quality analysis ■ Improved customer retention and lifetime value 	<i>Revenue capture</i>	<ul style="list-style-type: none"> ■ Continuous payments and transactions ■ Financial liquidity ■ Transaction intensity
<i>Usership vs. ownership</i>	<ul style="list-style-type: none"> ■ Usership is easier, more efficient, and more friendly than ownership ■ Free customers' decisions ■ Flexible contracts ■ Traceability 	<i>Relationship building</i>	<ul style="list-style-type: none"> ■ Improved customer relationship management ■ Transferring customers' expectations to producers ■ Acquire new customers through service customization 	<i>Agile operations system</i>	<ul style="list-style-type: none"> ■ Processing complex operations leading to high customer service ■ Facilitator between customers and producers ■ Connecting with other systems to improve value capture and extend value proposition
<i>Continuous improvements to customer benefits</i>	<ul style="list-style-type: none"> ■ Provide ad hoc solutions to customers ■ Automatize customers' touchpoints 				
Business Value					
<i>Financial metrics</i>			<i>Non-financial metrics</i>		
<ul style="list-style-type: none"> ■ Long-term financial flow analysis ■ Monthly recurring revenue (MRR) ■ Monthly revenue growth ■ New recurring sales ■ Number of transactions ■ Market share ■ Perpetual and recurring revenues ■ OPEX ■ CAPEX 			<ul style="list-style-type: none"> ■ Churn rate ■ Customer retention rate ■ Service usage rate ■ Service access rate ■ Conversion rate ■ Customer satisfaction rate ■ Customer lifetime value (CLTV) ■ SERVQUAL 		

Figure 3. Summary of dimensions observed within case studies regarding value proposition, value creation, value capture and business value

Source(s): Authors' own work

4.1 Case study: company A

Company A, a tech firm in Stockholm, has developed a software product promoting usership over ownership. Utilizing subscriptions as its primary sales method, it encourages customers to rent products while retaining producers as owners. This approach incentivizes producers to use higher quality materials, ensuring longer product lifespans and increased revenue over time. Operating within the Product as a Service (PaaS) domain, it offers bundled offerings that combine product use with inherent services. Company A's business model aligns with the circular economy principles and circular business models. Initially focusing on B2B sales, its sales strategy reflects its overall business model and strategy. Refer to Figure 4-a for key factors and elements central to Company A's successful SBBM.

4.1.1 Company A: value proposition. The value proposition of company A is categorized in the following three dimensions:

- (1) *Value-added services.* This company considers the producers as their main partners and helps them to obtain larger returns over time. Subscriptions help firms in terms of operating expenses (OPEX) and capital expenditures (CAPEX) by taking advantage of recurring payments and concentrating on repairing and reusing instead of continuously producing and selling their products. The producers can be beneficiaries of continuous cash flows, and the consumers can gain better control over their expenses by having access to the products they need without a large one-time payment.
- (2) *Usership vs ownership.* Company A provides a flexible service, which makes usership a better choice over ownership for its customers. Customers can move freely, everywhere and at any time, and they are able to terminate the contract and return the furniture whenever they want. Company A provides a traceable and visible inventory system to producers and firms can use the platform of company A to improve their products and services. Because one of the key advantages of the subscription economy is increased accessibility to resources without purchasing them, usership can be considered an important advantage for both customers and startups, the latter of which may lack huge capital to invest in their business activities.

