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Subscription offers in business-to-business markets: Conceptualization, taxonomy, and framework for growth

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A R T I C L E I N F O

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A B S T R A C T

The global Subscription Economy has grown tremendously in recent years. Subscription offers are today increasingly regarded as a strategic imperative in many consumer industries. While business-to-business (B2B) service firms have also adopted subscription models, goods-centric B2B players struggle to implement such offers. Against this backdrop, we (1) delineate what characterizes subscription offers in B2B markets, (2) present a classification framework for B2B subscriptions, and (3) discuss how companies can leverage the potential of subscriptions for growth. Relying on in-depth interviews with 27 executives responsible for subscriptions, we outline four key characteristics and distinctive features of subscriptions and provide a refined definition. Next, we develop a taxonomy that classifies subscription offers into four distinct categories based on two dimensions: service focus and resource integration. This classification framework is essential as it adds depth and precision to the analysis of B2B subscriptions. Without it, the assessment would be overly simplified and lacking in detail. We also demonstrate how subscriptions can help firms seize growth opportunities and enhance the customer experience. From a managerial perspective, this study highlights the need for fundamental changes in marketing, sales, and other functions when moving to subscription offers.

1. Introduction

Traditionally dominated by companies in the media, utilities, and telecommunications industries, subscription offers have become a major growth engine for many B2B companies, too. Today, we see a wide range of firms venturing into subscriptions; that is, offers for which customers pay a recurring fee for access to a product or service (McCarthy, Fader, & Hardie, 2017). In fact, both disruptors and incumbents in many consumer industries today increasingly rely on subscription offers, including music streaming provider Spotify, meal-kit expert HelloFresh (food preparation), or insurtech Lemonade. Similarly, industry leader Sony offers gaming subscriptions above and beyond selling game consoles (PlayStation Plus), car manufacturer Volvo has ventured into Mobility-as-a-Service (MaaS) with Care by Volvo, and Nespresso pushes its coffee subscriptions (Subscription+).

In the B2B domain, we are witnessing a mirroring trend. First, fueled by connectivity and the growing role of the Internet of Things (IoT), traditionally goods-centric firms move into subscriptions. Consider examples such as Assa Abloy (locks, doors, and gates for building access control), Caterpillar (earth-moving machines), Grundfos (pumps), Michelin (tires), NCR (point-of-sale terminals), Philips (medical devices), or Schneider Electric (energy and industrial automation), among many others. These firms are adding a host of adjacent, connected services to their existing portfolio and introducing entirely new offers to their markets. Second, many firms increasingly transition from transactional sales to recurring revenue models, as illustrated by the demise of perpetual software licensing in favor of *Software-as-a-Service* (SaaS) models. Third, product-based subscriptions enable customers to pay for equipment usage, including the support and services needed. All in all, this is in line with a long-standing trend towards servitization in many industries (Raddats, Kowalkowski, Benedettini, Burton, & Gebauer, 2019). In B2C, the emergence of the sharing economy has shown that consumers across the world seek access to and usage of products rather than buying and owning products (Eckhardt et al., 2019). In business markets, too, customers increasingly move beyond investing in capital goods or buying services to access and use goods and services in their operations to gain flexibility and pay for performance outcomes achieved (Sjödin, Parida, Jovanovic, & Visnjic, 2020).

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Despite subscription offers becoming a strategic imperative for a growing number of B2B companies, extant research on subscriptions mostly focuses on consumer markets (e.g., Danaher, 2002; Woo & Ramkumar, 2018) or software companies (e.g., Cusumano, 2008; Guo & Dan, 2018). Against this backdrop, there is an important knowledge gap concerning the nature and complexity of subscription offers in manufacturing and other B2B industries. First, early generic definitions of subscriptions (e.g., McCarthy et al., 2017) insufficiently reflect the nature of such recurring revenue offers in business markets. In B2B, offers are generally more complex, involving supplier and customer resources integrated throughout a collaborative process (Aarikka-Stenroos & Jaakkola, 2012; Tuli, Kohli, & Bharadwaj, 2007). Second, scholars have repeatedly called for recognizing the heterogeneity of services in B2B research designs (e.g., Eggert, Hogreve, Ulaga, & Muenkhoff, 2014; Mathieu, 2001; Nordin & Kowalkowski, 2010; Ulaga & Reinartz, 2011). Along these lines, one would expect to see a substantial level of heterogeneity among subscription offers in B2B settings. Third, one may infer that the varying characteristics of subscription offers also impact companies' operations and functions, especially marketing and sales activities, such as offer development, pricing, or customer engagement (Danaher, 2002; Iyengar, Park, & Yu, 2020; Pauwels & Weiss, 2008). Prior studies have shown that service growth initiatives have a substantial effect on such activities (Fischer, Gebauer, & Fleisch, 2012; Ulaga & Reinartz, 2011). Therefore, there is a need to explore how different types of B2B subscriptions resonate with marketing and sales decisions.

Overall, B2B marketing research offers little to no insights into the nature and heterogeneity of subscription offers. The lack of conceptual clarity for characterizing subscriptions, along with the absence of discussion on how companies can pursue subscription growth, represents a significant knowledge gap. Against this backdrop, we seek to explore the nature of subscription offers and shed light on their implications for management. More specifically, we investigate three research questions:

1. How can B2B subscriptions be characterized to capture their breadth and depth?
2. How can B2B subscriptions be classified to capture the heterogeneity of such offers?
3. How can B2B companies leverage the potential of subscriptions for growth?

We address these research questions by drawing on depth interviews with 27 managers and discussions with 23 managers in two workshops to make several contributions. To the best of our knowledge, this study is the first to investigate *how* B2B firms can grow through subscription offers. We define subscriptions as market offers where customers and providers mutually engage at various levels to provide access and usage or achieve outcomes in return for a periodically recurring fee. We identify four common characteristics of subscriptions and differentiate them from other offers with recurring revenue models. Collectively, these characteristics open the door to attractive avenues for suppliers to empower customers and create value in business markets. We also develop a classification framework that categorizes subscriptions into four types based on their service focus (access or outcome) and resource integration (one-sided or mutual). Such frameworks play an important role in theory building (Doty & Glick, 1994), and we hence close the abovementioned knowledge gap with our taxonomy. Our research shows how subscription offers can help companies drive growth by testing innovations, accelerating monetization opportunities, and enhancing customer experience by transforming from a linear, transactional model to a dynamic relationship centered around the customer. To be successful in the subscription economy, managers must recognize that this effort extends well beyond portfolio management and may have far-reaching effects on the company's capabilities, processes, and structure. Seizing this growth opportunity not only necessitates novel approaches and strategies for innovation but also affects the firm's pricing and revenue models and how it engages customers and manages ongoing relationships.

2. Conceptual background

B2B subscription offers are situated at the intersection of three bodies of literature, which form the basis for our study: servitization, customer value, and relationship marketing research. However, the prevailing body of subscription research remains disconnected from these research streams. This divergence primarily stems from the research's deep-rooted association with B2C environments, where subscriptions are often regarded merely as a backdrop, and the primary focus is directed towards other areas of interest. For example, using various subscription contexts (media streaming, software, telecommunications, online dating, etc.), B2C research has assessed the impact of advertising-based and subscription-based services (Prasad, Mahajan, & Bronnenberg, 2003; Punj, 2015; Wlömert & Papies, 2016), optimal contract plan prices (Danaher, 2002), price menus for duration discounts (Tian & Feinberg, 2020), effect on firm value (McCarthy et al., 2017), efficacy of free-trial promotions (Foubert & Gijsbrechts, 2016), the role of family plans (Desai, Purohit, & Zhou, 2018), and automatic software upgrades (Brecko, 2023). While McCarthy et al. (2017, p. 17) define subscription-based firms as "businesses whose customers pay a periodically recurring fee for access to a product or service," we still lack a comprehensive conceptualization and classification to account for the heterogeneity of subscription offers and build theory. To understand their nature, we therefore draw on studies on servitization, customer value, and relationship marketing.

2.1. Literature on servitization

First, in line with servitization literature, subscriptions entail a shift in a company's value proposition and market offer by which it becomes increasingly service-centric (Raddats et al., 2019). While the emergence of the current subscription economy has been enabled by digital transformation, servitization has been prevalent in B2B markets for decades. Traditionally, companies have primarily focused on adding product-related services like maintenance, repair, and spare parts sales to their portfolio (Ulaga & Reinartz, 2011). More recently, digital technologies have enabled more wide-ranging transitions to more advanced services, connecting ecosystem actors (Dalenogare, Le Dain, Ayala, Pezzotta, & Frank, 2023; Kohtamäki, Parida, Oghazi, Gebauer, & Baines, 2019) and focusing on achieving better business outcomes (Macdonald, Kleinaltenkamp, & Wilson, 2016; Sjödin, Parida, Jovanovic, & Visnjic, 2020). The shift to subscriptions can be seen as part of this fundamental trend in which customers shift from paying upfront capital investments (CAPEX) to operational expenditure (OPEX) in recurring payments. Tracking its progression, Vandermerwe & Erixon (2023) argue that servitization today means moving customers from products to subscription offers. Facilitated by cloud technologies, firms can provide a wide array of "anything-as-a-service" subscriptions, which also has a major impact on traditional product-centric B2B industries.

The rapidly growing body of servitization research (e.g., Guedes, Patel, Kowalkowski, & Oghazi, 2022; Heirati, Leischnig, & Henneberg, 2023; Yang & Leposky, 2022) has provided several taxonomies and other frameworks to provide granular insights into this complex and heterogeneous phenomenon. Oliva and Kallenberg (2003) service space taxonomy is potentially the most influential, distinguishing between product-oriented and end-user process-oriented services on one hand and transaction-based and relationship-based services on the other. Many other generic frameworks also draw a difference between product and process-oriented services (e.g., Eggert et al., 2014; Raddats & Easingwood, 2010; Ulaga & Reinartz, 2011), a categorization originally proposed by Mathieu (2001). Similarly, several studies suggest that servitization involves a shift from transactional to relational marketing (e.g., Neely, 2008; Penttinen & Palmer, 2007). Other dimensions to differentiate among servitization offers and strategies include input-based versus output-based services (e.g., Neely, 2008; Raddats, 2011; Ulaga & Reinartz, 2011), standardized versus customized offers (e.g., Matthyssens & Vandenbempt, 2010; Stremersch, Wuyts, & Frambach, 2001), and the multi-vendor orientation of services (Davies, Brady, & Hobday, 2006; Raddats & Easingwood, 2010). Furthermore, some studies have specifically delved into particular service offers or strategies, such as Windahl and Lakemond (2010) solutions framework or Coreynen, Matthyssens, and Van Bockhaven (2017) taxonomy of servitization pathways through digitization.

