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Strategies for Success in Servitization Initiatives

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Ralph F. Stauffer

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Walden University
2022

Abstract

Strategies for Success in Servitization Initiatives

by

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MS, California State University Dominguez Hills, 1999

BS, Regents College of the State of New York, 1997

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

August 2022

Abstract

Some software business leaders lack strategies for implementing servitization (Software-as-a-Service, or SaaS) initiatives, which has the potential for adverse business outcomes. Software business leaders are concerned with implementing service initiatives to remain competitive and foster sustainability. Grounded in the resource-based view theory, the purpose of this qualitative multiple case study was to explore strategies business leaders in the software industry use for implementing servitization SaaS initiatives. The data were collected using interviews with eight leaders from four software firms who successfully implemented servitization initiatives within at least the past 20 years. Interview data were confirmed with secondary data sources, including publicly available annual and other reports about the firms from the business literature. Using thematic analysis, four primary themes emerged: leadership engagement; overcoming barriers to servitization; modernizing operations, development, and architecture; and selling and marketing servitization. Key recommendations include expanding the breadth of service offerings and enhancing customer satisfaction. The implications for positive social change have the potential for higher sustained employment, thus, fostering security, dignity, and self-worth for those affected.

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Dedication

I dedicate this work to my best friend and true love, my wife, Amy. None of this work would have been possible without her patience with the many lost nights and weekends. To my sons, Jesse and David, and my daughter Amanda: It's never too late to pursue a dream.

Acknowledgments

Again, I acknowledge my wife, Amy, for her patience and support during this journey. I could not have done this without your help. I am also grateful to a long-time family friend, Peggy Jo Snyder, whose experience in the software industry enabled me to find several of the leaders interviewed for this research. Of course, the help provided by my mentor and committee chair, Dr. Richard Boyd Johnson was invaluable, as was the guidance and patience of Dr. Warren Lesser and the URR for this project, Dr. Gwendolyn Dooley.

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Section 1: Foundation of the Study

In Section 1, I provide the background of the business problem under study and discuss the purpose of the study. I include discussions of the nature of the study, the overarching research question upon which the study is focused, and the interview questions related to the research questions. In addition, I provide several key operational definitions focused on the research and articulate my assumptions, the limitations, and delimitations relevant to the study. I also discuss the conceptual framework for the study and outline my rationale for its use. Finally, I provide a comprehensive review of the academic literature related to my topic and conceptual framework.

Background of the Problem

The servitization paradox or service paradox is the focus of the study. Servitization has been a trend in manufacturing for the past 30 years (Kowakowski et al., 2017; Posselt & Roth, 2017). Levels of servitization lie on a continuum ranging from basic maintenance services for their products servitized, to product-service-systems (PSS). One example of PSS includes the Rolls-Royce Aircraft Engine's leaders' "Power by the Hour" program, where customers lease the power of an aircraft engine, rather than purchase the engine. Rolls-Royce mechanics then take care of installation, periodic maintenance, upgrades, and replacements (Yang & Evans, 2019). Another example is Microsoft Office 365, which has evolved from a box containing software and manuals to Software-as-a Service (SaaS), a subscription which allows a user to work with the software entirely online in a "cloud" environment (Sasongko & Nugroho, 2019). A third example that bridges the gap between manufacturing servitization and SaaS is Tesla,

which offers electrical vehicles (EVs), whose primary functions are controlled by software. Each vehicle contains an always-on 3G broadband connection which allows for maintenance updates and performance upgrades over the air, and owners are able to purchase premium services and performance enhancements via subscription (Teece, 2018) Leaders of product-oriented firms shift to a service-oriented business model to gain benefits from selling lower-cost services related to the products sold.

The purpose of servitization is to gain benefits because services inherently cost less to produce than products, thus enhancing profitability. Theoretically, servitization will also enhance customer perceptions and relationships. However, many organizations do not reap these expected benefits; this failure is termed the service paradox or servitization paradox (Benedettini et al., 2015). This paradox is a problem that has yet to be solved in any general way, so research that might provide new insights into the problem is still necessary. In this study, I explore strategies used by leaders to overcome the paradox and successfully transition to a service-based business model.

Problem and Purpose

The specific business problem is that some business leaders lack strategies for implementing servitization initiatives. The purpose of this qualitative multiple case study is to explore the successful strategies business leaders in the software industry use for implementing servitization (SaaS) initiatives.

Population and Sampling

The specific population comprises leaders from four software firms—one located in Redmond, Washington; two others in San Jose, California; and one in central

Pennsylvania—that successfully implemented servitization initiatives within at least the past 20 years. Each organization had made the transition from selling a box containing software and manuals to an offering somewhere on the SaaS spectrum. The implications for positive social change are that more long-term profitable, customer-focused companies provide benefits to society in the form of higher-quality products, higher and more sustained employment, therefore enhanced security, dignity, and self-worth for local citizens.

Nature of the Study

I selected the qualitative methodology because it is appropriate for answering my research question. The exploration of strategies firms employed requires gaining knowledge from the managers and executives involved; in-depth interviews in a qualitative case study would provide the necessary information. Quantitative researchers analyze relationships and differences among variables using statistics and numbers (Bloomfield & Fischer, 2019), which is not my purpose. Mixed methods researchers also use quantitative methods and therefore are also not aligned with my purpose.

I considered several qualitative designs for my study. Narrative inquiry is the in-depth study of individuals' experiences, over time and in some specific context (Clandinin et al., 2017; Haydon et al., 2018; Kegler et al., 2019); in many cases, the narrative that emerges from a narrative inquiry study is best understood as a complete, holistic story (Rosiek & Snyder, 2020; Saunders et al., 2019), which is not my intent. Ethnographic researchers explore social or cultural settings, primarily using participants' observations (Seligmann & Estes, 2020), but I am not studying cultures or cultural

settings. Phenomenological researchers' studies aim at probing the perceptions and perspectives of participants' lived experiences with phenomena to gain an understanding of a given situation (Frechette et al., 2020), but my primary focus is not exploring the meanings of servitization implementations experiences among my study subjects. Case studies consist of inquiries about individuals, groups, or units to examine data related to variables of interest (Heale & Twycross, 2018) and facilitate the researcher's ability to analyze complex components of a business problem. In a multiple case study, experience from the cases is analyzed for segments of data that can be studied across organizations (Alpi & Evans, 2019). For the reasons cited above, I chose a multiple case study design to facilitate my understanding of the strategies some business leaders successfully used to implement servitization implementation strategies.

Research Question

What successful strategies do business leaders use for implementing servitization initiatives?

Interview Questions

1. What are your strategies for servitization?
2. How did you assess the effectiveness of your strategies for servitization?
3. What are the critical differences between the servitization strategy and previous strategies?
4. What services that you now provide are difficult for others to emulate or imitate?
5. What were the key barriers to implementing your servitization strategies?

6. How did you address the key barriers to implementing your servitization strategies?
7. What else would you like to add—about your organization’s successful servitization strategies—which was not covered in this interview?

Conceptual Framework

The conceptual framework for the study was the resource-based view (RBV), “a cornerstone of the strategic management field (Barney et al., 2021, p. 1677). The theory was initially introduced by Edith Penrose in her book, *The Theory of the Growth of the Firm* (1959-2009). In the resource-based view, leaders gain competitive advantage through the inherent value and rarity of their organizations’ heterogeneous and immobile resources (both tangible and intangible), the availability in the larger market of substitutions for those resources, and whether the resources might be easily imitated by competitors (Chen et al., 2021). In this study, I developed an understanding regarding the ways in which their strategies for servitization led to greater competitive advantage for the companies involved. RBV, with its emphasis on strategy, is a pragmatic framework for understanding the strategies firms’ leaders develop and deploy for implementing successful initiatives (Gupta et al., 2018; Miller, 2019).

Operational Definitions

Deservitization: The transformational process whereby a company shifts from a service-centric to a product-centric business model and logic (Kowalkowski et al., 2017).

Reliability: Reliability is the ability of any test or measuring procedure to reproduce a result consistently across time and space or from different observers (Souza

et al., 2017). To understand reliability, consider a case where accounts or descriptions of the circumstances surrounding a phenomenon all vary widely, but each account or description does contain information concerning one singular fact. It would be possible to accurately differentiate that single fact by studying all the accounts in-depth, but the majority of the data in the various accounts would not be useful as supporting evidence. In that case, one could say that the data were valid concerning that single fact. However, each observation on its own (or random subsets of the observations) would not allow the researcher to filter that fact from the irrelevant information, and so the data could not be considered reliable.

Servitization: The transformational processes whereby a company shifts from a product-centric to a service-centric business model and logic (Kowalkowski et al., 2017).

Validity: Validity refers to the extent to which that test or measuring procedure accurately reflects the content and construct of the concept it is intended to measure, according to the criteria that define the measurement. In metrological terms, reliability is analogous to precision, and validity is analogous to accuracy (Fikkers et al., 2017; Souza et al., 2017). To understand validity, consider interviewing a sample of observers, each of whom tells a very similar story about an event that did not happen. The data a researcher collects from those subjects would be very rich, describing the event in very precise detail. The data are reliable – internally consistent, stable, and equivalent, However, as the data are all contrary to fact, they are not valid – they do not measure what they are intended to measure.

Assumptions, Limitations, and Delimitations

Assumptions

An assumption is a condition that is believed to be true even though the direct evidence of its truth is either absent or very limited (Pyrzczak & Bruce, 2016). In this study, as in most studies regarding servitization, the primary assumption is that a servitization strategy is inherently beneficial to a firm. Although the literature provides examples of the soundness of the logic behind this assumption and some evidence that the logic holds (e.g., Li et al., 2017; Sousa et al., 2017), there is also considerable evidence that the servitization paradox exists (see, for example, Chen et al., 2020; Posselt & Roth, 2017; Sousa et al., 2017).