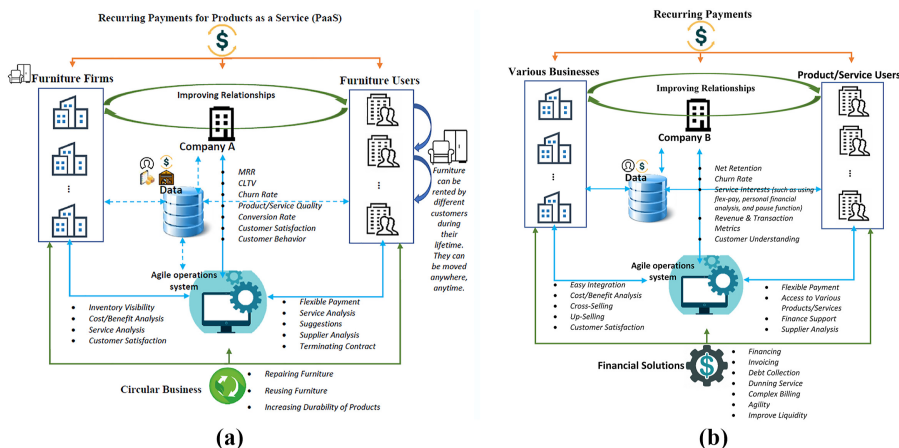


Figure 4. The main elements of a SBBM for: (a) company A, (b) company B

Source(s): Authors' own work

- (3) *Continuously improve customer benefits.* Company A considers producers and consumers as the most important partners in its SBBM and consequently identifies an ad-hoc and flexible subscription plan to retain them over time, focusing on easy access to the platforms, automatization of customers' touchpoints, modifications to the offering and avoidance of large investments.

4.1.2 *Company A: value creation.* The value creation of company A can be discussed considering the following two dimensions:

- (1) *Data generation and analysis.* Company A analyzes the data related to different transactions and requests of the customers, as well as the services of the producers, to improve product quality and encourage product and service innovation, with the goal of increasing profitability and customer satisfaction. For instance, if a particular chair model degrades in the same place over time, it can be a sign of a potential area for improvement.
- (2) *Relationship building.* Subscriptions require a strong relationship between the producers and the customers and company A tries to reduce the gap between them by providing a good analysis of the customer's expectations of the producers and connecting the end users to the products and offerings that satisfy their needs. In company A, retaining the relationship between the companies and the customers through the subscription model is considered an essential strategy that is a prerequisite to maintaining customers and improving the service quality.

4.1.3 *Company A: value capture.* In terms of value capture, the results can be discussed considering two dimensions: a recurring revenue stream and an agile operations system.

- (1) *Revenue capture.* Company A focuses on charging consumers based on their preferences on a monthly basis. Instead of short-term renting with a fixed amount charged, it provides a flexible payment plan based on the value of and demand for the products. The return on investment is slow initially in the short term, but company A considers stability and financial control of the revenue flow as important issues that can increase profitability in long term.
- (2) *Agile operations system.* Subscriptions lead to an incremental increase in transaction intensity, making an agile operations system essential to manage the volume of transactions. The increased transaction intensity results in a large database of customer, product and service information. An agile operations system capable of processing this data proves invaluable in improving company A's understanding of customers' needs, market trends and the performance of key partners. By focusing on successful operations management, company A can enhance its competitive edge, foster customer loyalty and achieve sustainable growth in the furniture rental market. Having successful agile operations management for the furniture rental business is crucial in terms of: inventory visibility to enable timely restocking and preventing stockout, better analysis of trade-offs between costs and benefits to optimize pricing and resource allocation, timely delivery of furniture to enhance the overall service experience for customers associated to prompt response to customer inquiries, resolving issues and enhancing overall customer satisfaction, seamless and flexible payment options to grant convenience and retention for subscribers, accurate contract management to ensure compliance and quality of furniture by ensuring proper maintenance and monitoring of furniture quality that align with high standard levels, increase durability and guarantee reusability.

4.1.4 *Company A: business value.* The business value metrics that company A concentrates on can be analyzed in terms of the following dimensions:

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- (1) *Financial metrics.* After transitioning toward subscriptions, payments are more predictable compared to traditional business models and company A considers MRR as one of its most important metric, in addition to other indices such as monthly revenue growth, new recurring sales, non-recurring sales and customer acquisition costs.
- (2) *Non-financial metrics.* Because the development of relationships with partners and customers is a core concept for SBBMs, company A believes that non-financial metrics such as customer retention rate, churn rate and customer lifetime value are valuable indices for the company to gain a better understanding of its performance and customer experience. Furthermore, other operational-based can be used including inventory turnover, on-time delivery, customer retention rate, payment flexibility rate, quality index and customer complaint resolution time.

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4.2 Case study: company B

Company B, a financial business firm operating in the SaaS sector, offers financing, invoicing, debt collection and dunning services. Currently undergoing organizational restructuring, it aims to innovate and create new product lines aligned with the evolving economy. One such product in development is a recurring billing software designed for integration into other businesses' payment models, enabling subscription/recurring billing options for those firms. Company B is strategically entering the subscription economy, reconfiguring its business model objectives to align with the overall economy. The sales strategy primarily targets B2B2C sales. Figure 4-b illustrates the key factors and elements critical to the success of Company B's SBBM.