Overall, these classifications have helped to advance servitization research, and the same needs to be done for subscriptions. While cloud-based subscriptions are increasingly at the core of servitization today (Vandermerwe and Erixon, 2023), existing research does not provide sufficient insights on how to understand these digitized offers.

2.2. Literature on customer value

Second, subscriptions profoundly impact managers' perspectives on customer value and pricing strategies and tactics. With respect to customer value, Eggert, Ulaga, Payne, and Frowne (2018) recall that our understanding of customer value has undergone a fundamental change in recent years, shifting from a focus on resource exchange and value in exchange to an emphasis on resource integration and value in use. Within the exchange view of marketing, a supplier manufactures and distributes goods and services that are embedded with value. From this perspective, a supplier creates and determines value. This value can then be exchanged. Therefore, B2B marketers must understand, communicate, and deliver value to their customers (Anderson & Narus, 1998). From this perspective, value in use can only occur after the exchange process, and it materializes within the customer's sphere (Grönroos & Voima, 2013) by integrating the customer's own resources with the resources acquired through exchange. From a value-in-exchange view, a business customer captures value created in its own use situation.

Over time, the service-dominant (S-D) logic of marketing (Vargo & Lusch, 2004, 2008, 2016) challenged this traditional view of marketing, arguing that value cannot be delivered to a customer. Instead, according to S-D logic, value is "determined by the customer on the basis of value in use" (Vargo & Lusch, 2004, p. 7). At its core, S-D logic thus emphasizes the subjective value in use and resource integration rather than resource exchange. Hence, from an S-D logic angle, it is important to note that it is the customer who perceives and determines value. Further, value is co-created through mutual resource integration. Finally, from this perspective, business marketers' role is to unleash opportunities for value co-creation in a customer's use situation. Thus, the resource integration process shifts from the customer's to the joint sphere. That is, the customer and the provider jointly create value in use, and both parties share value co-created together in the customer's use situation.

The fundamental distinction between value in exchange and value in use is important in the subscription economy. Such offers deeply resonate with a value-in-use perspective. Subscriptions are firmly grounded in ongoing value creation throughout all stages of a subscriber's journey. As customers' value perceptions and willingness-to-pay evolve over time, their providers' subscription offer configurations evolve to align with their clients' shifting expectations (Vandermerwe and Erixon, 2023). Clearly, in a subscription world, customers and providers co-create value in the customer's use situation, and resource integration processes occur in the joint customer-provider sphere (cf., Grönroos & Voima, 2013).

Grounding subscriptions in a value-in-use perspective has important implications for pricing strategies and tactics. As companies move from a conventional value-in-exchange perspective to a value-in-use view, they also transition from a transactional pricing perspective to a recurring revenue perspective (Kowalkowski & Ulaga, 2017). Rather than relying on the pricing of individual transactions, the focal interest shifts to the customer's value in use captured in novel pricing approaches all the way from flat recurring fees to outright pay-per-use pricing (e.g., consumables, billable hours, etc.). Interestingly, in line with this shift, such new subscription pricing metrics also deeply resonate with customers' willingness-to-pay, opening new avenues for providers to capture more value from their offers (Zuora, 2022). Such a perspective also has greater potential for achieving long-term competitive advantage due to closer alignment with customers (Chesbrough, Lettl, & Ritter, 2018).

2.3. Literature on relationship marketing

Finally, subscriptions imply a further shift from transactions to embedded relations as companies derive revenue from creating and sustaining long-term customer relationships (Vandermerwe and Erixon, 2023). The importance of relationship marketing was acknowledged already in the early servitization literature (e.g., Gebauer, Fleisch, & Friedli, 2005; Matthyssens & Vandenbempt, 1998; Oliva & Kallenberg, 2003; Vandermerwe, 1994). Drawing on the emerging relationship marketing literature (e.g., Christopher, Payne, & Ballantyne, 1991; Grönroos, 1990), servitization took on a more strategic dimension, with a pronounced emphasis on placing customers at the core of the business.

Several customer-centric concepts are relevant to understanding what subscriptions mean for companies. As information technology (IT) advanced, the term customer relationship management (CRM) emerged in the IT vendor and practitioner communities in the mid-1990s. CRM was considered a strategic approach focusing on the development of appropriate relationships with key customers and stakeholders. It leverages the synergy between relationship marketing strategies and IT and provides enhanced opportunities to use data and information to understand customers and create value with them (Payne & Frow, 2005).

While CRM has been criticized for sometimes being too internally oriented, with "dark side" practices including financial exploitation, information misuse, and customer lock-in (Frow, Payne, Wilkinson, & Young, 2011; Saarijärvi, Grönroos, & Kuusela, 2014), it served as a springboard for customer experience (CX) management. Drawing on data from customer touchpoints across various market channels along the customer journey, CX management serves to give a single view of the provider for the customer, measure customers' reactions, improve offers, and, ultimately, strengthen the relationship (Frow et al., 2011; Hilton, Hajihashemi, Henderson, & Palmatier, 2020). Increasingly, interactions between customers and suppliers take place through various digital and mobile touchpoints like apps, which are also integrated with ecosystem partners, exemplified by Salesforce's SaaS offers (Vandermerwe and Erixon, 2023). CX research increasingly acknowledges that interactions in B2B contexts are also "experienced" and that companies can design these experiences to influence the customer at different, increasingly digital touchpoints (Witell et al., 2020).

Similarly, the concept of customer engagement arose mainly in response to the rise of social media and other digital technologies and platforms, which enabled companies to measure ancillary behaviors more easily (Hilton et al., 2020). In B2B, customer engagement refers to customers' connectedness and disposition to invest in interactions with the provider (Ekman et al., 2021). It arises through interactive and co-creative experiences between customer and provider beyond purchase, resulting from motivational drivers (Brodie, Hollebeek, Jurić, & Ilić, 2011; Van Doorn et al., 2010).

Overall, Hilton et al. (2020) view CRM, CX, and customer engagement as evolutions in relationship marketing practice in response to shifts in technology and the business environment. Driven further by technological changes that reduce customer dependence on providers (e.g., zero-cost distribution and utilization-based billing), customer success management (CSM) not only builds upon these customer-centric practices but also takes a step further to better align the interests of both parties by proactively prioritizing customers' experience and engagement. The aim is to ensure that customers realize the full value potential of the offer (Hilton et al., 2020; Hochstein, Rangarajan, Mehta, &

Kocher, 2020). CSM emerged in the SaaS industry and has quickly gained traction in traditional B2B industries as they move towards digital services and recurring revenue models (Hochstein et al., 2023). From a strategic standpoint, these offers heavily rely on effectively reducing customer churn. Therefore, CSM becomes pivotal in supporting customers throughout the subscription usage process (Hochstein, Chaker, Rangarajan, Nagel, & Hartmann, 2021; Ulaga & Kowalkowski, 2022).

3. Research method and data collection

3.1. Stage 1

In the present research, we opted for a two-stage research design. In the first phase of our study, we conducted two immersive workshops over twelve months with managers in charge of launching and managing new subscription offers in their respective firms. Our main goal at this stage was to familiarize ourselves with the phenomenon investigated, gain first ideas about potential dimensions of our taxonomy, and identify those managerial issues that matter most when designing, launching, and managing subscription offers in business markets. Ultimately, during this phase, we aimed to ensure that our interview guide's structure and questions resonated well with respondents during subsequent depth interviews in the second stage of our research. Working with attendees through all subscription offer aspects—from ideating concepts, configuring, pricing, and launching offers to monitoring deployment based on tailored subscription metrics and dashboards—these workshops provided us with insights into the breadth and depth of subscription offers and managerial practices.

At this exploratory stage of our research, we relied on a purposive sample. Overall, twenty-three professionals from twelve companies attended the workshops: eleven in one workshop and twelve in the other. In all, companies ranged from a variety of manufacturing industries, such as aerospace, defense and security systems, elevators, industrial automation, oil and gas drilling equipment, packaging materials, and video projectors, among others. Our workshops also included pure B2B service firms (i.e., equipment distribution and leasing). We ensured that all firms shared several commonalities. Companies were all involved in B2B markets. All firms were experienced in developing and selling B2B subscription offers. At the same time, we also ensured that managers reported on various degrees of expertise with subscriptions, from early experimentation in cooperation with lead customers to established subscription offers for experienced clients. Approximately half of the firms had already successfully launched and managed subscription offers in their organizations, documented by a proven track record of recurring revenue streams over two or more years. The other half of firms were at the early stages of experimentation and deployment. These firms reported on recurring revenues of either less than two years or no revenues at all.

Participants held various functions, from business development and product management to services and customer solutions, among others. This diversity reflected the lack of well-established roles and responsibilities for managers in charge of subscription offer development, marketing, and sales in many firms. Further, early on, it became apparent that subscription offers simultaneously touch on different organizational functions, and those leading development, marketing, and sales of subscription offers greatly varied across firms in our sample. Hence, when selecting participants at this stage of our research, we probed into the extent to which they were knowledgeable and involved in subscription offer development and commercialization. In several cases, we asked initial informants to refer us to colleagues elsewhere in the organization to establish high knowledge and involvement levels. To this end, we specifically asked which roles and responsibilities they held and which concrete actions they performed with respect to subscription offers.

Workshops lasted two days and a half each and were led by one member of our research team and an outside facilitator. At the end of each workshop day, both facilitators wrote up memos to capture key insights gained throughout the day. Immediately following the workshops, facilitators compared their respective memos and summarized outcomes. Collectively, workshops facilitated in this first stage of our research aimed at gaining initial insights for answering our three research questions, that is, (a) explore key subscription characteristics that capture the breadth and depth of such offerings, (b) identify early on potential dimensions that might serve as a basis for classifying subscriptions and capture their heterogeneity, and (c) investigate how firms can rely on subscription offerings for unleashing recurring revenue growth in their respective firms. Workshops further served as a foundation for crafting our interview guide used in depth interviews in Stage 2.