An assumption that follows from this inherent benefit assumption and the existence of the servitization paradox: The assumption that any firm that failed to reap the benefits of servitization failed due to a lack of strategy. If the inherent benefit assumption does not hold, then it could be that benefits from servitization are not inherent. This would imply that those leadership teams that were more successful following servitization reaped those benefits as a result of some other confounding factor.

Limitations

A limitation is a potential weakness or handicap, usually beyond the control of the researcher, and might limit the validity of the results (Theofanidis & Fountouki, 2018). The purposive sample used for the study is one potential limitation. Although these firms are recognized as industry leaders, their leaders' strategies and experiences may not be generalizable across leaders in all companies within the industry. Further studies

examining leaders' strategies at other firms would provide evidence toward the transferability of results.

Delimitations

A delimitation is a boundary or limit to which a researcher deliberately confines the work to set a reasonable scope for their study (Theofanidis & Fountouki, 2018). I will confine this study to leaders in firms that have been successful in shifting to a service-centric business model. Comparing leaders' strategies in similar firms who had failed in their servitization efforts might have provided stronger evidence that the strategies that the executives in successful companies had deployed were a factor in their success. Leaders' strategies at companies that had failed, however, were deliberately left out of scope.

Significance of the Study

In this study, I have explored, and defined strategies business leaders used to enhance their chances of success. My premise, based on the literature (e.g., Kowalkowski et al., 2017; Patel et al., 2019; Posselt & Roth, 2017), was that servitizing enhances long-term profitability and customer focus. It is reasonable to conclude that if leaders in businesses attempting servitization could be as successful as the leaders in the companies I studied, those leaders could gain significant competitive advantages.

Because this study focuses on successful strategies, it follows that leaders able to use the strategies identified in this study might be more successful at servitization. Those leaders would be able to build on that success to gain more strategic advantages. Successful leaders could provide greater resources for growth, investment in innovation

and technology, and more chances to be first to market with newer products and services (Dyer et al., 2016; Gupta et al., 2018, Miller 2019).

Successful leaders at businesses contribute to positive social change through the enhancements that business success brings to communities. A leadership team that can improve a firm's enhanced performance has the potential for social benefit in that higher profitability and quality could mean an enhanced quality of life via greater employment opportunities for a broad range of diversely skilled workers. Also, higher quality products and services at lower prices are beneficial for all consumers of those products and services.

A Review of the Professional and Academic Literature

This section of the study outlines the process I used to explore the extant research literature relevant to servitization and my conceptual framework, RBV. The purpose of this qualitative multiple case study will be to explore the successful strategies business leaders use for implementing servitization initiatives. Globally, as of 2011, an estimated four out of five business leaders implementing a servitization strategy had failed to reap the expected benefits of increased profitability and customer loyalty (Baveja et al., 2004; Posselt & Roth, 2017, Sousa et al., 2017), although servitization had been an important and growing trend (Kowalkowski et al., 2017).

The purpose of this review of the professional and academic literature was to analyze literature relating to the topic and its conceptual framework and then to synthesize the key concepts from the literature relevant to the topic and conceptual framework. Throughout the search for literature, I primarily used resources from the

Walden University library's databases, including EBSCOhost, Elsevier, Business Source Complete, and Emerald Insight. For searches in these databases, I primarily used the keywords servitization, servitization paradox, service paradox, resource-based view, RBV, resource-based theory, and RBT.

I also searched Google Scholar and from Research Gate, as well as textbooks from my business library. The literature review comprises 104 different sources, 88% of which have been published within the last five years (see Table 1). The entire study was drawn from 184 sources; of those, 167 were less than five years old, for a total percentage of 91% within the past five years (see Table 2).

Table 1

Breakdown of Literature Review Sources

Sources of Content	Total Sources	Sources older than five years
Peer-reviewed articles	91	11
Seminal Books	1	1
Textbooks	1	1
Conference Proceedings	4	0
Total	97	14

Table 2*Breakdown of Sources for the Entire Document*

Sources of Content	Total Sources	Sources older than five years
Peer-reviewed articles	165	12
Seminal Books	1	1
Textbooks	1	4
Reports	0	1
Conference Proceedings	6	0
Total	173	18

I examined four relevant categories represented in the literature: RBV, servitization as a field of research, servitization as a strategy, and the servitization paradox. I also focused on a fifth category related to the companies I was targeting: software-as-a-service (SaaS). Research about the conceptual framework—the resource-based view or resource-based theory—began in earnest with Wernerfelt (1984), although Wernerfelt credited Penrose’s work in the 1950s as seminal. Servitization was first identified as a phenomenon to study by Vandermerwe and Rada (1988). Numerous papers have been written about the topic since that time; one 2018 systematic literature review by Rabetino et al. (2018), for example, included over 1000 servitization-related papers. The authors of many of those papers viewed and examined servitization as a strategy. Next in the review, I include papers about the failure of servitization to produce its expected benefits – the servitization paradox. In the final section of the review, I explore literature related to SaaS.

The Resource-Based View (RBV)

The conceptual framework for this study is the resource-based view (RBV). There are numerous papers in the literature regarding this particular theory. Most authors gave credit to Edith Penrose (2009) for writing the seminal work on the resource-based view. The most-cited early papers in the literature around RBV include Wernerfelt (1984), Barney (1986), Dierickx and Cool (1989), Mahoney and Rajendran (1992), Peteraf (1993), and Hart (1995).

In his early and often-cited paper on RBV, Wernerfelt set out to build some simple economic methods for analyzing the resource profile of a firm and used that analysis to suggest strategies. Like other authors, Wernerfelt (1984) gave credit to Edith Penrose (2009; original work published in 1959) for writing the seminal work on the resource-based view but pointed out that to that date, almost no researchers had followed up her work, other than Rubin (1973). The reason for this, the author proposed, was the relatively poor utility for modeling of resources such as skills or reputation. Wernerfelt believed, however, that the resource-based view offered answers to a strategic question that traditional economic theories could not answer, so he proposed the following: (a) The resource-based perspective offers different insights than the product-based perspective; (b) it is possible to surface highly profitable resources – what he terms “resource position barriers” (Wernerfelt, 1984, p. 172); (c) the resource-based view necessitates a balance between optimizing existing resources and acquiring new ones; and (d) in this view, acquisitions are viewed as resource bundles—by acquiring rare resources inexpensively, a firm can create an imperfect market and profit greatly. From

this view, viewing a value chain that includes services would be a natural result of the resource-based perspective that might not be possible from a purely product-based perspective.

Barney (1986) was among the early RBV researchers to begin to flesh out the theory, proposing that resources (even resources such as reputation or culture of innovation) are (or could be) traded in a market that he called a “strategic factors market” (Barney, 1986, p. 1231). Barney also tied the value of resources to a firm’s ability to correctly anticipate the need for them and the uncertainty in those valuations as a primary driver in the creation of competitive advantage within the strategic factors markets. Barney concluded that companies’ leaders should spend more time evaluating and building their stock of strategic resources and less time in environmental analysis because the leaders have more control over strategic resources than over the environment. Firm leaders pursuing servitization, then, would develop the resources needed to provide services or products-as-services and build their reputation as service-oriented.

The discussion of RBV built upon Barney’s work; another early study looked at RBV from a purely economic perspective. Peteraf (1993) built on the concepts in the work of Wernerfelt and Barney (as well as that of others), synthesizing four keys to sustaining a competitive advantage. The first condition was that a firm’s resources must be truly superior when compared to other companies in the same industry. Second, once a firm’s leaders have implemented their strategy, there must be some limits to competition within the industry. Third, there must be limitations to the mobility of those resources; i.e., the resources are embedded in the originating organization, and substitutes would be

costly to find or build. Finally, there must be low competition for those resources before the strategy is implemented. From this perspective, a company's leadership team coming up with a strategy that includes a subscription model rather than a discrete purchase model should ensure that in-depth testing has shown the model to work, that there are no other entities that could provide the associated services, and that no other firm's leaders have built a subscription model yet. Then, announcing the new model would take the market by surprise, leaving competitors to play catch-up.

Other researchers explored RBV for its fit with other theories. Mahoney and Pandian (1992) reviewed earlier works on the resource-based view to synthesize and standardize some of the concepts proposed in the literature by Penrose, Wernerfelt, Barney, and others. The authors saw value in the resource-based view because it fit well with traditional competitive strategy theory, was coherent with organizational economics theory, and complemented much of the existing research on industrial organizations. Mahoney and Pandian concluded that although the resource-based view might not be comprehensive, it was a useful generalizable theory of firm growth, with potential for integration with organizational economics and dynamic capabilities approaches to create a theory that justifies the assumption of heterogeneity (which is important to understanding strategy). Finally, Mahoney and Pandian saw an opportunity to merge RBV with strategy group theory since the rarity or inimitability of some resources acts as a source of competitive advantage.

Some of the recent RBV literature examined the theory as a research driver. Davis and Dewitt (2021), for example, examined the divide between RBV research and

organizational theory research. The researchers noted the similarities and differences, concluding that strategy theory (in this case, embodied by RBV) explains the impact of what organizational leaders do, while organizational theory explains why they do what they do. Yet Davis and DeWitt, in searching the literature from both fields, found that the strategy field researchers rarely cite organizational management field literature, and organizational management field researchers do not draw on RBV or strategy literature at all. The authors also explored the problems for both fields engendered by the evaporation of many firms due to virtualization. The researchers found that organization theory is transforming into organizing theory and that RBV does not require firms.