4.2.1 *Company B: value proposition.* The value proposition of company B is categorized in the following three dimensions:

- (1) *Value-added services.* Company B used to focus on customized solutions for its clients, but now its concentration is on improving value-added services for clients and partners simultaneously. This is done by creating technical and scalable products and solutions to enhance customer experience and enable the firm to grow quickly by providing unique financial services to customers. For instance, company B creates value-added services by improving the financial liquidity of subscription businesses through pre-financing.
- (2) *Usership vs ownership.* Bad payment experiences attributable to complex procedures and additional transactions will result in churn and a reduction in customer lifetime value. Company B tries to improve customer experience throughout the entire invoicing process by providing different payment choices and financing solutions without any complexity, which increases customers' preferences to select a subscription model instead of instant payments.
- (3) *Continuously improve customer benefits.* Company B focuses on aligning its incentives with its clients' incentives to continuously improve customer benefits by enhancing automation and cost reduction (penalty fees and add-on costs), which is very helpful to reduce churn in subscription businesses. For instance, with recurring payments, Company B focuses on the revenue streams of its clients while removing the penalty fees that customers should pay. Company B considers the entire value chain for improvement and provides services such as pre-financing, payment collection, bill invoicing and debt collection. Before, customers needed to partner up with three companies to access all of these services.

4.2.2 *Company B: value creation.* The value creation of company B can be discussed considering the following two dimensions:

- (1) *Data generation and analysis.* Subscription business models provide company B greater access to valuable data surrounding customer communications, which in turn creates a great opportunity to improve customer experience. Company B can analyze the main reasons for voluntary and involuntary churn, with the goal of amending payment procedures and other related processes to enhance customer experience. This helps to retain current customers and increase customer lifetime value, attract new customers and regain lost customers by improving brand reputation. The proper value creation can be realized by focusing on customers by analyzing their experiences.
- (2) *Relationship building.* Subscriptions result in constant contact with customers, which makes it easier for firms to gain a better understanding of their core customers, leading to stronger customer loyalty. Company B believes that subscription business models can facilitate customer acquisition, since the price of using products and services is cheaper compared to owning them. Therefore, it is very important to create strong relationships with customers by improving customer engagement and communication via supporting customers through various tools, such as payment notifications, financial analysis and consulting, as well as strategies such as cross-selling and up-selling.

4.2.3 *Company B: value capture.* Two dimensions, a recurring revenue stream and an agile operations system, can be considered to explain the value capture of company B.

- (1) *Revenue capture.* Company B is using commission pricing, the revenues for which are based on transaction intensity instead of transaction value. In other words, Company B is moving toward flat fees based on the overall average. The use of subscriptions makes revenue streams more stable and predictable, which is useful for company B and its clients because of the recurring revenues and which is also helpful to customers, allowing them greater payment flexibility instead of a high investment or instant payment.
- (2) *Agile operations system.* Company B serves as an intermediary and facilitator for other companies' subscriptions. Emphasizing subscriptions requires a robust operations system to manage the complex billing process. This agile system helps trace transactions and analyze financial data, resulting in new value creation and improved relationships with clients and customers. By prioritizing successful operations management, Company B can elevate its role as a trusted financial services partner, driving growth and customer satisfaction in the dynamic subscription landscape. Successful agile operations management in the financial service sector grants several benefits, including: integration of systems to efficiently handle subscriptions and financial transactions, trade-off benefits/costs for analyzing their trade-offs to optimize pricing and resource allocation, cross-selling and upselling to facilitate customer engagement and revenue, financial support to provide prompt and efficient financial aids to clients, supplier analysis to ensure a reliable and sustainable supply chain by evaluating and managing suppliers, time to access financial resources to reduce the time taken to grant financial resources and improve responsiveness to customer needs.

4.2.4 *Company B: business value.* The shift in analyzing metrics for company B following its involvement in subscription business models can be discussed considering the following two dimensions:

- (1) *Financial metrics.* Before the transition toward subscription business models, company B used to focus on revenue, earnings before interest and taxes (EBIT), average transaction value and profitability. And although revenue is important,

company B believes that instead of focusing on short-term profitability, it needs to concentrate on the number of transactions and non-financial metrics so that over the long term it will reach significant profitability.