3.2. Stage 2

In the second stage of our research, we gathered data via semi-structured, in-depth interviews with executives responsible for subscription initiatives (Appendix A). We carefully elaborated our purposive sample using the following theoretical sampling criteria: (1) market leaders with a proven track record of service innovation; (2) firms with different levels of subscription maturity to gain a richer picture of the phenomenon; (3) access to key respondents with first-hand experience of (and accountability for) subscription initiatives; and (4) companies representing a wide range of industries to increase confidence in the

Table 1
Characteristics of companies and participants in Stage 2.

Firm industry	Informant position	Subscription maturity level
Climate control	President Global Service	Early
Commercial kitchen and laundry	Group Vice President, Service	Early
Heat transfer	Global Services Director	Early
Network communications	CTO	Early
Power equipment	a) Senior Director Global Service; b) Product Manager Fleet Services	Early
Pulp and energy solutions	a) Vice President, Pulp and Engineering; b) Director Performance Agreements; c) Senior Manager Life Cycle Solutions	Early
Construction equipment	a) Service Director EMEA Region; b) Managing Director, Sales Company; c, d) Product Manager Telematics	Intermediate
Maritime	Head of Business Development, Global Service	Intermediate
Mining	Senior Manager, Digital Service Solutions	Intermediate
Materials handling	Manager Connectivity	Intermediate
Queue management systems	Product Manager Cloud Solutions	Intermediate
Commercial vehicles	Strategic Product Planning	Advanced
Medical imaging	Vice President, Managed Services	Advanced
Packaging solutions	a) Senior Capability Development Manager; b) Global Training Manager; c) Senior Product Manager Digital	Advanced
Robotics	a) Global Product Manager, Connected Services; b) Global Product Manager, Digital Services; c) Business Development Customer Service	Advanced

transferability of findings. Our sample size ($n = 15$) is consistent with McCracken (1988) sizes recommended for exploratory qualitative research, and our sampling process ceased at theoretical saturation.

Interviews lasted, on average, 77 min (ranging from 52 to 110 min), and we recorded and transcribed them verbatim. First, respondents described their business and market environment. Next, we asked them about the key characteristics of their subscription business model, including overarching strategic issues. The key sample characteristics in Table 1 show the informants representing companies operating in various markets. Overall, we conducted 25 interviews with 27 executives from 15 European and Asian firms, ranging from approximately 250 employees to almost 100,000 employees. If access to more than one decision-maker involved in the subscription business was possible and deemed relevant, interviews were either conducted with each respondent or one interview was conducted with all of them participating. Similar to Stage 1, several initial informants referred us to colleagues who were either more knowledgeable or had relevant complementary expertise. Most decision-makers had extensive international experience, and the subscription initiatives discussed were operational in markets across Western and Eastern Europe, North and South America, Asia, the Middle East, and North Africa. As a result, during the selection of key informants for our research, we assessed their expertise and participation in subscription offer development and commercialization. In some instances, we also requested initial informants to introduce us to colleagues in other parts of the organization to ensure a comprehensive understanding of their knowledge and involvement levels. For each company, we assessed the level of subscription maturity: (1) Early—focus on experimentation, collecting the first experience; (2) Intermediate—selected, recently started commercialization, iterating and launching new/revised subscriptions, and focusing on growth; and (3) Advanced—several years of proven track record like recurring revenue flowing and subscriptions being a profitable and growing part of the business.

Following a discovery-oriented approach, we used NVivo software to perform open coding to identify key issues and themes. Employing the criteria suggested by Tuli et al. (2007) and Ulaga and Reinartz (2011), we leaned on three main indicators for deriving categories from our initial codes: (1) whether an insight can be relevant beyond a very specific context; (2) whether several informants provided an insight; and (3) whether an insight provided interesting and useful conclusions beyond the obvious. We conducted a thorough examination of raw data, primarily consisting of interview transcripts. Our approach involved multiple readings of each interview, during which we identified phrases and passages relevant to our research inquiry. Through this process, we discerned first-order categories of codes that captured the respondents' perspectives in their own verbiage. For instance, statements made by participants such as, "In this case, we have decided not to develop anything ourselves, but to team up with a partner to obtain the platform value and provide our experience instead," were coded under the label "New partnerships with software firms."

We then moved to axial coding, searching for relationships among and between the categories, allowing us to assemble them into higher-order themes (Gioia, Corley, & Hamilton, 2013). Our analysis revealed seven second-order themes that underwent further refinement through the incorporation of insights from the literature and additional sources, including online materials and internal documents. Finally, selective coding led to the development of aggregate dimensions, which operated at the most abstract level within our coding framework. In this phase, we drew upon insights into prior literature and engaged in discussions with and presentations for colleagues to inform the creation of theoretically sound dimensions. As a result, these dimensions extended the foundation laid by the first-order categories and second-order themes. They provided a theoretically grounded and practically applicable categorization that aligns with the taxonomy and introduction of B2B subscription offerings (see Appendix B).

The identification of subscription characteristics was the only part of the research that did not follow this three-stage process. Building on insights from Stage 1, we compared respondents' views on subscriptions and their unique attributes. Throughout this analysis, we engaged in ongoing discussions, made revisions, and refined the labeling of these characteristics. Follow-up discussions with selected respondents served as member checking.

The study participants were offered a presentation of our findings and a summary report that included the definition, conceptualization, framework, and key areas for subscription growth. While several participants had changed positions or companies, we could present our research for managers from five of the 15 firms, either during online one-to-one meetings or as part of regular management meetings with multiple participants. As these meetings took place more than a year after the original interviews, they also proved an opportunity to verify the accuracy of their original comments, probe our framework and classification of subscriptions, and receive an update on the progress of the subscription business. While the managers agreed with the definition, conceptualization, and overall structure of our framework, we adjusted the maturity level of one of the firms and the classification of its main subscription offer based on additional insights and progress. In summary, the procedure gave us the confidence that our findings represented the essential elements of B2B subscription business models.

4. Study findings

In this section, we present our findings in three parts, each corresponding to one of the research questions. As we delve into the characteristics and various categories of subscriptions, it becomes evident that there are several motives for firms to move into these offers. First, decision-makers typically highlight economic, competitive, and customer-related arguments also found in other servitization initiatives (e.g., Oliva & Kallenberg, 2003; Raddats et al., 2019). Subscriptions enable new recurring revenue streams and help companies fight commoditization and build a longer-term relationship-based business. Second, there is also subscription-specific rationale, such as the ability to conduct real-life experimenting with pricing and service features (new information, analytics, plugins, etc.) and new digital touchpoints that allow more frequent interaction and customer stickiness. As many customers seek convenience and expect all equipment to be connected, subscriptions are seen as means through which the firms in our sample can provide new forms of data-driven offers by extracting more data points and harnessing more powerful analytical tools. Finally, while these motivations are the same across the board, others are more industry-specific, including a focus on cybersecurity, compliance, and the provision of standard operating procedures. Overall, subscription initiatives typically originate from the companies' service or digital business units. These initiatives align with their overall market strategy, which emphasizes service-led growth and the cultivation of closer customer relationships, even if some ventures were more bottom-up or a response to specific customer requirements.

4.1. Characterizing subscription offers

In contrast to more established service portfolios, which are generally well-integrated into product companies and structured accordingly, the subscription offers in our sample display far more heterogeneity. The diversity in informant positions shows that subscription initiatives can be managed at very different parts of an organization and at different hierarchical levels, which can depend on its market offer portfolio, structure, size, servitization strategy, and subscription maturity. Overall, however, our data reveals several common denominators regarding the nature of subscription offers. First and foremost, subscriptions are based on a recurring revenue logic. As a senior manager declared,

> "My main driver is to find a model with recurring revenues, rather than having to persuade customers and make single sales every time.

Trying to explain the value to a customer and let the money flow, even as we sleep."

Most respondents explained that subscriptions in this regard are not fundamentally different from other services with recurring revenues like service level agreements (SLAs), leasing, and rental, which also provide increased stability and enable customers to free up investments. Nonetheless, leasing and rental are means through which customers pay specifically for the use of equipment and other tangible assets over a specified period of time. In the case of such offers, customers mostly value the flexibility of access and use of goods without investing themselves (Ambroise, Prim-Allaz, & Teyssier, 2018). Value-creating activities above and beyond providing these core benefits are very limited in scope. Similarly, conventional service agreements, just like warranties, are generally sold like a 'service product' for a well-defined period, such as one or three years. In contrast, subscriptions reveal several interesting differences. For example, subscription offers naturally evolve on a continuous basis. In the case of subscriptions with a digital offer component, new attributes and features are constantly added. Today's subscriptions further provide customers with the flexibility to cancel, upgrade, or downgrade offers at any time (Desai et al., 2018; Vandermerwe and Erixon, 2023). Such offers typically allow for high levels of customization. In short, as one of the managers pointed out, subscriptions equate to "business made easy." In short, subscription offers remove customer effort and open new value-creation opportunities.

Beyond sharing similarities with other recurring revenue services and benefiting from several unique characteristics, subscriptions also open new avenues for both customers and service providers in terms of joint value creation and engagement throughout the end-to-end customer journey (Hochstein et al., 2021). Beyond continuous revenue streams, subscriptions trigger an ongoing flow of data and enable constant communication throughout all touchpoints, thereby substantially enhancing the customer experience (CX):

"The value proposition is suddenly being enhanced, the time to react is much faster, and the relation with the customer stronger… There are much more frequent touchpoints, I would say, whether through physical visits by a technician, phone interactions, or other means. This places the business top of mind for the customer."

At the same time, the continuous value-creation imperative puts increased pressure on the provider to educate customers, respond to and shape their ever-growing expectations, and steer them to the right outcomes for jointly unleashing value-creation opportunities. Respondents highlighted that subscriptions allow customers always to have the most recent offer and updated tools and software, which is in stark contrast to traditional services sales:

"If you go to those sites after three, four, five years, in many cases, the software is actually not used anymore. So, from our perspective, we cannot really have a kind of continuity of the business; we are not communicating with the customer; it is not really of benefit after the one-time sale. And from the customer perspective, they've bought something, installed it, invested time and money, and after three or four years typically, they are no longer getting the benefits from it."