One thread that has been persistent in the RBV literature is the inclusion of natural resources in the mix of firms' strategic resources. Hart (1995) was one early researcher who extended RBV to include natural resources. Hart saw the need to close a perceived gap in management theory – the constraints brought about by interaction with the natural environment. The author began with a discussion of the resource-based view but pointed out that changes in the environment such as human population growth and increased fossil fuel burning mandated that leaders address environmental interaction to remain competitive. The natural-resource-based view proposed suggested that a firm's competitive advantage is based on its relation to nature and the environment. Hart concluded that three interacting strategies were needed: (a) prevention of pollution, (b) product stewardship, and (c) sustainable development. Hart's seminal work resulted in a new theoretical construct and supporting literature stream, the Natural Resource-Based View (NRBV) (Hamdoun, 2020, McDougall, 2019).

Brulhart et al. (2017) investigated the impact of proactive environmental strategies (PES) on economic performance through the lens of RBV. The authors analyzed data from 188 French companies in the food-processing and household to examine relevant relationships. Bruhlhart et al. found a positive effect on economic performance from PES, deriving from organizational and process competencies. The authors stressed the value of developing organic competencies to render PES even more profitable. The sustainability model suggested by these researchers fits naturally with the idea of a shift from products to services. For example, a model for software distribution offering online subscriptions is inherently more environmentally sustainable than one requiring shipment of shrink-wrapped boxes containing plastic media.

Other recent papers have tended to concentrate on business problems that illustrate the RBV in different industries. Yang and Lirn (2017) examined the effects of intrafirm resources (e.g., tangible and intangible assets), interfirm relationships (e.g., communications), and logistics service capabilities (e.g., service efficiency, reliability, flexibility, and value-add) on container logistics performance (LP). In this case (a service-based industry), the authors found that interfirm relationships and logistics service capabilities are mediator variables between intrafirm resources and LP, claiming that their work supported the use of the RBV as a lens for assessing logistics performance via logistics service capabilities. Salunke et al. (2019) examined knowledge—more specifically, knowledge integration—as a resource in service innovation success, measured by sustained competitive advantage. The researchers found that the acquisition of new knowledge is not sufficient to enhance performance unless it is integrated with

existing knowledge to drive innovative service solution delivery that focuses on clients' needs. This quantitative study tested non-linear effects of new knowledge configurations on service innovation, and the authors called for the development of comprehensive frameworks of service innovation-led competitive advantage.

Other researchers have demonstrated the links between learning theory and RBV (Greve, 2021), stakeholder value theory and RBV (Freeman et al., 2021; McGahan, 2021), and RBV and performance (Barney et al., 2021; Campbell & Park, 2017; Davis & DeWitt, 2021). Davis and Simpson (2017) looked at how RBV was applied in practice, collecting data from HR managers at firms in 17 Sub-Saharan African countries. Davis and Simpson found that although most of these managers were not cognizant of RBV, and were not consciously applying RBV, most of the managers saw the potential for adopting a model based on RBV as beneficial to their employees and the organizations. The authors did, however, surface numerous obstacles to implementing a resource-based model.

Some researchers have used RBV as a framework for studying organizational change. Wang and Wang (2017) looked at how firms choose between dynamic capability-based and ad hoc problem-solving paths to strategic change, finding that ad hoc approaches were more often adopted in high- and low-dynamic environments, but that dynamic capability-based strategies are more appropriate when the dynamic environment is moderate. Aka-Wolugbom and Eketu (2021) viewed change management as an invaluable resource for effective supply chain management in the oil and gas industries.

Critiques of RBV

In recent years, RBV has come under fire as a theory on several fronts. For example, Shaw (2021), while assessing the value of RBV in Strategic Human Resources Management (SHRM) research as overall positive, found that some of RBV's assumptions were unrealistic (e.g., the assumption that firms in a given industry will have homogeneous resources). Gupta et al. (2018) explored RBV as a foundation for research into Information Systems (IS) strategy, noting that RBV's concept of "sustainable competitive advantage" is not always relevant in the fast-changing world of IS. The authors proposed a modified RBV built around the concept of "transient competitive advantage" and suggested that IS researchers consider studying the impact of technological disruption and the emergence and attenuation of transient competitive advantage resulting from disruptive technology. Burville et al. (2018) explored a number of RBV weaknesses identified in the literature and concluded that RBV should be reconceptualized around a set of standard resource types and that competitive advantage does not result from the mere possession of those resources but in how they are used and how mature they are.

While many of the papers that claim RBV as a foundational theory or conceptual framework see little difference between Penrose and Barney, some researchers have been more nuanced, recognizing that there are some differences. Burville et al. (2018) mentioned these differences, seeing Barney's RBV as dependent on Penroses' theory of growth but not identical. Another research team, Nason and Wiklund (2018), pointed out that there have been two approaches to the resource-based view: Penrosean resource

versatility logic and Barnean VRIN (valuable, rare, inimitable, and non-substitutable) resource logic. Nason and Wiklund note that authors of most of the extant literature stress the common lineage between these two concepts. However, Nason and Wiklund saw an explicit divergence between the two ideas and conducted a meta-analysis to test that divergence. The authors further found through meta-analysis that versatility is more highly associated with higher levels of growth than VRIN resources. Nason and Wiklund noted that bibliometric analysis of over 400 growth papers identified Penrose (1959) as the most cited reference in the growth literature, followed closely by Barney (1991). In the authors' view, though, researchers studying growth literature had not paid sufficient attention to fundamental differences between the Barnean and Penrosean approaches and had tended to conflate them, seeing Barney's VRIN approach as an antecedent to that of Penrose. In Nason and Wiklund's view, future research on firm growth should use a more Penrosean approach, but also concluded that whether these differences hold when studying performance indicators other than growth remained to be seen from subsequent research.

RBV and Servitization

There have been several recent studies that specifically related RBV to servitization. Kohtamäki et al. (2019) examined digital servitization in the context of corporate ecosystems through four different theoretical lenses from strategy theory: organizational identity, the transaction cost approach, industrial organization, and the resource-based view. The authors found that RBV dominated the servitization literature compared to the other conceptual frameworks, recommended that future research around

servitization should be more balanced across the theoretical frameworks, and called on researchers to adopt an ecosystem or value system outlook.

Zhang et al. (2019) explored the relationship between servitization and firm performance, using RBV and transaction cost economics (TCE) as their theoretical bases. They found that costs were lowest at moderate levels of servitization but outweighed benefits at low and high servitization. The researchers further concluded that this phenomenon might help explain the servitization paradox.

Kanninen et al. (2017) explored the resource-based strategies in manufacturing, examining the types of capabilities required by firms in the process industry companies moving into servitization. Based on earlier servitization literature, the authors built a five-step model for servitization. The authors found a five-step servitization model that included 14 servitization capabilities, thus supporting the need for dynamic capabilities and their capacity for extending and changing operational capabilities as markets change.

Coreynen et al. (2017) examined servitization among Belgian manufacturing small-to-medium enterprises (SMEs) through a resource-based lens, identifying digitization as a dynamic capability. The RBV suggests that the dynamic capabilities provided by digitization would offer an advantage. The authors concluded that three paths to servitization would be enhanced by digitization: Industrial, value, and commercial servitization. The authors developed a guideline, the servitization pyramid, to help managers map their current state and surface potential obstacles to implementation. This pyramid would be useful to any manufacturing organization's leadership team beginning to develop a servitization strategy.

Not all researchers used RBV as the lens for studying servitization. Ruiz-Martín and Díaz-Garrido (2021) analyzed the servitization literature for theoretical bases. The researchers found that although RBV was largely dominant in the field (over 31% of the papers studied), researchers had viewed RBV from game theory, transaction cost theory, contingency theory, industrial organization theory, and at least eight others. The authors concluded that resource dependence theory, game theory, and contingency theory would provide useful conceptual frameworks for studying strategic configuration; they further saw the RBV as most useful for studying organizational performance under a servitization strategy. Gomes et al. (2021) examined servitization and deservitization through the lens of industry lifecycle theory, strategic pivoting theory, and strategy restoration theory, with a view to developing a new conceptual framework to explain how servitization and deservitization affect performance at different stages in the lifecycle. Li et al. (2020) studied the servitization literature—specifically focused on PSS—and found that RBV, Resource dependence theory, and contingency theory all provided useful conceptual frameworks.

In a departure from manufacturing focus, Zighan et al. (2018) applied the RVB theory as a conceptual framework in an in-depth case study to explore servitization in the real estate industry, examining organizational capabilities as drivers of superior performance, and how different organizations' managers develop and position those capabilities to increase competitive advantage. The authors focused on the Jordanian real estate development sector, identifying three strategic processes that lead to servitization: Strategic formulation, implementation, and evaluation. In the early stages, services were

positioned as add-on elements; different types of services were offered as the project life cycle progressed. Drawing customers was the main driver for offering different types of services, and customer needs were the primary driver for designing the offered service. Their data demonstrated that a balanced design focusing on service and project management orientation was well-suited to servitization projects in the real estate industry, providing enhanced performance benefits.

Story et al. (2017) adopted a multi-actor perspective using the RBV to investigate manufacturer, intermediary, and customer perspectives. In their study, the authors identified complementary and competing capabilities in manufacturers' downstream networks, grouped into six unique business activities. For manufacturers, capabilities included product and service innovation balance, building customer focus via cradle-to-grave service offerings, and developing distinct but synergistic product and service cultures around advanced service capabilities.