- (2) *Non-financial metrics.* Company B focuses on non-financial metrics to maintain existing customers and analyze their needs to create new values and additional services that may be helpful in attracting new customers. To reach this goal, it is observing and analyzing customer-oriented metrics including churn and service interests such as flex-pay, personal financial analysis and a pause function. Furthermore, operational-based metrics can be derived and linked to integration efficiency for handling subscriptions and financial transactions, cross-selling and upselling conversion rates, service quality metrics, time to access financial services and supplier performance scorecards.

5. Discussion

Based on [Figure 3](#) and explanations provided in previous sections, tech firms engaging in SBBMs should consider certain important factors when determining their value proposition, value creation, value capture and business value analysis.

Value proposition refers to the reasons why and how a customer values an organization's offerings. For the organization, it represents their understanding of how their offerings are perceived by their intended customer target market, fostering an ongoing relationship ([Osterwalder and Pigneur, 2010](#)). So, for the SBBMs, it is important to consider both producers (product/service providers) and consumers as the main partners, because SBBMs without one of these two important partners are worthless. New support and services based on customers' needs should be provided and customers should have access to various payment options and be able to easily control their financial transactions. SBBMs should be able to help customers who need a lower CAPEX. Moreover, a recurring characteristic of the subscription economy is access over ownership, which appears to be the same for the sharing economy ([Bardhi and Eckhardt, 2012](#)). So, by shifting from traditional business models to SBBMs, all of the partners should find usership more efficient than ownership via access to flexible contracts that give them various options in terms of using the products and payment services and helping firms to easily trace their products. Automating customers' touchpoints can also be helpful in providing ad-hoc solutions to customers.

Subscriptions result in additional touch-points with customers at a recurring rate since the value proposition is offered over several periods of time. As a result, more data is generated due to the recurring communication between consumers and companies ([Riesener et al., 2020](#)). In terms of value creation, SBBMs enable data analysis of customers, firms, services and products due to increased transactions and touchpoints. Service innovation can be achieved by analyzing customer behavior and service quality, leading to improved customer retention and lifetime value ([De Giovanni, 2021](#)). Value creation involves aligning customer expectations with producers and enhancing customer relationship management to attract new customers through customized services; for example, supporting firms in developing complex recurring billing structures and transitioning to SBBMs is crucial. [Schuh et al. \(2020\)](#) suggest that SBBMs need to be able to understand changing customer value and spot trends while employing a customer-centric value proposition. By using data generated from product use, firms can give their producers information about what and how, improvements can be made.

Recurring payments in subscription-based systems are the crucial part of the value capturing as the firms' value proposition is frequently delivered to customers in exchange for the recurring payment structure ([Ebi et al., 2019](#)). So, SBBMs require revenue capture through

continuous payments and transactions, which is helpful to firms in maintaining a predictable, constant transaction flows and improving financial liquidity and transaction intensity. Moreover, it provides the opportunity for consumers to be beneficiaries of long-term payments instead of paying instantaneously. Previous research by [Riesener et al. \(2020\)](#) and [Schuh et al. \(2020\)](#) discuss that the existence of software is important for SBBMs to facilitate transactions and data analysis. Apparently, managing complicated billing services and transactions requires an agile operations system that can be easily connected with other systems and platforms (like the platforms of the firms) to act as a facilitator between customers and producers or service providers and process complex operations, leading to high customer service. Some of the previous studies.

We define KPIs often based on business strategy, enabling businesses to translate abstract values into measurable components ([Gilsing et al., 2021](#)). So, in SBBMs, ensuring the efficacy of the new model in satisfying the requirements of consumers, customers, firms and producers necessitates a thorough reevaluation of assessment metrics for business value analysis. This entails a comprehensive transition of the business model towards subscription-based frameworks, harmonizing the metrics with the dimensions of value proposition, value creation and value capture. Such a recalibration warrants the incorporation of both financial and non-financial metrics, encompassing indicators like long-term financial flow analysis, MRR, monthly revenue growth, new recurring sales, transaction volume, market share, perpetual and recurring revenues, operational expenditures (OPEX), capital expenditures (CAPEX), churn rate, customer retention rate, service utilization rate, service accessibility rate, conversion rate, customer satisfaction rate, customer lifetime value and SERVQUAL dimensions. Our results complement the research of [Tzuo and Weisert \(2018\)](#) that introduce churn rate, customer acquisition and up/cross-selling as some of the main crucial indicators for SBBMs.