Another benefit of subscriptions is dynamic offer configuration, which in many cases can be done by the customer. Subscriptions can adopt multiple configurations of offerings, such as a 'good-better-best' design or a baseline offer complemented by distinct packages adapted to industry verticals (Vandermerwe and Erixon, 2023). Likewise, managers may choose from diverse price formats (e.g., 'all-you-can-eat' or 'pay-per-use,' among others) and individual pricing metrics, allowing them to better explore and understand customers' willingness-to-pay through iterative pricing experiments. This flexibility was seen as further enabling vendors to tailor pricing approaches to customers' specific contexts and select pricing metrics that are truly meaningful to customers, thus resulting in heightened levels of willingness-to-pay. As a manager explained, this changes the conversation with customers:

"If you sell trucks, the customer can easily say "Yes, but if I buy from them, I'll get a truck that lifts the same weight, and it's 10% cheaper," and you don't have much to play with there. Now, as a seller, you can say, "Yes, but let's put the truck price aside for a moment and consider the significant efficiency gains we can offer you." So, it's clear that you'll have a different discussion with the customer.

Before moving to subscriptions, many companies in our sample had not developed a clear roadmap for crafting their offers and choosing among different pricing approaches. For example, recognizing that most customers did not use all available features in its offers, the materials handling provider we interviewed shifted from one "monolith" digital service package to several smaller fleet management subscription bundles. Interestingly, the two main brands of the commercial vehicle manufacturer in our sample had different approaches to subscription configuration. One brand offered a complex menu with numerous options, while the other had opted for a heavy package front-loaded with many features and only a few options. Over time, their approaches became more similar. The complexity of a diverse option menu smorgasbord approach confused customers, while the one-size-fits-all approach made customers reluctant to pay for a comprehensive offer. Focusing on a few subscriptions, based on a clear value proposition and easy-to-understand pricing, made it more straightforward for customers to understand the offers and for salespeople to sell them.

Against this backdrop, *we define subscriptions as market offers where customers and providers mutually engage at various levels to provide access and usage or achieve outcomes in return for a periodically recurring fee*. Our interviews reveal the extent to which subscriptions allow companies to create and deliver value for business customers above and beyond other recurring revenue models. Overall, we identify four key characteristics of subscription offers that open the door to attractive avenues for suppliers to create and deliver value in business markets (see Table 2). First, subscriptions establish a direct link to customers. Consider the example of the material handling provider in our sample. By equipping forklifts with sensors and collecting usage data on forklift usage, the firm can now offer a host of value-adding services wrapped around their capital goods. Yet, the supplier also now tracks who owns the forklift, where the equipment is, and how it is being used. This Direct-to-Customer (D2C) link greatly enhances suppliers' customer intimacy, especially in markets where manufacturers rely on intermediaries for product sales and where third parties provide field services on behalf of suppliers (cf., Fischer et al., 2012). In such contexts, subscriptions create and enhance direct touchpoints with customers. Intermediaries often consider services as their home turf and a critical revenue source for themselves, thus often jealously protecting the customer relationship (Kowalkowski & Ulaga, 2017). Subscriptions can hence provide companies with unique opportunities for gaining critical data on their installed base and customer operations.

Table 2
Subscription characteristics and value creation avenues.

Subscription characteristics	Value creation avenues
Direct Customer Access	Direct-to-Customer (D2C) approach enables knowledge of suppliers' installed bases and customer operations.
Digital Data Generation	Combination of analog and digital data provides deep customer insights.
Offer Digitization	Digital content enhances personalization and continuous offer improvement for maximizing customer value and capturing willingness-to-pay.
Cloud-Based Offer Access	Ubiquitous access reduces customer investments, increases flexibility and unlocks cost savings and productivity gains.
è Customer empowerment and success	

Second, the above-mentioned direct link enables vendors to remotely generate, access, and use real-time data that complements and enriches traditional data sources, such as service field technicians or sales engineers. This provides the foundations for gaining more fine-grained customer insights and accelerates a continuous value-creation flywheel (Ulaga & Reinartz, 2011). Third, this process, in turn, fosters a growing digitization of offers. In business markets, suppliers increasingly integrate hardware and software, data and analytics, into a blended offer (Paiola & Gebauer, 2020). Consider the example of the construction equipment supplier in our sample. The manufacturer's heavy machines show an increasing software content, they are equipped with multiple sensors, and the company actively pursues the growth of predictive analytics services built around its machines. This trend facilitates the development of a host of fluid, dynamically evolving services that can be constantly reconfigured and scaled either up or down. Here, we see that the customer is also an active co-creator of value, able to customize offers to individual use situations actively. Fourth, moving data and processes to the cloud provides customers with ubiquitous access without having to own content or infrastructure. On-demand availability of services enables customers to free up investments and achieve cost savings and productivity gains hitherto difficult to unlock (Vandermerwe and Erixon, 2023). Collectively, these four characteristics and value creation avenues empower customer roles in the value creation and delivery process. Subscriptions can hence automate certain aspects of the process, reducing customers' workload and enabling them to focus on higher value-added tasks. In addition, they provide customers with real-time insights, allowing them to make more informed decisions about their operations. The subscriptions in our sample all share these characteristics and value-creation avenues, although in different combinations and to different extents.

4.2. Taxonomy of B2B subscription offers

Having identified common characteristics among subscription offers, we next move to developing a taxonomy. Managers also acknowledged that subscriptions could take different shapes. Several companies in our sample provide a narrow range of different subscription offers, often based on a similar 'good-better-best' portfolio logic, as it is commonplace for many industrial service SLAs (e.g., lite, pro, and max or bronze, silver, and gold levels). In some cases, companies provide a wide range of services, as in the case of the medical imaging firm, which offers subscriptions ranging from speech recognition to advanced enterprise imaging solutions.

To understand the heterogeneity of subscription offers, we specifically probed into dimensions that allow for meaningful differentiation among offers. Our content analysis clearly identifies two distinct yet complementary dimensions along which executives clearly distinguish subscription offers. The first dimension refers to whether the provider's value proposition is grounded in the promise to provide *access* to a service or achieve an *outcome*. Subscriptions like simulation software for mining operations, speech recognition reporting systems, truck monitoring and data, and geofencing for vehicle tracking are all based on the premise that customers will have continuous access to the service, whether it is pay per period, pay per use, or pay as you go or grow. Pricing models are hence volume-based, focusing on charging for access to a specified capacity or quantity, such as the number of connected devices, number of users, number of service activities, or cloud storage space:

> "We have decided to charge for appointments, which are booked meetings that may not always take place, and visits, which are encounters with someone. Both visits and appointments can be physical meetings or video meetings. These are organized into bucket tiers, where you purchase, for example, 10,000 visits and 5,000 appointments every month at a fixed fee. If you use fewer than the allotted amount, you will still be charged for the full amount. If you exceed the allocated quantity, additional costs will apply."

In contrast, outcome-based offers like asset productivity optimization, robotics-as-a-service, and medical imaging all have pricing models tied to the customer's realized value in use, such as pay per downtime avoided, cyber secure equipment, or output produced. Overall, the managers in our study emphasized that B2B subscriptions build on and extend other recurring revenue services (e.g., SLAs, leasing/rental). Many subscriptions not only provide access and usage of a capital good, software, and so forth; they also often heavily focus on outcomes achieved. In the words of a senior digital solutions manager,

> "In this kind of subscription model, we are talking about maintenance through software. So, for example, collecting the information of the equipment and analyzing it in the cloud, offering customers predictive measurements of what they should be doing to keep the equipment and process up and running. So, in a way, their availability; when do they need to change something? If something happens, what then? Doing the job or solving with the data they've already got there, making corrections, or solving problems faster."

Our interviews further reveal a second dimension for classifying subscriptions: the *resource integration* between provider and customer, which refers to "the extent to which the processes of supplier-customer interaction act to integrate resources for the customer's benefit" (Macdonald et al., 2016, p. 106). This resource integration may be largely one-sided, in case one of the parties is responsible for the process, or mutual, which means that the process shifts from one of the actors' domains to the joint sphere, which means that both parties actively engage throughout the subscription process. Many B2B subscriptions rely on extensive interactions between customers, service providers, and technology interfaces across multiple touchpoints. Here, supplier and customer combine their activities and resources through a joint resource integration process to create value. A wide range of subscription offers requires mutual resource integration throughout the customer journey to ensure customer success. Examples include cyber-resilient vessels, condition-based maintenance based on online performance monitoring and control of corrective actions, remote support through augmented reality technology, and on-the-job training:

> "The customer subscribes to our content, and we assist them in integrating it into their platform. We need to maintain an ongoing dialogue and follow-up with the customer. What's the next step? What should we do now? What opportunities are available? … We can also see error codes and how customers are operating our equipment. This way, even if the customer claims they are trained, we can see that: okay, they are trained, but they are still not doing it correctly. The operator—third shift every odd week—is making a mistake."

Most managers highlighted that subscriptions provide their firms with a unique opportunity to engage with their customers. Interestingly, many of them also consider one-sided resource integration as valuable in this regard. In these cases, most activities are fully automated (e.g., software access) or reliant on interaction with technology rather than humans (e.g., telematics dashboards). This implies that a mutual resource integration effort may not be needed to provide real-time customer data and deeper customer insights. It gives vendors the opportunity to continuously refine and reconfigure their subscription portfolios, identify opportunities for additional product and service needs, and strengthen the overall relationship:

> "We have this learning platform for video, and here we expect customers to have an on/off behavior. It's actually not something we're trying to prevent in this case. It's completely natural that 'now I'm training a team, now I'm satisfied and don't need any more, and so on.' However, we still believe that we have a closer relationship with those customers than we do today with instructor-led training."

Increasingly, advances in artificial intelligence (AI) can help companies automate service processes and personalize offers and interactions (Huang & Rust, 2021). This enables one-sided resource integration, either the supplier performing activities on behalf of its customers or customers doing more things for themselves. Nonetheless, despite cloud-based offer access, managers pointed out that mutual resource integration with 'high-touch' interactions is often needed to integrate tailored offers and ensure continuous value creation. Offers that at first glance may seem similar, such as video surveillance and robot subscriptions in our sample, which are both outcome-based product-as-a-service business models, in fact, differ when it comes to resource integration. For example, customers can plug in new surveillance devices on their secure networks themselves, and the subscription itself relies primarily on digital touchpoints and automatic software and certificate updates. Robots-as-a-service, on the other hand, relies on much more extensive support and adaptation, including robot cell integration, regular service, and potential replacement.