RBV is not the only theory used by servitization researchers. For example, Ennis et al. (2018) looked at servitization in Industry 4.0 through a conceptual framework comprising both competitive dynamics and business-to-business value ecosystems. The authors reviewed and synthesized several business model concepts about competitive dynamics, collaborative business ecosystems, and supply chains as evolving and reshaping manufacturing and services within Industry 4.0. Barnett et al. were focused more on research than practice. Palo et al. (2018) looked at a multinational pulp and paper company, studying servitization through the lens of practice theory as a competition between ingrained and emerging business models. In practice theory,

business models are conceptualized via practices through which the models are realized. The authors viewed servitization as a disruptive force but found that the resulting tension could result in creative solutions to the problems it raised. Palo et al. viewed servitization as a bottom-up, emergent, and iterative process, concluding that servitization is often more about managing parallel business models than it is about transforming the dominant model. The authors concluded that a shift to servitization is fundamentally brought about via changes in business practices by actors in the organization. While this is a useful perspective, I would make the argument that these business practices (and the capacity to change them) are resources to be considered when formulating a strategy for servitization.

RBV and Software-as-a-Service

The literature on Software-as-a-Service includes papers based on RBV. Hussin et al. (2018), for example, used RBV as their perspective when deriving a model for assessing the effects of cloud computing on small and medium enterprise performance, finding that environmental turbulence tends to have a moderating effect on benefits realized from cloud infrastructure. Gupta et al. (2018) studied the impact of a specific application of SaaS, cloud enterprise resource planning (ERP), for integrating business processes. They used contingent RBV to explain the relationship between all the factors they examined, seeing supply chain as a valuable resource and supply chain integration via ERP as providing enhanced value in terms of better delivery, lower costs, optimized inventory, and enhanced problem-solving capabilities.

Servitization in the Literature

The topic of servitization has been studied broadly in the business literature since Vandermerwe and Rada (1988) first used the term “Servitization” for the strategy of transitioning businesses to service-based models to add value. Since Vandermerwe and Rada, other authors have described servitization in various terms, depending on their theoretical lenses and contexts. Kamp and Parry (2017) found over 500 papers referring directly to servitization, but also noted some very similar researchers whose research discussed servitization concepts without the use of the term, instead defining the field with a common theme: “firms seeking to enhance their competitive position by focusing attention on service provision” (Kamp & Parry, 2017, p 11). Kowalkowski et al. (2017), in an introduction to a special edition of the journal *Industrial Marketing Management*, summarized the findings in that volume stating that servitization is a mature field of research with a growing community of followers with a body of dedicated publications, conference tracks, and conferences devoted to the subject. The authors also examined the dynamics of strategies and processes of service extension and service reduction and then defined and explained the interrelationship between four key process concepts: servitization, service infusion, deservitization, and service dilution, and recommended advancing the understanding of servitization by further research into the human management aspects of service growth that earlier researchers appeared to have neglected.

In systematic literature reviews, research teams including Paschou et al. (2020), Raddatz et al. (2019), and Khanra et al. (2021) explored the boundaries of knowledge

generated by the research into servitization that had taken place since the mid-1990s, identifying several distinct but interdependent communities of research: Services marketing, service management, operations management, product-service systems, and service science management and engineering.

Zhang and Banjeri (2017) also found distinct and unique researcher communities for services marketing and management, operations management, product-service systems, as well as service science management and engineering. These researcher communities, according to Zhang and Banjeri, contribute to producing knowledge regarding the servitization of manufacturing. Kowalkowski et al. (2017) examined the servitization research domain by first defining the boundaries of the domain and then exploring its conceptual foundations, finding servitization of product companies a very active but immature research domain with numerous different conceptualizations. Additionally, Kowalkowski et al. examined evidence regarding the effects of servitization on performance and the impact of mergers and acquisitions on service growth strategies.

Other researchers examined the field for points of view they saw as missing. Baines et al. (2017) pointed out the many studies in which researchers had addressed servitization from strategic, organizational development, and operational points of view and decided to study the phenomenon from the viewpoint of organizational change. The authors found that some topics related to servitization-related transformation were underdeveloped in the extant change management literature. Baines et al. (2020) addressed that gap with case studies that concluded that servitizing firms progress through four stages of maturity: exploration, engagement, expansion, and exploitation.

Further, the authors concluded that progress through these stages is determined by five principal forces: customer pull, technology push, value network positioning, organizational readiness, and organizational commitment. Adrodegari and Saccani (2020) also proposed a comprehensive maturity model for servitizing firms, identifying the necessary resources, capabilities, and aspects of an organization for success, and providing a framework for assessment. The framework includes five maturity dimensions (approach, process management, performance management, tools, and capabilities), assessed across nine key business model components: the value proposition, customer segments, customer relationships, channels, key resources, key activities, partnerships, the revenue model, and cost structure.

Some researchers used geography as a frame of reference. Tissot et al. (2017) found that most servitization studies had been conducted among European countries, using qualitative methods, and that very few of the extant studies had been conducted from the point of view of the end-user. Vendrell-Herrero and Wilson (2017) approached the servitization domain by examining questions regarding specific requirements at the territorial level for fostering servitization strategies requiring knowledge that seldom exists within any single firm. The authors surfaced four primary literature streams:

1. internal analyses of mainstream servitization and the organizational transformation needed for service implementation;
2. the linkage between service implementation and firm performance, based on service infusion and an enhanced focus on customer satisfaction along the whole product life cycle;

3. digital servitization, or the digitization of resources and associated business offerings (e.g., physical formats morphing to digital services such as Spotify and Apple Music, IBM and others' selling software and consultancy services); and

4. research into knowledge-intensive business services (KIBS), wherein professional services firms deliver high intellectual value-added services, mostly to manufacturing firms that lack the internal resources that might support service business models.

One group of researchers studied the basic themes of servitization research. Luoto et al. (2017) examined the common paradigms and assumptions involved in servitization research, producing an integrated model across all of the profiles that developed and identifying four generic and conceptually unique "value constellations" forming a spectrum of servitization from the simple addition of support through products-as-services: products with limited support, installed and supported products, complementary services, and product-oriented solutions. The authors also identified four paradigmatic assumptions guiding servitization research: alignment to the Western narrative of constant development, realist ontology, positivist epistemology, and managerialism.

Rabetino et al. (2018) examined three specific servitization-related communities: product-service systems, solution business, and service science. Their findings included a map for an overall conceptual structure and boundaries for a servitization field of study.

Feng et al. (2021) found that many researchers see servitization as a path out of the commodity trap and toward growth, yielding significant competitive advantages. While themes or conceptual paradigms were common areas of study in the field of research,

there were other approaches.

Other researchers examined the field for points of view they saw as missing. Baines et al. (2017) pointed out the many studies in which researchers had addressed servitization from strategic, organizational development, and operational points of view and decided to study the phenomenon from the viewpoint of organizational change. The authors found that some topics related to servitization-related transformation were underdeveloped in the extant change management literature.

A growing segment of the servitization field of research is SaaS. Nordin and Rodziahlatih, in a 2021 systematic literature review, found 746 papers. Shakir et al. (2018) found over 300 publications (53 in English) regarding security issues for SaaS and cloud computing. In another systematic literature review, Adenuga et al. (2020) retrieved 682 articles published between 2013 and 2018, using the key phrase “Software as a Service OR SaaS.”

Taken as a whole, the current body of work on servitization as a field of study reveals that it continues to be a rich topic for research, with enough as-yet unanswered questions to provide opportunities for exploration for years to come. As noted in the next subsection, many of the researchers explored servitization from the same viewpoint as this study: servitization as a strategy.

Servitization as a Strategy

Many authors in the literature have focused on strategic patterns for servitization. In an early and widely cited paper, for example, Neely (2008) found data on over 10,000 firms, finding that manufacturing firms in most developed economies were servitizing

using 12 distinct strategies, falling into five generic patterns: product-oriented product-service systems, results-oriented product-service systems, use-oriented product-service systems, integration-oriented product-service systems, and service-oriented product-service systems. These patterns were supported in later work by Kamal et al. (2020).

At that time, Neely (2008) also estimated that about 30% of manufacturers worldwide had added services to their business models; nine years later, Krozet and Milet (2017) claimed that the number had grown as high as 75%.

Leoni (2019) examined the adoption of servitization as a strategy in Italian manufacturing firms, finding that most manufacturers offered basic services such as customer helpdesks, product training, and installation. Far fewer of the manufacturers Leoni studied offered more advanced proactive services such as product disposal, equipment monitoring, and financing (although about half of them did offer the proactive service of consulting). Feng et al. (2021) explored the evolution of manufacturing servitization strategy and its relationship with performance. These authors developed an integrated theoretical framework to relate the factors they had found to performance indicators. Feng et al. studied both financial and non-financial performance indicators. The researchers also included the impact of external factors and the strategic fit between environmental and organizational factors.

Some researchers looked at the servitization problem from the viewpoint of business models rather than specific strategies. Palo et al. (2019) studied servitization with a practice theory lens, positing that servitization is a contestation of the status quo business model in a firm. The authors concluded that servitization could be conceived as

emerging iteratively from the bottom up as a business model protostation process instead of a top-down strategic process.

Some authors delved into the topic from various aspects of strategy rather than broader overarching strategies themselves. Kohtamäki et al. (2021) examined the relationship between digitalization and financial performance in servitizing companies, finding that companies that attempted digitalization without servitization could expect negative performance. Conversely, those with high levels of servitization enjoyed significant increases in financial performance. Reim et al. (2019) examined diverse service pathways network actors used to implement servitization in varying conditions, finding that there are significant capability- and market-related challenges that hold them back. For example, lack of service provision capabilities as well as the failure to articulate a service vision, especially when local market conditions are less than optimum or when customers are not ready for services, tend to create major hurdles to implementing a servitization strategy. The authors also found four specific strategies that these companies' leaders had tried and matched them to the various conditions to enhance chances for successful implementation. Taking a quantitative approach, Sousa and da Silveira (2018) focused on the relationship between the degree of servitization and product customization strategy intensity and servitization strategies, specifically the relationship between product customization strategy intensity and degree of servitization (offering of basic and/or advanced services), as well as the moderating role of product customization strategy alignment on that relationship. The researchers found a positive association, suggesting that manufacturing firms whose strategies include product

customization may be well-positioned for servitization. Sousa and da Silveira also noted that although firms producing standard products might see servitization as a strong differentiation strategy, those firms tend to be less servitized than those pursuing customization. Although these results do not show causation, the presence of a significant relationship invites further exploration into the customization strategy as a contingency factor in servitization.