6. Conclusions

This paper studies the SBBM of two tech firms within the subscription economy to gain a holistic view of the choices made by such firms, which are active in the market. Based on the findings and previous research related to this topic, the study further aimed to identify possible areas of focus within value proposition, value creation, value capture and business value analysis that can increase awareness of important factors that should be considered by tech firms that want to employ SBBMs.

The findings suggest that the three main dimensions of a SBBM (value proposition, value creation and value capture), in addition to assessment metrics, require revisions on their focus points considering the characteristics of SBBMs. For instance, a highly agile operations system is needed to address the complexities surrounding recurring billing and subsequent user-data generation and to connect customers with product and service providers, with the goal of improving customer relationships, customer retention, customer lifetime value and service innovation. It is possible to quickly adapt to customers' requirements and meet their demands by pursuing a continuous improvement approach. Furthermore, specific metrics can enable tech firms to monitor their progress within the different dimensions to analyze business value, with a focus on financial metrics (shifting from profitability to MRR or transaction intensity) and non-financial metrics (churn, net retention rate and customer retention). Moreover, our findings offer managerial insights that can drive business success:

- (1) SBBMs enable the implementation of circular economy practices like reusing and recycling, as the firm retains ownership of products and agile operations systems enhance product traceability and inventory visibility.

- (2) Recurring payments benefit firms by providing a predictable revenue stream and increasing customer satisfaction through more affordable access to products and services with flexible payment options.
- (3) Transitioning from traditional business models to SBBMs becomes economically more advantageous when supported by thorough data analysis gathered through agile operations systems. Continuous service improvements based on customer expectations and effective management of complex billing contribute to enhanced customer lifetime value.
- (4) Implementing an agile operations system for SBBMs acts as a powerful decision support tool, offering cost/benefit analysis, service quality assessment, platforms for flexible payment methods, inventory visibility, business performance analysis and supplier evaluation.

Moreover, SBBMs present several operations management challenges that warrant further research in the future, specifically:

- (1) Defining effective maintenance strategies for subscribed goods to optimize their lifespan, minimize downtime and reduce overall operating costs;
- (2) Exploring innovative methods to optimize the allocation and reallocation of resources to have efficient delivery routes, reduced delivery time and enhanced sustainability.
- (3) Delineating a total quality management strategy to ensure consistent and high-quality offerings, leading to increased customer satisfaction and retention.
- (4) Developing advanced monitoring and controlling systems that encourage customers to adhere to usage guidelines, promoting responsible and appropriate usage.
- (5) Devising queue management techniques and algorithms to help streamline resource allocation and minimize waiting times for customers.
- (6) Investigating smart charging solutions and battery station management methods to improve the efficiency and accessibility of charging services for electric subscribed goods.

Finally, this search has several limitations whose discussion will inspire further paths for future research. First, both of the case studies in this paper are related to tech firms, and as the subscription economy and the adjoining business models are relatively unexplored topics, more comprehensive studies (e.g. using additional case studies) can be conducted to further develop and corroborate the findings to determine other factors that have possibly been overlooked, or to further legitimize some of the findings. Second, we followed a semi-structured interview ([Appendix](#)) methodology to discuss our research questions but other empirical research like quantitative methods can be pursued to demonstrate how the subscription economy modifies behaviors within the eco-system and ensures the feasibility of modern business models. Third, future research can link the subscription economy to circular economy paradigms to better understand their connections and identify the contributions of subscription economies to sustainability. Fourth, the subscription economy modifies supply chain relationships and partnerships; hence, future research can verify how subscription economies may influence the next generations of supply chains and networks. Finally, future research can explore the role of new technologies, such as blockchain, Internet of Things (IoT) and metaverse, in enhancing the agility and efficiency of SBBMs. As these emerging technologies have the potential to be disruptive, the authors have identified these topics for further investigation in their future research agenda.

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Appendix

Semi-structured interview protocol

The interview structure is based on initially asking very broad questions that offer opportunities to ask follow-up questions. Following the first broad section of the interview (1.0), the focus shifts toward crucial informative sections (2.0 and 3.0) that contain the primary information pertinent to the research questions, ending with broad closing questions to ensure that all necessary information is captured before terminating the interview session (4.0). The closing section was employed to ask clarifying questions and review some answers that might have been unclear or misinterpreted during the interview. All details relative to the semi-structured interview questions are available upon request.

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