In combining these two dimensions, we derive four distinct categories that differ fundamentally in terms of subscription offer configuration, pricing model, and joint resource integration. To capture the nature of each type, we labeled them as follows: *Stepping Stones*, *Interactive Scripts*, *Intelligent Automation*, and *Intertwined Journeys*, as presented in Fig. 1. The various subscriptions that firms in our study provide are presented in Appendix C.

"Stepping Stones" are subscription offers focusing on providing customers with access and use of a service, while resource integration is one-sided. For example, one of our informants referred to a speech recognition subscription offer for radiologists at medical imaging centers. Facing growing demand for complicated examinations, which involve longer reports, hospitals are seeking to reduce lead times in radiology. The subscription allows reports to be available on the intranet as soon as they are dictated and signed:

> "These are services that are generally quite easy to set up; the amount of data doesn't become as large since it's audio files. So, they are very simple compared to other subscriptions. Just consider the extreme amount of data in x-ray images that need to be linked to patient records, they need to be stored, etc., and you also need to be able to send information between different departments in hospitals and between hospitals…Larger services that contain a lot of data often become so much more complex because the information that is being handled is so much more complex as well."

Stepping Stones are often the foundational elements in the development of a subscription offer portfolio. Customers typically subscribe to a predetermined volume—be it connected units, employees, or activities—without surpassing the agreed limit. Owing to the manageable complexity and advanced digitization, vendors have the agility to adjust the portfolio, altering price tiers and features with ease. As illustrated in the speech recognition example, customers gain considerable advantages in speed and automation, allowing for the servicing of an increased patient count. Additionally, the subscription might integrate into a broader imaging package, optimizing the entire radiology process. In essence, these subscriptions are characterized by their high automation, minimal required interaction, and a focus on providing uninterrupted customer access.

As we progress along the resource integration dimension, the second category, termed "Interactive Scripts," grants access to services characterized by reciprocal resource integration. Typically, our respondents highlighted that while these services benefit from high levels of digitization, they concurrently necessitate substantial high-touch interaction throughout the entirety of the customer journey. Consequently, these subscriptions are inherently more resource-demanding, posing challenges to scalability. An exemplar of this category is the bespoke online training subscription tailored for clients within the food industry:

> "We don't tell customers that they subscribe to videos or skill matrixes but to trained operators. Many customers have high staff turnover, and we don't want to sell the videos but the knowledge… It adds a lot of value for customers that they can follow up on their problems and make sure that solutions are in place and that they are constantly learning from what is happening in the factory… We've seen that when we haven't been able to update the tailored content properly, customers started to ask: 'Wasn't there more than this?' And that's dangerous… We have global customers who have a stated

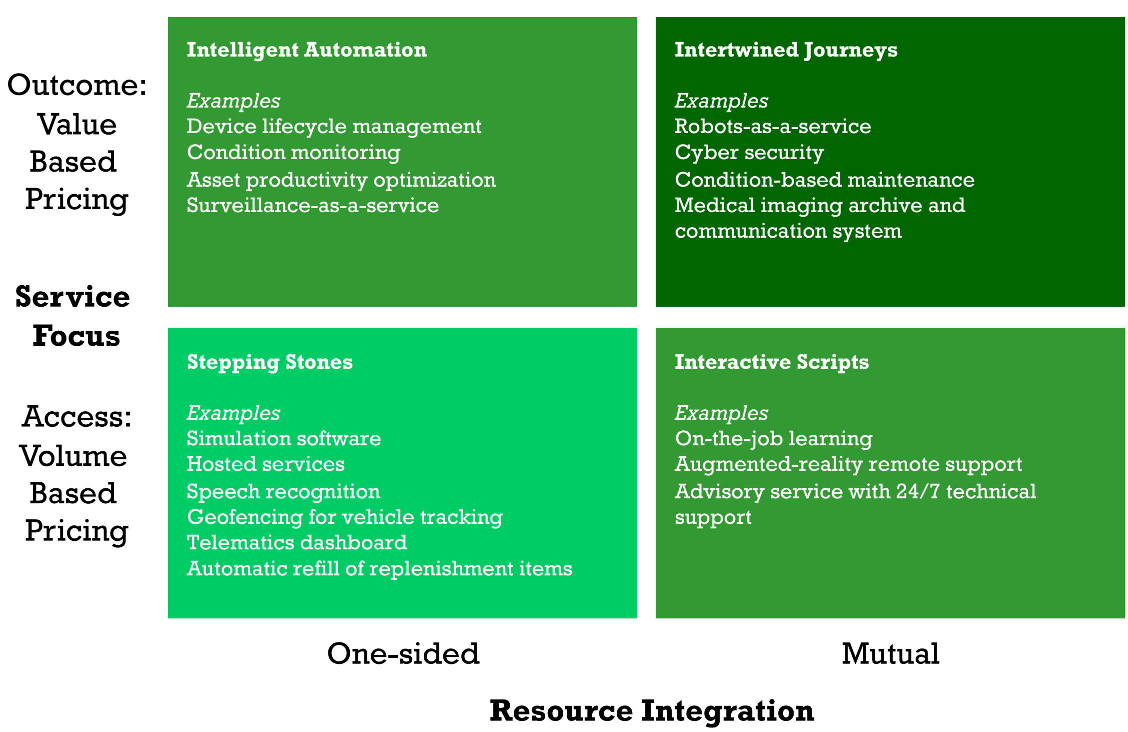


Fig. 1. Taxonomy of B2B subscription offers.

strategy to be independent, and they will not change that strategy because we don't train them; they will choose another supplier."

As this quote shows, these subscriptions require mutual resource integration and in-depth knowledge of evolving customer needs in order to create value. Unlike Stepping Stones, our Interactive Scripts had individually negotiated prices for customers, whether they were plants with multiple packaging machines or logistics providers with hundreds of trucks. As a result, this requires another approach to pricing and selling while ensuring customer success through continuous interaction.

The third category identified in our study, "Intelligent Automation," relies heavily on various AI tools to perform advanced tasks, enabling outcome-based services with limited need for customer-supplier interaction. Due to their highly standardized nature and well-defined scope, these subscriptions are much more scalable than access-oriented Interactive Scripts, despite their outcome orientation:

"We have global standard services that apply to all our models, so the scalability is huge. Just to give you an idea, currently, only around 7% of the total installed base is connected. This means the potential for scalability is enormous. However, with our old platform, scalability could be an issue since it's outdated. But with the new platform, we've designed it in a way that makes it easily scalable in terms of infrastructure, software, and more."

While the sales process may be extensive, especially in cases where the subscription covers a wide range of customer equipment or sites, established value metrics are often in place (e.g., based on industry standards). This reduces the need for interacting with customers to establish performance indicators that would serve as the basis for pricing.

Finally, "Intertwined Journeys" is the most complex and comprehensive type of subscription, with high levels of mutual resource integration throughout the customer journey to ensure value outcomes. While they rely to a large extent on AI applications, they are often highly customized, given the uniqueness of customers' assets and operations. As a global manager with decades of experience in the industry pointed out:

"The primary objective of a project engineering company is to engineer durable and customized production plants. This means that we have plants that are 40-50 years old, as well as new plants, where no two plants are the same. Each plant consists of 2,000 to 5,000 machines or pieces of equipment, which are driven by motors or other energy sources. Therefore, our division's business base is inherently customized and will not change before you retire, even if we were to standardize our engineering to one plant version today."

Examples such as this one point to the need for high-touch interaction through all stages of the customer journey. It also illustrates the difficulties many companies face when it comes to the scalability of their subscription offers. Unlike less complex cloud-based subscriptions, customers cannot configure and set up Intertwined Journeys on their own.

According to several managers, when introducing a new subscription to the market, their companies had to collaborate with customers to develop new sets of key performance indicators. These indicators served as the basis for determining pricing. An exception in our sample pertains to medical imaging subscription offers. In markets with public healthcare systems, public procurement procedures may require specific metrics. Therefore, the supplier had to adapt its sales approach based on whether the customer was a public or private hospital. Regardless of market, however, respondents agreed that Intertwined Journeys are the most resource-intensive subscription offers in terms of data sources, stakeholders, and diverse touchpoints for customer success.

4.3. Subscription growth: Impact on organizational structures and processes

Our analyses revealed that firms' investment in subscription-based recurring revenue growth led managers to substantially overhaul organizational structures and processes. In our workshops and interviews, executives emphasized three key areas of change: (1) subscription offer development, (2) recurring revenue model and pricing decisions, and (3) customer engagement.

4.3.1. Subscription offer development

First, managers underlined that the move to subscriptions required changes in R&D structures and offer development processes. New approaches to offer innovation and design, as well as accompanying methods and tools were needed. Even those companies that had successfully pursued servitization and developed a wide range of digitized services struggled with the ideation, design, packaging, pricing, and industrialization of subscription offers. What held most companies back was a prevailing 'must-have-feature' mindset:

"Do we really need new functionality? It has been very difficult to even measure user experience. There is no understanding of how to do it. As a product manager, I would like to work on questions like 'How is the support experienced here?' But it has been very difficult to get such initiatives up and running. Instead, we have been measuring how many features we can include in the release."

Adopting agile frameworks, methodologies, and tools commonly deployed in the information technology and software industries was often experienced as a culture shock for goods-centric, engineering-focused, and production-driven companies in our sample. These approaches, which acknowledge the inherent unpredictability of software development, mitigate risks by breaking down deliverables into short, well-defined iterations, and foster mutual resource integration with partners (Beck et al., 2001), are increasingly seen as pivotal for successful service innovation (Sjödin, Parida, Kohtamäki, & Wincent, 2020). In many cases, informants highlighted the importance of carefully selecting pilot customers, especially in those situations where subscription offer development required experimentation and multiple rounds of iterative testing in collaboration with customers. Having implemented agile methodologies for several years in its company, one team interviewed in our study underscored the importance of defining a specific, limited number of use cases and making available the right organizational "sandbox" for providing design and innovation teams with space for real-life experimenting with new subscription offers. This also included developing new metrics and dashboards that were different from those of traditional product and service innovation teams when evaluating outcomes achieved.