Rabetino et al. (2017) examined the relationship between key practices used in supporting the critical organizational processes throughout the journey to servitization. The researchers examined this logic by studying three firms, plotting the implementation at each firm using a strategy map. The map Rabetino et al. drew has potential value for any solution provider embarking on a servitization strategy. The map provides specific utility in areas such as strategy development, long-term risk management, and benchmarking.

Another approach used by some researchers was to look at strategies related to different types of servitization. Ambroise et al. (2017) examined the influence of customer relationships, service delivery systems, and service culture on financial performance. In addition, the researchers tested three types of servitization strategies and the firms' overall competitive environment. They concluded that three particular strategies are important to financial performance: added services (AS), activities reconfiguration (AR), and business model reconfiguration (BMR). Ambroise et al. found that for the added services strategy, the greater the investment, the lower the profits; and for the reconfiguration strategy, the service delivery system is a strong driver of

profitability, but the service culture had a lower impact, and customer interface had no impact at all. Finally, for the PSS strategy, service culture was a prime driver in profitability. Customer service was less significant, and the service delivery system was not significant. The authors studied these three strategies when implemented via firms' adopting specific customer-oriented organization design (COOD) configurations. Ambroise et al. looked at three such designs: service culture, customer interface, and service delivery system. Findings from that study support the concept that COOD configuration can drive financial performance when used with specific strategies: Executives implementing an added services strategy will not gain by investing in complex COODs; leaders using an activities reconfiguration strategy should focus on their service delivery systems, and a firm's executive team reconfiguring its business model for servitization must also develop a robust service culture.

Much of the literature in the recent past addressed specific strategies for one specific servitization concept - PSS. Rabetino et al. (2017) developed a strategy map, concluding that servitizing firms should consider differentiating their value propositions by product leadership, customer intimacy, and/or operational excellence. Haber and Fagnoli (2018) studied customer value in PSS, notably the problem of the ambiguity of value definitions regarding services. The authors proposed a Quality Function Deployment (QFD) approach to provide a rational and rigorous methodology for translating and prioritizing customer needs into service requirements. Grubic (2018) looked at remote monitoring technology (RMT) as an enabler for the shift to PSS, exploring its benefits to PSS customers, its benefits to the suppliers, and the challenges of

creating value from services enabled by RMT. Vendrell-Herrero and Wilson (2017) provided manufacturing examples of smart products based on sensors, data storage, microprocessors, and software. Although all these authors' case studies were limited, the research demonstrated that there were feasible operational and strategic frameworks that merited further implementation and study. Servitization as a strategy, therefore, has received significant attention in the literature.

Many papers, however, go beyond servitization as a strategy in itself to explore the subject of managing the transition to a services strategy. Chan et al. (2015), for example, noted that most of the literature is focused on the human side of the product-to-service transition and that (in the literature) production moves toward a dematerialized concept, where the focus is more on the intangible service than on the physical product (e.g., digital music and video). These authors took a different approach, exploring the role material objects played in driving organizations' actions during the implementation of servitization. Kaczor et al. (2017) addressed the fact that managers at many companies are not aware of some of the inherent challenges in servitization and their related management issues and proposed dealing with two primary challenges: Internal or back-end problems, such as organizational culture, internal processes and capabilities, close cooperation and production; and customer or front-end issues, including pricing, risk absorption, marketing, communications and relationship challenges. The authors also discussed the problem of risks shifting toward suppliers, as well as pricing the new offerings appropriately. Bustinza et al. (2019), for example, explored the relationship between research and development (R&D) intensity, servitization, and firm performance.

The authors found that servitizing manufacturing firms would benefit by developing strategic partnerships with Knowledge-Intensive Business Service (KIBS) firms through downsizing/rightsizing, risk, and knowledge sharing. The research also points to enhanced servitization benefits for firms in R&D-intensive industries over firms in other sectors due to both industry dynamics and reduced customer uncertainty.

Some researchers examined servitization in different industries. In a case study in an Austrian gas supplier, Rau et al. (2017) examined a key challenge for commodity suppliers: The trap of price-based competition. In their study, Rau et al. applied a service design process to develop new value propositions. The authors found that service design thinking or the service design process comprised four phases: exploration, creation, reflection, and implementation. In the gas company, Rau et al. ran through this process with management teams, developing several models. The company's leaders eventually decided to adopt the long-term customer model and conducted an extra creation iteration to simplify the discount structure in the model. Rau et al. found that commodities firms who want to pursue this model need to keep three key lessons in mind: The leaders at those firms have to approach servitization with a holistic, big-picture view, select the right prototyping methods for collaborative innovation, and communicate to (and collect feedback from) customers throughout the process. The authors concluded that if the commodities industry will use this process, leaders in that industry can develop unique service solutions that will gain competitive advantage through differentiation. Liu et al. (2021) examined servitization in the construction industry. The authors found that a general lack of knowledge about servitization throughout the construction agency has

hampered progress in the transition. In construction projects, the perception is that customers receive (and perceive) value only when taking possession of the finished building, and possession is also the point at which the builder-customer relationship ends. Liu et al., however, point to the fact that many elements of a construction process comprise services, e.g., financing, human resources, technology, and supply chain services. Vendrell-Herrero et al. (2017) examined the effects of servitization and digitization in the publishing and music industries, finding that digital music and books had disrupted the supply chain for those products, shifting much of the power downstream toward retailers but providing opportunities for upstream providers via service offerings. Jang et al. (2021) explored digital servitization found in the music and publishing industries, deriving measures to gauge users' experiences and the effect on customer retention of those experiences. The authors measured integrated, customized, relational, and playful servitization experiences.

Other researchers have focused on the differences in process and results between servitizing in developed economies and servitizing in developing economies. Paslauski et al. (2017) examined how servitization, technological changes, and product extension differs between Italian and Brazilian firms. Paslauski et al. found that technological turbulence seems to have a lesser effect on developing nations' ability to experiment with service infusion. Firms in developed countries are more dependent on technology and more product-oriented. Moreno et al. (2020) studied servitization in 22 different developing countries, finding that medium levels of development tend to produce higher levels of firm performance, which drops off at higher levels of development.

The Servitization Paradox

One of the common threads in the literature around servitization is the “servitization paradox,” or the failure of servitizing firms to realize the theoretically expected gains in profitability and customer loyalty. One early article that recognized this paradox was Baveja et al. (2004). The authors built on the results of a Bain Company survey that showed that only 21% of servitization efforts were successful. Baveja et al. found that the primary reasons for the failure were four sets of false assumptions: That services always trump products; that high-end services inherently enhance customer relationships; that their current employees (armed with their current product knowledge) are the right people to lead them into services; and that they are faced with either complete transition to services or integrating tightly with products (when some middle ground would be the best mix).

In another seminal paper on the “service paradox,” Gebauer et al. (2005) found that servitizing manufacturers’ investments in extending their service offerings often led to higher costs without a corresponding increase in returns. The authors worked with over 30 equipment manufacturing firms to explore why manufacturers do not always reap the financial benefits from servitization. The authors noted that firms servitize for financial, marketing, and strategic reasons. Financially, a manufacturer should gain from bases of products with long life cycles as well as the fact that services for those products generate higher profit margins than the products themselves. From a marketing standpoint, services offer more points of sale and opportunities for sales. Strategically, services are more labor dependent and intangible (therefore more difficult to imitate), so they might

provide a sustainable competitive advantage. The authors cited extant literature that pointed to servitization as a superior strategy to innovation or quality in terms of high potential margins. However, they also found that the increased costs associated with servitizing are not always overcome by the resulting increases in profitability; hence the situation that the authors termed the service paradox. The authors explored both behavioral and organizational facets, finding some cognitive processes that limited managerial motivation, organizational obstacles, and unanticipated side-effects in the servitization journey.

Vendrell-Herrero and Wilson (2017) noted that although much of the empirical literature found a positive link to competitive advantage and firms, recent research had also emphasized that service implementation can increase risks and lower efficiency, which, in some cases, can motivate de-servitization. Benedettini et al. (2015) examined the servitization paradox from a risk-based perspective, finding that the addition of a service business increases bankruptcy risks due to the inherent increase in internal risks. The effect was exacerbated by greater environmental risks when offering demand chain services. West et al. (2018) described and prioritized seven major categories of barriers to servitization in Europe: Customers; organizational structure and culture, knowledge and information; products and activities (services); competitors, suppliers and partners; society and environment; and economics and finance. This research indicates that servitization still carries some significant risk for firms.

In recent years, some researchers have taken a more quantitative approach to examine various models of servitization. Brax et al. (2021) set out to “advance

measurement of servitization and to explain its dynamics” (p. 518). The authors noted that there are three basic conceptualizations about the nature of servitization: transition (of an organization in an industry’s value chain), extension (of a firm’s offerings), and the transformation or shift from product-based to service-based. They further broke the servitization paradox into two paradoxes: the financial paradox and the organizational paradox. The financial paradox states that service offerings do not generate returns that meet the cost of investing in them. The organizational paradox states that overly-rigid organizational structures and mental models dampen the adoption of new capabilities. Bustinza et al. (2018) reviewed the literature concerning servitization and performance, concluding that a more coherent approach was needed to measure the effects of the servitization paradox.