A related issue referred to offer launches. Most Stepping Stones, Interactive Scripts, and Intelligent Automation subscriptions in our sample were ancillary services that complemented the core product or service. Here, managers surfaced a key challenge related to bundling: deciding whether to sell subscriptions separately or as a package (Stremersch & Tellis, 2002). In general, companies offered tiered subscription packages. For instance, the robotics firm in our sample provided three configurations in a 'good-better-best' format. The basic subscription included core elements such as condition monitoring, while the enhanced and 'all-inclusive' offers allowed clients to subscribe to additional features based on their specific needs and usage situations, such as backup management and benchmarking. Traditionally, many companies in our sample viewed subscriptions as a complement to existing service level agreements (SLAs). However, several managers highlighted the need to shift this perspective to give subscriptions the attention required to thrive as a standalone revenue and profit source. Given the characteristics of subscription offers, such as cloud-based accessibility and digital data generation through platforms, issues like automation and scalability became prominent in the firms in our study.

To succeed, several companies in our study either acquired new experts or formed partnerships in the fields of subscription or data management software. This helped them develop the necessary software, platforms, and processes. For instance, the packaging solutions company launched its first e-learning subscription offer over a decade ago, primarily relying on established practices and in-house technologies. However, this initiative backfired, leading to resistance towards developing further subscription offers and causing delays. In response to this setback, the company adopted a fundamentally different approach when it successful introduced its new online training subscription package. It appointed a new development team and entered into a collaboration with a leading subscription management specialist. The power equipment company had a similar experience. It struggled for over a decade to onboard dealers and customers with its internally developed connectivity-based services. Ultimately, the company decided on a fundamentally different approach when offering subscriptions. It established a separate organizational unit for its new business and partnered with a start-up responsible for the subscription platform and its various components. These components included financial, legal, and compliance management services, as well as tools for dealers and sales. Finally, several companies resorted to acquiring specialized players as a way to incorporate these unique resources and distinctive competencies needed to expedite their own transformation processes.

To accelerate their organizational transformation, these companies also leveraged environmental factors that favored change, such as the Covid-19 pandemic:

> "Once we cracked the nut, it was really good. And I think we've done that with this remote support platform. But how? Covid created a burning need for it, and cultural resistance to the technology fell apart: 'Well, we want to stay safe; we don't want to go to the customer.' So suddenly, remote support became more acceptable. That was a complete game-changer. The barrier to adopting the technology was no longer ideological."

Overall, while managers recognized significant potential in developing new subscriptions, many also emphasized the need for careful selection of initiatives to focus on and deliberate decisions on what not to offer. A key concern related to resource constraints, such as the need for software engineers and other specialists to implement, scale up, and update the companies' subscription offers. While this was not seen as a problem for automated subscriptions, resource constraints hindered some Intertwined Journeys and other resource-intensive subscriptions that relied on mutual resource integration with continuous customer-supplier interaction. Moreover, similar to many other outcome-based offers (e.g., Kowalkowski, Windahl, Kindström, & Gebauer, 2015), a challenge in developing comprehensive Intertwined Journeys was the difficulty in distinguishing performance outcomes related to the subscription from those influenced by other factors. This complexity is particularly prevalent in complex B2B settings, such as the mining industry. Consider the example of a senior manager discussing his company's reluctance to develop such subscriptions:

> "We don't want to take too much risk, and our customers share the same sentiment—they prefer not to take the risk of overpaying us. The primary challenge lies in the complexity of the processes. Anything outside our system, such as changes in mineral composition, alterations in mining operations, or shifts in the broader environment or equipment, can have a substantial impact on the KPIs we measure. So, really, defining these KPIs accurately to reflect only the specific aspects of the process becomes an exceptionally intricate task."

4.3.2. Recurring revenue models and pricing

A second area of change, discussed by managers in our study, pertains to the impact of subscriptions on companies' recurring revenue models, pricing strategies, and tactics. Informants mentioned that their firms had to fundamentally overhaul all aspects of their order-to-cash management cycles, underscoring the magnitude of the organizational change involved. Several managers used the 'swallowing the fish' metaphor, a concept developed by TSIA, to describe a situation where top-line revenues temporarily shrink as transactional sales are replaced by subscription-based recurring revenues. Concurrently, a firm's costs initially increase due to investments in new organizational structures, processes, resources, and capabilities. This scenario is particularly relevant when transitioning from a transactional sales approach for goods, services, or even perpetual software licenses to a subscription-based recurring revenue approach. Examples include enterprise imaging or robots-as-a-service, where product ownership gives way to product access and use. The sheer number of connected assets, the amount of data generated, and the cost of managing such data lakes proved challenging for several firms in our sample. One firm even refrained from moving towards 'product-as-a-service' offers in fear of excessive upfront investment and financial burdens to address alone or in partnership with a financial institution. Instead, the company launched a comprehensive software-based Stepping Stone subscription offer, excluding the hardware. However, management was taken by surprise when customers expected to pay monthly or quarterly for the subscription, rather than annually as initially assumed, leading to tedious manual administrative work.

The challenges associated with organizing a digital supply chain capable of handling complex invoicing and payment processes, as discussed by managers in our study, align with data publicly reported elsewhere. Take Caterpillar, for example. The company reported on its website that it doubled the number of connected assets from 600,000 to 1.2 million between 2016 and 2022 (Caterpillar, 2022). If the company covered half of these assets with a connectivity subscription service, one can easily imagine the avalanche of monthly, quarterly, or annual invoices issued. Even for companies with a much smaller installed base, the demands on accounting systems and IT infrastructure can run into a real hurdle that holds back subscription initiatives. This challenge is particularly pronounced when companies aim for growth through high-volume Stepping Stones and Intelligent Automation subscriptions, which require easy scalability and extensive automation. However, even when subscriptions depend on mutual resource integration, companies still require efficient, digital supply chain processes. As managers from two different companies, focusing on Interactive Scripts and Stepping Stones respectively, explained:

> "In some cases, we are well ahead, but when it comes to issues such as internal invoicing—systems, manual handling, etc.—it feels as if we are still in the stone age. What made our first subscriptions too heavy was the administrative burden. We needed a lot of back-office processes to handle transactions and move money. Essentially, we were not ready to go."

> "I don't think we have a full understanding of what it really is yet. Instead, there's still the idea that it's just a technical change and not an organization-wide change. But after seven years, I think the penny has finally dropped."

Knowing how to find the right pricing model based on customer success metrics was another key issue raised by managers. Here again, the traditional engineering culture often appeared as an impediment. As one senior manager noted:

> "We tend to jump into those technical details too easily rather than have a good business case to think or talk through, talking more about the business numbers."

Managers in our study explained that B2B subscriptions often relied on mutual resource integration, allowing for the customization of pricing approaches and individual price points to align with customer-specific usage contexts. Beyond the traditional expectation of large-scale customers engaging in price negotiations to secure discounts, several managers mentioned that adapting pricing metrics to align with customers' value perceptions allowed their firms to better resonate with clients' willingness-to- pay, thereby achieving better prices. For instance, the commercial vehicle manufacturer employed this approach for its fleet advisory subscription offer. Therefore, such subscription offers exhibited what Wirtz, Fritze, Jaakkola, Gelbrich, and Hartley (2021) refer to as a low degree of productization. Given the entrenched nature of traditional sales approaches in many product-centric firms (Mustak, Ulaga, Grohmann, & von Wangenheim, 2021; Ulaga & Reinartz, 2011), companies like the commercial vehicle manufacturer preferred to retain these practices to facilitate the sale and growth of their subscription offer portfolio.

Several managers highlighted the challenges their companies encountered in selecting pricing approaches and setting specific price points. When probing further into this topic, respondents explained that understanding the value created by a subscription offer, assessing customers' willingness-to-pay, and identifying approaches, subscription metrics, and specific price points deemed fair by customers posed significant hurdles. Consequently, managers admitted that their lack of expertise and tools sometimes led them to deliberately set low prices to boost sales and meet top-line revenue growth targets. This scenario was particularly evident when the subscription relied on an underlying product or served as a complement to the SLA portfolio. These practices resonate well with extant literature, which shows that customers' willingness-to-pay is significantly lower when a service is not sold separately from a product (Meyer, Shankar, & Berry, 2018).

These behaviors were further fueled by the frequent lack of awareness or willingness among internal staff to change their mindset and start invoicing properly for subscriptions. In several instances, firms' sales organizations were empowered to decide on their own pricing, and some even gave away new subscription offers for free. Although managers responsible for the subscription initiatives often opposed such practices, which aligns with extant servitization literature on free B2B services (Mustak et al., 2021), these practices were commonplace in several of the companies in our sample. In one of the firms we interviewed, an Interactive Script became commercially successful and financially profitable over time. However, the team in charge of this subscription offer had to fight hard to set up its pricing model, tools, terms, and conditions. In this case, managers believed the price could have been set even higher given the actual customer value in use. This sentiment was echoed by an executive in another industry in charge of connected services:

> "This is really difficult. We say we have a global standard portfolio, but the value we are providing may vary depending on the type of customer, type of market segment, customer size, and so on. For example, I was in a meeting with some systems integrators in the US last year. At the end of my speech, I asked, 'Guys, what do you think is the price for all this?' and told them what it was. And a guy said, 'Woah, that's extremely cheap!' because he was working in the food and beverage segment where downtime can cost more than 100,000 euros. So, the question is how to set prices when operating in so many markets. Once we go to the application level, where our machines handle different things, like a spot welding gun, it's not easy."

4.3.3. Customer engagement

Finally, managers identified a third major area of change in organizational structures and processes. Reflecting on the shifts in the technological and business landscapes (Hilton et al., 2020), participants emphasized that their firms had to fundamentally rethink their approaches to managing customer relationships on an ongoing basis. These changes had consequences for both marketing and sales organizations, as well as organizational selling centers. Managers discussed that ongoing 24/7 resource integration became the "new normal," as data points from products, customer interaction, and service activities continuously fed into companies' digital ecosystems. Managers who had successfully expanded their subscription offer portfolios over time underlined how customer relationships simultaneously grew broader and deeper. This enabled a tailored CX that would not have been possible to offer otherwise.