In an econometric analysis of firms in Belgium, Blanchard et al. (2017), in looking for determinants of servitization, found an apparent non-linear (U-shaped) relationship between servitization and firm productivity, predicting that the extent of servitization depends on firm characteristics, product characteristics and market conditions. Their analysis suggested that servitization might be a strategy followed by a low-performance firm to survive and gain market shares or a way for a high-performance firm to create a barrier to market entry. Sousa and Silveira (2017) proposed a model of capability inputs and performance outcomes for servitization strategies, based on their finding of a relationship between manufacturing capabilities and basic services provision, as well as a relationship between service capabilities and both basic and advanced services. Sousa and Silveira also found that basic services did not impact financial

performance but supported advanced services offerings and that naturally-occurring patterns of the development of balanced levels of basic and advanced services and levels of manufacturing and service capabilities. Ruiz-Alba et al. (2018) investigated servitization strategies in the pharmaceutical business-to-business (B2B) industry, specifically exploring the co-creation of services with business customers. The team delved into the impact of varying levels of services on servitization and on performance, testing co-creation as a moderator. Their findings suggest that high levels of co-creation in services design drive significant relationships between servitization and performance, especially when designed services are at intermediate and advanced levels.

Not all authors see the servitization paradox as an inevitable consequence. Feng et al. (2021), for example, found that many of the researchers represented in the literature see servitization as a path out of the commodity trap and toward growth, yielding significant competitive advantages. Kuijken et al. (2017) found that the bundling of services with product offerings does not always result in the expected performance outcomes, but suggested that firms need to lend strategic primacy to the value customers derive from product-service systems (PSS), and they proposed a framework to aid manufacturers in overcoming the servitization paradox. In their framework, shown as a two by two matrix, the authors provide guidelines to help select PSS that will be effective in terms of value creation. Kuijken et al. validated their concepts by surveying product and service developers and an experimental auction among a sample of customers. Crozet and Milet (2017) explored detailed balance sheet data on over 50,000 French manufacturing firms between 1997 and 2007 and found that most French manufacturers by the end of that

period were offering services as well as produced goods; further, that firms who servitized enjoyed a 3.7% to 5.3% boost in profitability, grew sales by 3.7 % and employment by 30%. They also found that most of the benefit accrues in the first year, with diminishing returns each year after the initial move to servitization. So, although some researchers have demonstrated the existence of the paradox, it does not appear to be a universal risk to firms seeking to adopt a servitization model. From a primarily accounting perspective, Leotta et al. (2020) recommended preventing the servitization paradox through the use of accounting information, especially in new product development (NPD) projects.

Another theme in the research is the role of leadership in the transformation. Carreiro and Oliveira (2019), for example, examined the impact of transformational leadership on servitization (mobile cloud computing), finding that leadership support, vision, and intellectual stimulation are significant drivers for both the adoption of the new business model and its routinization across the organization. Kim and Toya (2018) looked at leadership styles in servitization efforts across manufacturing firms in Japan. The authors concluded that charismatic leadership styles correlated to positive results, and autocratic and autonomous leadership styles tended to impede progress. Chakkol et al. (2018) studied individuals' roles in the servitization transformation, naming boundary-spanners as vital in success and organizational leaders as the most important boundary-spanners. Fretschner et al. (2021) explored CEOs' strategic orientation or cognitive models. The researchers focused on the dynamic tension between innovations orientation

(openness to new ideas) and internal operations orientation (focus on efficiency and value cost leadership).

Software-as-a-Service

Plummer et al. (2008) published a seminal article on software-as-a-service (SaaS) in a Gartner research report. In that article, they defined “the cloud” as “a style of computing where massively scalable IT-enabled capabilities are delivered ‘as a service’ to external customers using Internet technologies” (Plummer et al., 2008, p. 4). The authors went on to further define the concept of service delivery as the delivery of an outcome or result instead of a physical product. The researchers further discussed massive scalability as related to flexibility; i.e., a massively scalable application would be independent of the number of users, equally capable of providing a high level of service to a very small or very large number of users. Plummer et al. also noted that there were a wide variety of service offerings under the SaaS umbrella, from simple online purchasing and downloading of software to store and use on local hardware to complete cloud computing capabilities, where the software lives in the host’s cloud infrastructure, and customers log in and use the applications in their subscription to do work. The resulting paradigm shift is from owning (licensing a copy) to renting (subscribing to a service).

Since then, many researchers (e.g., Kowalkowski et al., 2017) have studied servitization in the software industry. Kowalkowski et al. (2017) found that IBM and Oracle had been offering corporate customers subscription-only software for years, while more recently, Adobe and Microsoft leaders have similarly rented software to their consumers, both as downloadable offerings and in the cloud. Alnumay (2020) found out

that SaaS providers benefit from smaller capital and operational expenditures and greater flexibility in pricing strategies, management, and maintenance. Additionally, Aluway explored challenges in adopting SaaS, including host downtime and data security risks. Nordin and Rodziahlatih (2021) identified four dependent variables for productivity in SaaS development: cost, time, resources, and quality. Freitas and Freitas (2017) examined customer acceptance of SaaS service quality, finding that customers care about customer service and reliability; further, that customers perceive as critical SaaS ability to meet requirements, companies' interest in solving customer problems, and both accuracy and transparency when correcting errors.

Krishna et al. (2021) explored the problem of security in cloud-based SaaS architecture, discussing two additional aspects of overall architecture: Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service. IaaS providers provide the physical or virtual infrastructure needed for information services (e.g., virtual machines, hard drives, servers, IP addresses, Virtual Private Networks (VPNs)). PaaS includes operating systems, web servers, and databases. The authors found several advantages of the SaaS approach, including generally lower pricing, potential resource sharing, cloud security, scalability, standardization, and operational requirements (e.g., installation, backup policy, license management, updates/upgrades).

Aleem et al. (2021) examined the differences between traditional architecture and SaaS architecture to determine key factors for successful implementation. The authors point to the advantages of SaaS for users, including a relatively low-cost pay-per-month investment, lack of need for on-premise resources for managing the software, and speed

of access. Aleem et al. found six key factors for success: customization, scalability, multi-tenancy architecture, security, integration, and fault tolerance/recovery management. Multi-tenancy is important, especially to complex clients, because security and customization needs will vary from department to department and user-to-user.

Another challenge for SaaS providers is pricing, and the literature reflects that challenge. Zhang (2020) built a game-theoretical model to examine the effects on pricing of cost and quality, finding that differentiating between its old customers and new customers is not a good strategy for established companies. Saltan and Smolander (2021) explored the SaaS pricing literature, identifying four factors that affect pricing: the market, the company, the consumers, and the product. The researchers also surfaced five challenges SaaS companies face when establishing a pricing strategy: lack of a coherent decision-making process, complexities of models/frameworks to support decisions, lack of analysis competencies, lack of data to support analyses, and market dynamics/uncertainty.

Transition

The purpose of this study is to explore the successful strategies business leaders use for implementing servitization initiatives, specifically software industry servitization – the transition from the perpetual license, software-in-a-box “customer-owns” model to a software-as-a-service “customer-rents” model. I examine those strategies through the lens of the resource-based view (RBV). The literature establishes that RBV—while not the only useful view—is a good perspective for studying servitization. From the literature on servitization itself, I conclude that servitization is a useful field to study; that strategies

for servitization comprise a wide variety of approaches across different industries and geographic/economic strata, and that leaders expecting large gains in financial performance and customer satisfaction from servitization have to be careful how they implement the strategy, as expected gains are not always realized, at least not immediately (the servitization paradox).

Section two will contain an in-depth exposition of the study itself to include the purpose, my role as researcher, participants, the method and design, population and sampling considerations, ethical considerations, data collection, organization and analysis, a discussion of data reliability, and a discussion of ethics. Section 3 will contain the research findings, application to professional practice, social change implications, and recommendations for additional research and conclusions.

Section 2: The Project

In this section, I will describe in detail the plan for the research project itself, beginning with a reiteration of the purpose statement. Next is a discussion of my role (the role of the researcher) in the actual collection of data, including limitations and challenges inherent in that role and my plan to mitigate those limitations and challenges. Following the discussion of my role will be a description of the sample, including the types of managers required for the data I need, a plan to gain access to those managers, and develop a working relationship with them. A discussion of research method and design follows next, justifying my use of a multiple case study as well as how I plan to conduct that case study; this discussion is followed by a discussion of ethical considerations in the research. The last few sections deal with data: collection instruments, techniques I will use for collecting and organizing the data as they are collected, my plan for analyzing the data, and a discussion of reliability and validity.

Purpose Statement

The purpose of this qualitative multiple case study is to explore the successful strategies business leaders in the software industry use for implementing servitization (Software-as-a-Service, or SaaS) initiatives.

Role of the Researcher

In this multiple case study, I was the primary instrument for data collection, conducting all of the interviews with participants. I also was responsible for analyzing the data, synthesizing the themes and identifying the strategies, and compiling the final results from the study. This role of the researcher as a primary instrument is defined in

the research literature (e.g., Alpi & Evans, 2019; Zhang, L. & Liu, 2018). As the primary instrument for this study, I will adopt an interpretivist paradigm. Interpretivism emphasizes the internal motivations of the subjects being studied (Alharahsheh & Pius, 2020; Kivunja & Kuyini, 2017; Zahle, 2018). An interpretivist researcher sees reality as socially constructed and attempts to control for personal mental models and bias to try to ensure that the results reflect insights from the subjects of the research themselves. I have no direct connection with the topic of communication; I do not work in the software industry and will not meet with the interview subjects before the interviews.