Several participants in one company discussed their firm's initiative to become what was framed as "A Netflix for machine parts." However, as pointed out by a manager responsible for online training subscriptions and echoed by many others, "In our industry, what customers want is not to get access to a product; what they want is performance." Importantly, more is not always better; it may, in fact, be the opposite. Unlike Netflix, where consumers seek a wide variety of regularly updated content, the manager highlighted that their subscription customers preferred fewer short videos to ensure that operators actually "use" them.

To gain such insights and understand each customer's specific needs, new organizational roles and responsibilities, structures and processes, such as Customer Success Management (CSM) were considered pivotal to long-term competitive advantage. For example, one company in our sample had implemented a Key Account Management (KAM) program for more than 20 years as a means to initiate and grow strategic customer relationships, cross-sell and upsell, and proactively meet changing customer demands. However, when moving to subscriptions, managers realized that their existing customer-facing units and processes, such as KAM, were still relevant but insufficient. Companies in our sample needed to complement established roles and responsibilities in their selling centers with new ones. Consider the following illustration from one of the managers in our study:

> "It is about being there with the customer and seeing: What is the next step? What should we do now? What possibilities do you have? Having a follow-up and dialogue. We have a customer in South America who was honestly against digitalization altogether. But today, they have this [subscription offer] on all five sites. Our CSM works with them all the time; she simply enters a factory and looks at what paper forms they have, etc. Then she asks: "Should you not digitize?" "Oh yes, that would be great." "Ok, let's do it!" So, she is active, she works with the customer proactively, and then the customer becomes engaged and asks back: "Can't we do this as well?" And this is how it happens. Many KAMs, on the other hand, are rather "peddlers," good at selling nuts and bolts but less good at selling zeroes and ones. So, yes, this is also a change management journey internally."

For subscriptions requiring mutual resource integration, as seen in solutions selling (e.g., Tuli et al., 2007; Ulaga & Reinartz, 2011), managers explained that their firms needed to engage with a broader network of stakeholders and establish ties and touchpoints higher up in the customer organization. One manager at the packaging solutions company told us that customers should not only be digitally mature, but there should also be top sponsors within the customer organization if they have not previously purchased such subscriptions. Echoing this sentiment, the digital solutions manager at the mining equipment manufacturer concluded:

> "Often, our business is with the production line management level, which is kind of a traditional level, when you talk about the

performance agreements, but now within these modern tools and technologies, at least with larger corporations, they have their headquarters' digitalization team or similar, so they come into play, and there's a gatekeeper there who wants to access and understand what kind of technology, what kind of application their mill is negotiating. So, it's always a combination of middle- and corporate-level decision-making."

The manager further underscored the need to understand the buying center and identify potentially contradictory customer targets:

"Let's say, on a middle-manager, production-line level, they are really interested in having their tools application and services for their line… Let's say they are not that interested in what happens next, as long as their efficiency gets better, and as long as they get the targets they are expecting. But then on a corporate headquarters digitalization level, they would probably like to get some longer-term targets that, okay, 'this mill is a pilot, and then we want to learn more,'… so the continuous communication with the customer is a great way for us to see what the opportunities are for the customer."

Overall, managers consistently emphasized that subscriptions offer unique opportunities for differentiation by delivering a more comprehensive and ideally seamless customer experience. This held true across industries in our sample. Managers mentioned that even subscriptions with limited levels of interaction (i.e., one-sided resource integration) still contributed to fostering customer engagement. However, since subscriptions enabled substantial value creation through data generation and analytics, increased flexibility and personalization, and provided ubiquitous access, managers explained that suppliers were now expected to ensure customer success in a much more proactive manner than before.

5. Discussion and implications

To the best of our knowledge, this study is the first to investigate *how* B2B firms can grow through subscription offers. We delineate common characteristics and unique features and develop an updated fine-grained definition of subscriptions as market offers where customers and providers mutually engage at various levels to provide access or achieve outcomes in return for a recurring fee. Our findings outline what distinguishes subscriptions from other offers, including other services with recurring revenue models, and specify four shared characteristics, which all subscription offers share to various extents. Accounting for the heterogeneity of subscription offers, we develop a taxonomy classifying them into four distinct categories along two distinct dimensions: service focus (access or outcome) and resource integration (one-sided or mutual). We show how subscriptions can help companies drive growth and facilitate mutual engagement but also point at hurdles that firms typically have to overcome.

5.1. Theoretical implications

The aforementioned contributions generate several implications for marketing and servitization literature. In particular, we complement existing literature on B2B service growth that mainly investigates either the whole range of industrial services and growth options (e.g., Oliva & Kallenberg, 2003; Raddats & Easingwood, 2010; Ulaga & Reinartz, 2011) or only the most complex solution offers (e.g., Bond III et al., 2020; Macdonald et al., 2016; Storbacka, 2011). Our findings outline what distinguishes subscriptions from other offers, including other services with recurring revenue models, and specify four shared characteristics, which all subscription offers share to various extents.

Importantly, as a further extension of the literature on servitization, our taxonomy opens the black box of subscription offers and illustrates their heterogeneous nature; these offers differ in terms of their value orientation and resource integration. Taxonomies and other classification frameworks have helped to advance servitization research (e.g., Kowalkowski et al., 2015; Matthyssens & Vandenbempt, 2008; Oliva & Kallenberg, 2003; Ulaga & Reinartz, 2011), as well as marketing and service research in general (e.g., Huber & Kleinaltenkamp, 2020; Jaworski, Kohli, & Sarin, 2020; Lovelock, 1983). Such frameworks provide granular insights into complex phenomena, guide managerial actions, and contribute to theory building (Doty & Glick, 1994). Until now, however, there has been no classification framework for subscription offers, which Vandermerwe and Erixon (2023, p. 485) hail as"the new servitization model." By presenting the taxonomy and unpacking each quadrant, we have advanced knowledge of specific combinations of organizational challenges and actions for service businesses. Without the taxonomy, understanding B2B subscriptions and the growth opportunities firms have at hand would be too simplistic and overly general.

Our detailed analyses also offer important implications for the literature on customer-centricity and relationship marketing by providing a more nuanced understanding of how companies engage with customers and manage ongoing relationships. Extant literature on CX, customer engagement, and more recently CSM (e.g., Hilton et al., 2020; Hochstein et al., 2020) and prior studies on servitization demonstrate how more advanced offers foster (and call for) closer customer relationships. Whereas extant research distinguishes between transaction-based versus relationship-based services (e.g., Neely, 2008; Oliva & Kallenberg, 2003; Penttinen & Palmer, 2007), our research shows that subscriptions are a means to strengthen the customer relationship regardless of whether the resource integration is mutual or one-sided and whether the focus is on access or outcome. Importantly, our findings reveal that subscriptions permit relationships to grow broader and deeper, enabling a tailored CX that would otherwise not have been possible to offer—even in cases where subscriptions do not require mutual resource integration nor have a clear outcome orientation. As product and service data feed companies' digital ecosystems, ongoing engagement 24/7 becomes possible. Specifically for more extensive types of subscriptions, CSM becomes an integral part of the marketing strategy. This, in turn, has consequences for both marketing and sales organizations as well as the organizational selling center.

In conclusion, our fine-grained definition reflects the heterogeneous nature of B2B subscription offers, thereby complementing more limited definitions and views rooted in consumer settings. Servitization researchers can draw on our conceptualization and classification for further empirical inquiry into how subscriptions entail ongoing value creation. Conceptual literature states that value emerges from resource integration (Grönroos & Voima, 2013; Vargo & Lusch, 2008). As one of few empirical studies on research integration, we shed light on how subscriptions vary regarding the extent to which supplier-customer interactions generate customer benefits. As such, we also contribute to the stream of service (dominant logic) research that explores the resource-integration role of firms and other economic entities. Similarly, we identify two distinct value-creation logics for subscriptions, which emphasize value in use: access and outcome. Researchers can investigate and compare these value-creation logics with those associated with customer solutions and other innovative offerings. Lastly, although customer orientation is a central aspect of the marketing concept, many B2B firms still struggle to become more customer-centric (Ulaga, 2018). Hence, for researchers in the domains of customer engagement and

CSM, our categorization of subscriptions into four distinct categories offers a framework to delve into customer relationship-specific practices, tactics, and strategies.

5.2. Managerial implications

Beyond generating new insights for scholars, our research findings also provide interesting managerial implications. Our results demonstrate that managers interested in accelerating subscription-based recurring revenue growth often find themselves confronted with the need to entirely rethink their go-to-market approaches at three different levels, i.e., subscription offer innovation, customer engagement, and ecosystem partners. In this section, we briefly discuss key implications flowing from our research in all three areas.

5.2.1. Subscription offer innovation

Our research identifies three interesting managerial avenues in this area. First, many B2B firms are still in the early stages of experimenting with subscription offering design. Against this backdrop, the four distinct types identified in our study provide guidance for how to systematically structure future subscription portfolios. Our matrix helps managers think through questions, such as, 'how to prioritize our subscription offer development?' or 'how to develop an offer portfolio roadmap over time?' among others. Second, our findings point to the need for managers to revisit offer design structures and processes. Executives must decide where to embed subscription offer innovation and design in the organization. As respondents in our study emphasized the need to provide an 'organizational sandbox;' i.e., a space in the organization where one can ideate, craft, test, and launch subscription offers outside established structures, managers must think through ways for implementing this imperative in their own organizations. The same holds true for innovation processes. With a heightened interest in subscription-based growth, many B2B companies also realize that they must increasingly rely on agile methods and tools, which typically did not resonate with our sample companies' organizational culture. Third, our results underscore a strong need for developing new competencies and bringing new people to the organization, such as data scientists, software engineers, or cloud-based business experts. A supplier's ability to integrate and coordinate these resources and skills becomes paramount. This is especially important, as subscription offer innovation relies on a heavy dose of cross-functional collaboration. In short, our findings highlight many substantive changes required in B2B firms' offer innovation and design structures and processes.