This study, focused on the actions taken by leaders, is behavioral research. The Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979) delineates three principles for ethical research: Respect for persons (treating people as autonomous agents and protecting them); beneficence or maximizing possible benefits while minimizing potential harms; and justice, or treating people equally. I will ensure compliance with these principles by working with my participants in an open and welcoming environment, ensuring that they can speak freely without fear of any reprisal, and following up with them to make sure that their views were represented accurately.

Because any researcher brings some bias to the research process (Connelly, 2017; Fusch et al., 2018; Gibson, 2017), I had to find methods to avoid contaminating the data with my personal biases. I used an interview protocol to provide a standardized script for the questions asked (see appendix B) and conducted semistructured interviews with questions approved by my Doctoral Committee and Walden's IRB. Each participant

signed a consent form affirming their voluntary participation. Following the interviews, I sent transcripts to the participants for their review. All participants agreed that I had captured their responses accurately. Once I had drafted the “presentation of findings” section of the paper, I conducted member-checking by sharing that draft with my participants. By heeding the precautions and following the procedures of Bergen and Labonté (2020), McGrath et al. (2018), and others, I believe I mitigated most researcher bias.

Participants

For interviewee selection in this study, I employed purposeful sampling, sampling participants based on criteria designed to determine the relevance and richness of their experience with the topic (Gentles & Vilches, 2017; Moser & Kortsjens, 2018; Zhang, L. & Liu, 2018). To be eligible for inclusion in the sample, participants had to have been working at the firm during the servitization initiative under study. Each had to have been in a leadership (manager or executive) role, at a level that would have given them access to an understanding of the strategies employed and the results of the initiative as it developed over time.

Personal contacts from the organizations provided an initial list of candidates who met the inclusion criteria. Because the organizations are geographically dispersed, I used video conferencing as the medium for conducting the interviews. An advantage of videoconferencing over audio-only teleconferencing is that it allows for more intimacy and depth of communication (Archibald et al., 2019; Gray et al., 2020; Weller, 2017). Microsoft Teams video conferencing technology provided for real-time capture of

information from remote participants and included mechanisms for recording and playback of interview sessions as well as automated rough transcription. I was able to establish a working relationship with the participants by engaging them prior to the interviews with the consent form process, by taking time at the start of each interview for personal introductions, and by setting the climate for the interview to ensure they were comfortable with the process.

Research Method and Design

The two primary methods for business research are quantitative and qualitative, although some researchers use a combination of the two methods in a mixed-method study. I did not evaluate statistical relationships among variables. I explored strategies leaders employed for servitization initiatives. Therefore, I selected a qualitative multiple case study design to answer the research question.

Research Method

I selected the qualitative methodology because the qualitative methodology is appropriate for answering my research question. The exploration of strategies firms' leaders employed required my gaining knowledge from the leaders I interviewed; conducting in-depth interviews provided the necessary information. Quantitative researchers use correlational or experimental methods to analyze relationships and differences among variables using statistics and interval or ratio scale numbers (Basias & Pollialis, 2018; Queirós et al., 2017; Saunders et al., 2019). These were not the types of data I collected. My data consisted of qualitative verbatim interview responses. I did not use correlational or experimental methods to analyze relationships. I used coding and

thematic analysis to develop common themes and strategies.

Mixed methods researchers also use quantitative methods and require the formulation of hypotheses and the collection of numeric data on the interval or ration scales for the quantitative portions of those studies. Mixed methods studies require quantitative methods (Basias & Pollialis, 2018; Anguera al., 2020; Zhang, L. & Liu, 2018). My study did not require quantitative methods; therefore, mixed methods were not appropriate.

Research Design

I considered several qualitative designs for my study. Ethnography is the study of social or cultural settings, primarily using participant observation (Mills, Harrison, Franklin, & Birks, 2017; Pool, R., 2017; Seligman & Estes, 2020), but I did not study cultures or cultural settings. Narrative inquiry is the in-depth study of individuals' experiences over time and in some specific context. In many cases, the narrative that authors synthesize from a qualitative study is best understood as a complete, holistic story wherein the focus is on the participants and their interactions (Haydon et al., 2016; Kegler et al., 2019; Rosiek & Snyder, 2020). However, my primary focus was on the strategies used for servitization, not the relationships between individuals involved. In phenomenology, researchers probe and interpret the perceptions and perspectives of participants' experiences with phenomena from the vantage point of realism to gain an understanding of a given situation (Alpi & Evens, 2019; Flynn & Corcuska, 2018; Frechette et al., 2020). I did not intend to explore the meanings of servitization implementations experiences among my study subjects. Taking all these factors into

consideration, I chose to proceed with a case study design.

Case study researchers examine unique cases that address a problem or an intervention of interest (Heale & Twycross, 2018; Mills et al., 2017; Ridder, 2017) and facilitate the researcher's ability to analyze complex components of a business problem. In a multiple case study, experience from the cases is analyzed for segments of data that can be studied across organizations to reveal similarities and differences across and between cases (Heale & Twycross, 2018; Mills et al., 2017; Ridder, 2017). For the reasons cited above, I chose a multiple case study design to facilitate my understanding of the strategies some business leaders successfully used to implement servitization.

Another consideration in selecting a research design is ensuring data saturation. Although saturation may never be conclusively achieved, most researchers agree on four concepts that generally indicate data saturation (no new data coming from the collection effort, no new themes or coding coming from the analysis of the data, and the eventual data set collected will enable future researchers to replicate the study (Fusch & Ness, 2015; Palinkas et al., 2015; Varpio et al., 2017). Vasileiou et al. (2018) found that both composition and size are important when considering samples for interview-based research and that purposive sampling is needed to select participants who will provide the richest information. For this study, my aim was narrow (strategies for servitization). My participant criteria were keyed to that narrow purpose. The research questions were structured based on my conceptual framework (RBV).

Population and Sampling

The population of interest comprised business leaders who met the criteria for

selection. Because the executive teams that drive specific strategies within organizations tend to be limited, the maximum number of potential interviewees (and the size of the sample) were limited as well. Researchers who have addressed sample size in qualitative studies have not concluded that there is any specific sample size that will guarantee high reliability. Sim et al. (2018) concluded that sample sizes for qualitative research could not be determined *a priori* and that the best method to ensure sufficiently rich data was to focus sample selection on participants who would provide the most comprehensive answers to the research questions. To that end, I used purposeful sampling to collect data from individuals who were in leadership positions and had direct experience with setting strategy for implementing the servitization initiative. Purposeful sampling is used in qualitative research to collect the richest possible information from the fewest possible resources and to efficiently reach both coding saturation and information saturation (Braun & Clarke, 2021; Hennink et al., 2017; Sim et al., 2018).

I started with names and contact information for three eligible business leaders from one of two target companies. From those individuals, I was able to use snowball sampling to expand that number. My final sample comprised four participants from one company, two from another, and one from each of two other companies. Snowball sampling is commonly used in qualitative studies to recruit participants that meet participation criteria (Ghaljaie et al., 2017; Tenhouten, 2017). One problem researchers have identified concerning snowball sampling was positivity bias (Marcus et al., 2017). To avoid that problem, I ensured that all data from all interviews were included in the analysis.

In qualitative research studies, data saturation is a concept tied to data reliability. Several authors on the subject focused on code saturation as one criterion for evaluating saturation. These authors defined code saturation as the absence of new emerging codes (Low, 2019; Lowe et al., 2018; Moser & Korstjens, 2018). Another school of thought includes the concept of *meaning saturation*. These authors concluded that data saturation is not achieved until a full understanding of what has been learned from the interviews (Braun & Clarke 2021; Hennink et al., 2017; Varpio et al., 2017). Braun and Clarke (2021), citing Low (2019), Sim et al. (2018), and others concluded that meaning inheres in the interpretation of the data, and therefore saturation occurs when the researcher is satisfied that the richness and complexity of the data have provided sufficient conceptual density. To ensure data saturation, I collected data until past the point where it appeared that no new relevant themes or concepts emerged.

Ethical Research

I did not anticipate any ethical issues in conducting this research. I was not collecting data in my workplace, so managing dual roles was not an issue. My interview questions were not about employee behaviors. Both my opening statement in the interview and the written consent form emphasized that all responses were recorded to ensure non-attribution and that no individual would be named (Walden University Center for Research Quality, 2019). I took care to respect each participant and provide them all the information they needed to understand their rights concerning participation (and their options to withdraw at any time). Walden University's Institutional Review Board (IRB) approved my research proposal on August 11, 2021 (IRB # 08-11-21-0042462).

In this research, I did not address substance abuse, mental state, or violence. I did not anticipate any response to any of my interview questions that would be incriminating. I did not offer any incentives for participation. I did not believe that any of my questions were framed in a non-sensitive manner that would severely distress any individual. None of my inclusion criteria mentioned or required any consideration of race or ethnicity. I did not focus on education, clinical or psychological organizations in my research. Finally, I did not recruit from any vulnerable population (Walden University Center for Research Quality, 2019).

I was careful to ensure non-attribution (both for the individual and for their organization) to safeguard the anonymity and privacy of my interviewees. I also adhered to the principle of informed consent throughout the interview process. “Informed consent advises research participants of their rights as research participants” (Josephson & Smale, 2021, p 2). The rights protected via the use of informed consent principles are the rights of volunteers, including the right to withdraw at any time (Biros, 2018; Josephson & Smale, 2021; Millum & Bromwich, 2021). To ensure informed consent, I emailed each prospective interviewee in advance to introduce myself and request an appointment to conduct the Teams interview. The consent form was attached to that email as a signable PDF file (A copy of the informed consent letter is in Appendix A). I stipulated that the interviewee must sign and return the form to me, and I received the signed consent forms prior to scheduling each interview. In the opening of each interview, I asked the interviewee to verify that they had read the informed consent letter and to confirm that the signature on the letter was that of the interviewee.