5.2.2. Customer engagement

Here, too, our research identifies three important managerial implications. First, managers must understand and make the best use of subscription offers' potential for directly reaching out to customers and gaining deeper insights into their operations. From a strategic perspective, subscriptions represent entirely new avenues for suppliers to engage customers and build lasting relationships, especially in industries where intermediaries traditionally keep manufacturers at bay to protect their privileged customer relationships. Second, our findings reveal that the imperative for ongoing value creation, triggered by the very nature of subscription offers, often represents both 'a blessing and a curse.' On the one hand, such offers allow suppliers to multiply customer touchpoints, deepen engagement, and optimize end-to-end customer experiences that ultimately create more value throughout the relationship. On the other hand, customers also become more demanding and exert heightened pressure on suppliers to demonstrate the value created. As a consequence, managers must explore new ways of continuously managing and shaping customer expectations. Third, in this area, too, our findings point to a heavy dose of new competencies and culture change needed. With respect to new skills, managers in our study's manufacturing companies explained that they created new boundary-spanning positions in their organizations, such as Customer Success Managers, much like In software companies. From a culture perspective, this shift also implies that managers accompany their teams to increasingly adopt new customer metrics and dashboards, translating customer lifetime and customer equity.

5.2.3. Ecosystem partners

Finally, our research also underlined the need for managing fundamental changes in how manufacturers work with channel intermediaries and ecosystem partners. First, the possibility to directly reach out to customers, i.e., Direct-to-Customer (D2C), bears an inherent potential for triggering conflict in traditional channel relationships. Consequently, executives must design a proactive strategy vis-à-vis their channel partners for mitigating conflict and supporting existing distributors in their role of contributing to subscription-based business growth. Second, our findings emphasize the need for assessing the resources, competencies, and skills of a manufacturer's extant portfolio of channel intermediaries and seeking to evolve channel relationships accordingly over time. Finally, a third implication in this area relates to the imperative for manufacturers to assess how their ambition to grow a portfolio of subscription offers affects their current position in the broader ecosystem surrounding them. For example, managers must decide how to best develop the above-mentioned new resources and skills. For example, is the company better off hiring and training new data scientists on its own for ideating and launching new subscription offers? Alternatively, should managers favor partnering with a start-up to access such unique skills? Finally, should the company acquire selected players altogether to secure access and speed in the process?

Collectively, the managerial implications discussed in the three areas above demonstrate that executives in B2B companies must not only chart a path for subscription-based business growth; they also must be cognizant of the challenges of driving change throughout their organizations. To succeed in the subscription economy, managers should acknowledge that such initiative goes far beyond portfolio management; it may have extensive consequences for the firm's capabilities, processes, and structure. Not only does the move to subscriptions require new methods and approaches to innovation, but it also impacts the firm's revenue models and order-to-cash cycle management.

6. Limitations and future directions

Our purposive sample represents a wide range of industries and companies displaying different degrees of subscription maturity, yet we investigated only supplier firms. Therefore, we missed out on the perspective of customers, who are an integral part of the value co-creation processes that characterize subscription offers. Going forward, a natural next step would be to consider both customers' and dyadic perspectives to deepen our understanding of this increasingly important research domain. As the companies in our sample were all industry leaders, investigating and comparing with new ventures born as subscription businesses should also provide valuable complementary insights. Furthermore, large-scale quantitative research would allow for empirical validation and measuring the effectiveness of different subscriptions and the fit with firms' other (product and/or service) offers. Our findings also suggest that subscriptions might encompass multiple routes to success. Therefore, methods like fuzzy set qualitative comparative analysis might be employed on larger qualitative or quantitative datasets to show how different combinations of organizational conditions (e.g., capabilities, customer touchpoints, pricing model, engagement approach, digitization, scalability) explain favorable outcomes. Finally, as subscriptions—unlike many other offers—allow firms to conduct experimentation through rapid prototyping, the data-rich environment of subscriptions and the potential they offer for conducting simple natural experiments with relative ease provide a favorable test environment for researchers to explore bundling and pricing options. Overall, we are convinced that B2B subscriptions represent a fertile area with many promising research opportunities.

CRediT authorship contribution statement

Christian Kowalkowski: Conceptualization, Data curation, Formal analysis, Methodology, Validation, Writing – original draft, Writing – review & editing. **Wolfgang Ulaga:** Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing.

Data availability

The data that has been used is confidential.

Appendix A. Interview protocol

Interviewee's background information

What is your role and responsibility in the organization?
How long have you been in the current position and the organization?
How many years have you been in the industry / overall years of experience?
During what timespan have you been working with subscription offers or similar?
What roles and responsibilities have you held in the past?
What roles and responsibilities do you have now with respect to subscription offers?

Subscription offer

Please describe what a subscription offer is to you.

- How does it differ from other recurring revenue models, such as service contracts?
- Is it better? If so, why?

What does your subscription business look like?

- What types of subscription offers do you have?
- What type of offers have you already developed? Why did you start with these? How does your development roadmap look like? Next offers?
- What is unique as compared to your other services/solutions?
  - o What's different?
  - o Does it allow something new? What / How?

How do customer relationships and engagement change—from both your and the customer's side?

- How about the individual versus organizational (structure) level?

Are there some types of subscription offers that you do not offer? Why?

Subscription strategy

How do subscription offers connect to your overall market strategy?

- Servitization?
- Digital transformation?

What is your company's current position: When did you start, and where are you today?

- How did you get here? Implementation and scaling up?
- Has something surprised you, or has everything gone as planned?
- What are the lessons learned?

What is your company's target position: Where do you want to be? Why?
Who are the competitors?

- Are they any different from "traditional" product and service competition?

What are the implications for network relationships (dealers, service partners, etc.)?

If-Then propositions

What are the key drivers of subscription offers?

- What motivates your company?
- What motivates you?

What are the key barriers to subscription offers?

- How do the hurdles interact?

Pros and cons:

- What are the benefits of (moving into) subscription offers?
o Short vs. long term?
o Benefits to customers?
- What are the potential downsides of subscription offers?

Prerequisites – Under what conditions do subscription offers work best? Why?

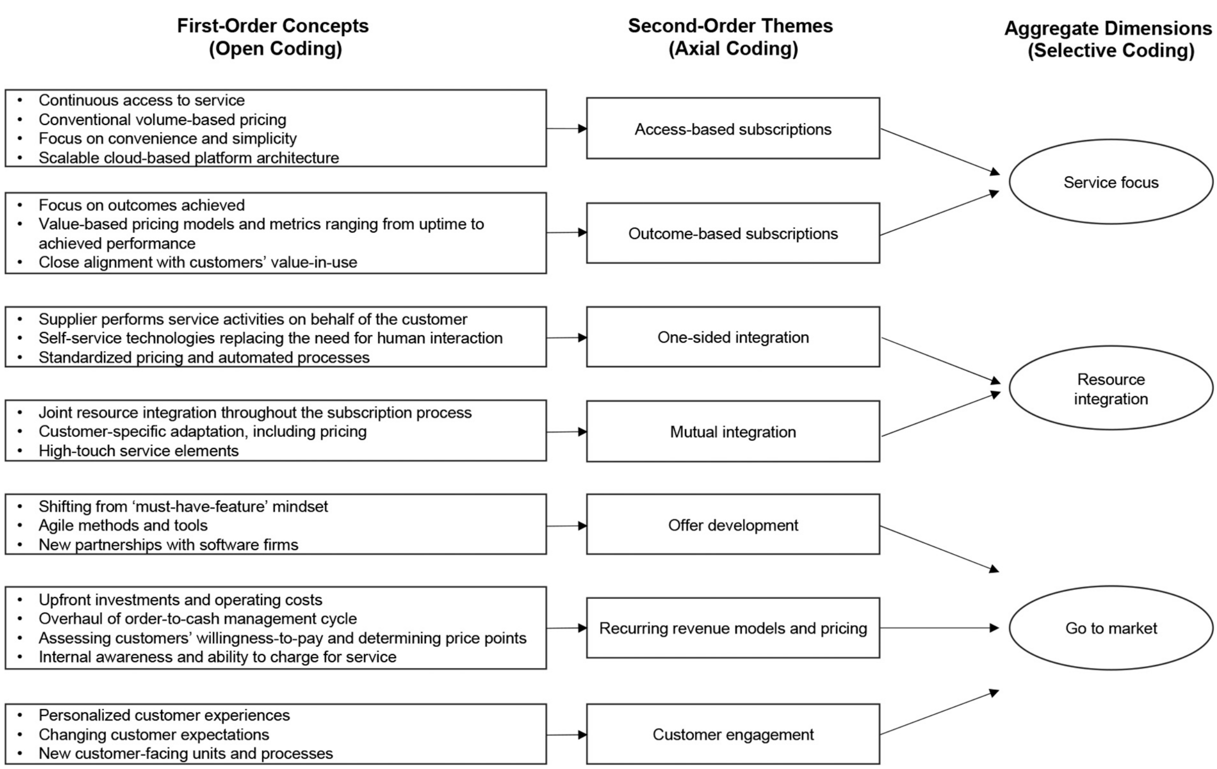
- Resources and capabilities: internal and external?
- Ecosystem: Market channel and external relationships?
- Internal coordination and organization?
- Data privacy and ownership?

Are there different pros and cons with different subscription offers?
Do industry or market characteristics influence the interest in or success of subscription offers?

Additional information

Is there anything else you would like to add or clarify?
Do you have any supplementary information that could provide additional insights?

Appendix B. Coding structure



Appendix C. Subscriptions investigated in this study

Firms (pseudonyms)	Stepping Stones	Interactive Scripts	Intelligent Automation	Intertwined Journeys
Climate control firm		Augmented-reality remote support		
Commercial kitchen and laundry	Automatic refill of consumables			
Commercial vehicles firm	Digital tachograph service, Telematics dashboard	Advisory service		
Construction equipment firm	Telematics services (operations and performance data, vehicle tracking, etc.)			
Heat transfer firm			Rotating equipment uptime	
Maritime firm		Advisory service, Remote support	Condition monitoring	Cyber security
Mining firm	Simulation and calculation software		Condition monitoring	Condition-based maintenance
Materials handling firm	Fleet management system			
Medical imaging firm	Cloud storage, Speech recognition			Enterprise imaging
Network communications firm	Hosted services		Surveillance-as-a-service, Device lifecycle management	
Packaging solutions firm	Online learning	On-the-job learning and training		
Power equipment firm	Fleet service, Data subscription, Refill of replenishment items			
Pulp and energy solutions firm	Inventory agreement	Remote support and analytics, Quality prediction		
Queue management systems firm	Customer flow management			
Robotics firm	Backup management, Remote access		Condition monitoring, Equipment benchmarking	Asset optimization, Robots-as-a-service

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