It was important for me to use a recording device to avoid any loss of information that might occur during notetaking. I asked each participant for permission to record the interviews. I will maintain all the data collected during the interview in an encrypted file for five years from the date of publication of the study and include the Walden University Institutional Review Board approval number in my final DBA study manuscript.

Data Collection Instruments

Notable authors posited that in a qualitative case study, the researcher is the primary instrument for data collection (Clark & Vealé, 2018; Johnson et al., 2020; Zhang, L., & Liu, 2018). I was the researcher in this study; therefore, I was the primary instrument. It is the researcher's task to conduct semistructured interviews (Johnson et al., 2020; Mahat-Shamir et al., 2019; Ridder, 2017). I conducted Microsoft Teams video teleconferencing meetings with each participant, using the interview protocol delineated in Appendix B and interview questions listed in the "Interview Questions" section above and Appendix B.

To enhance data reliability and validity, I conducted a transcript review after each interview was transcribed. I also followed up with each interviewee according to an agreed-upon timetable, sending (via email) the draft analysis of the data to each interviewee for validation. For purposes of methodological triangulation and ensuring data saturation, I gathered publicly available annual reports and market performance reports of the organizations under study. Publicly available resources support triangulation (Fusch et al., 2018; Moon, 2019; Varpio et al., 2017).

Data Collection Technique

To support my research question, “What successful strategies do business leaders use for implementing servitization initiatives?” I used semistructured interviews to collect data. I conducted the semistructured interviews with the participants identified (see participants section above) via Microsoft Teams video teleconferencing meetings, following the interview protocol in appendix B. Semistructured interviews have some advantages for qualitative research, including effectiveness in collecting open-ended data and the ability to probe in-depth the responses to the primary questions (DeJohckheere & Vaughan, 2019; Kaliber, 2019; Mahat-Shamir et al., 2019). There are some disadvantages to semistructured interviews, as well. For example, not all interviewees make great participants, and the method requires rigorous application and a trained interviewer to successfully conduct semistructured interviews well (Barrett & Twycross, 2018; DeJohckheere & Vaughan, 2019; Thille et al., 2021). Another disadvantage is the issue of power interplay between interviewers and interviewees (Brown & Danaher, 2019; Kaliber, 2019; Thille et al., 2021).

For my study, I required answers to specific questions but wanted neither myself nor my interviewees to be constrained by only the language in those questions, so I used the semistructured interview approach, following the interview protocol in Appendix B. The interview protocol provided a script containing the primary interview questions, as well as a script for an opening conversation wherein I confirmed that the interviewee had consented to and understood the purpose of the interview and gained consent to record. To confirm that I captured the full meaning of the participants’ responses, I used

recordings of the interviews and automated draft transcription available in Microsoft Teams. Transcript review and member checking are methods researchers use to enhance the reliability of the data collected through interviews. (McGrath et al., 2018; Thomas, 2017; Twining et al., 2017). I conducted transcript reviews with all participants and shared the draft presentation of findings with the participants for member checking with each participant as described in the previous section.

In addition to semistructured interviews, I collected and analyzed publicly available annual reports and market performance reports of the organizations under study. Document review provided different perspectives on the firms' servitization strategies for purposes of attaining methodological triangulation, as discussed in Farquhar et al. (2020), Natow (2020), and Yin (2018).

Data Organization Technique

The study involved five types of data: participant data, interview data, relevant documents, coding data, and theme data. I organized the Microsoft Word and Excel files containing the data in folders on my personal laptop (backed up to personal Microsoft OneDrive folders). Participant data included a name, firm, position at the firm, contact information, and a unique identifier code for each individual. Participant codes were simple; the first interviewee was coded "P1", followed by "P2, P3...P8." Interview data comprised unique identifier codes, verbatim data (audio recordings), transcripts, and member checking information. Coding data included the transcript files, transcript excerpts, generated codes, and memos, as well as the coding results (code trees and tables). Theme data comprised themes synthesized from coding results.

The interview files were organized in Microsoft Windows Explorer 2016 folders on my personal laptop. To maintain the security of the data and safeguard the anonymity of the interviewees, I followed personal data protection procedures as outlined in Hess (2018), Rutakumwa et al. (2019), and Williams and Moser (2019). Following their guidelines, I maintained participant data in a password-protected Microsoft Excel participant data file. I stored individual interview files as password-protected .wav files and stored resulting interview transcripts as both Microsoft Word files and password-protected DeDoose files, each under a unique identifier code. Coded data were maintained in DeDoose, and coding analysis Microsoft Excel files and theme data were maintained in the coding analysis file. All Excel and Word documents were backed up on a MicroSD card and maintained there for five years following the final approval of the study, then deleted. I will delete DeDoose files (in the DeDoose cloud) upon final approval of the study.

Data Analysis

I analyzed the data using thematic analysis, as outlined in Yin (2018). Thematic analysis is a method for finding recurring patterns within textual data. (Braun & Clarke, 2021; Lester et al., 2020; Yin, 2018). The five steps of thematic analysis given by Yin are compiling, disassembling, reassembling, interpreting, and concluding (2018). The first step in this approach is to compile the data, which I conducted as outlined in the data collection section above. In the second step (disassemble the data), I used DeDoose software to select and code excerpts from the transcripts. The data coding process yielded words and short phrases that summarized bits of meaning from the interviews. The code

list grew from the first interview to the fifth; only some minor additional codes surfaced in the final three transcripts. This was an indication that I had reached saturation.

Once I had completed coding and excerpting all interviews, I reread all the interview transcripts again to determine whether later-developed codes applied. Once that iteration was complete, I synthesized the concepts from the codes (step 3: reassemble) into themes, as outlined in Lester et al., 2020; Nowell, Norris, White, and Moules (2017); Varpio et al. (2017) and Yin (2018). After I developed the themes, I interpreted the results (step 4), comparing themes I had found with those in the existing servitization and RBV literature through the lens of the RBV, constructing narratives about strategies to support conclusions (step 5) that answered my primary research question: What successful strategies do business leaders use for implementing servitization initiatives?

In qualitative research, researchers can achieve triangulation by collecting information from different sources. The four types of triangulation discussed in the literature are data triangulation, theoretical triangulation, researcher triangulation, and methodological triangulation (Abdalla et al., 2018; Fusch et al., 2018; Moon, 2019). This method helps attenuate bias and bolster validity in studies (Farquhar et al., 2020; Natow, 2020; Yin 2018). In my study, I used methodological triangulation by collecting data through semistructured interviews and reviewing public documents from and about the companies, which included annual reports, market performance reports, and case studies about organizations under study. I used methodological triangulation because it supports the reliability and credibility of the data collected (Kivunja & Kuyini, 2017; Nowell et al., 2017; Ridder, 2017). Through triangulation, I obtained a more comprehensive view of

each company's transition to Software as a Service.

Reliability and Validity

Reliability

In qualitative studies, reliability refers to dependability. Dependability refers to whether the research process was logical, traceable, and clearly documented and whether comparable results could be realized using a similar methodology (Kivunja & Kuyini, 2017; Nowell et al., 2017; Ridder, 2017). For the purposes of documentation, I used an interview protocol (Appendix B) to conduct every interview. During each interview, I used the transcription feature in Microsoft Teams to roughly transcribe the conversation in near-real-time. Following the interview, I edited each rough electronically produced while listening to the recording to enhance the accuracy of the final transcript. I removed extraneous language (e.g., "you know," "Right?") and anonymized each transcript to help maintain confidentiality and non-attribution of the final data. To confirm that I had captured the full meaning of the participants' responses, I sent the final draft transcripts to the participants to review. Four of the eight participants sent feedback for minor revisions. Upon making those revisions, I re-sent the transcripts to the relevant participants, who approved the final revision.

In addition, once I had completed the data analysis, I sent the draft presentation of findings to each participant for member checking. The participants had no recommendations for change and agreed with the themes and conclusions arising from my analysis. Member checking is one method researchers use to enhance the reliability of the data collected during interviews. (McGrath et al., 2018; Thomas, 2017; Twining et

al., 2017).

Validity

Validity in qualitative studies is most often expressed in terms of credibility, confirmability, and transferability (Lemon & Hayes, 2021; Rose & Johnson, 2020).

Credibility refers to the trustworthiness or believability of the data (Daniel, 2019; Lemon & Hayes, 2021; Rose & Johnson, 2020). Confirmability refers to whether research can be confirmed by others in the field, and transferability is similar to external validity or generalizability – whether the findings could be transferred to other studies (Daniel, 2020; Lemon & Hayes, 2021; Rose & Johnson, 2020). For credibility, I confirmed the accuracy of the data from each interview by verbatim recording and conducting member checking with each participant by sharing the presentation of findings to ensure that all my interpretations were accurate and representative. I maintained confirmability of my data by keeping detailed notes on my research process, submitting my data analysis results to the participants for member checking, and submitting all results to my academic committee for review. Transferability cannot be established without future researchers' replication confirmability (Fusch & Ness, 2018; Rose & Johnson, 2020; Twining et al., 2017). However, I aided confirmability for future validation of my study through the use of methodological triangulation to examine the data from my semistructured interviews and document analysis, as outlined in Abdalla et al. (2018). Fusch et al. (2018), and Rose & Johnson (2020).

Transition and Summary

In this section, I have discussed the conduct of the study and how I ensured ethical data collection to produce valid and reliable data. In the next section, I present the results of the analysis of the data, findings from the analysis, applications to professional-managerial practice, implications for social change, and recommendations for both actions arising from the study and further research that might build on those findings. In subsequent sections, I discuss the findings from the research, application to professional practice and implications for positive social change. Additionally, I discuss recommendations for industry action as well as for further research on servitization strategies.

Section 3: Application to Professional Practice and Implications for Change

Introduction

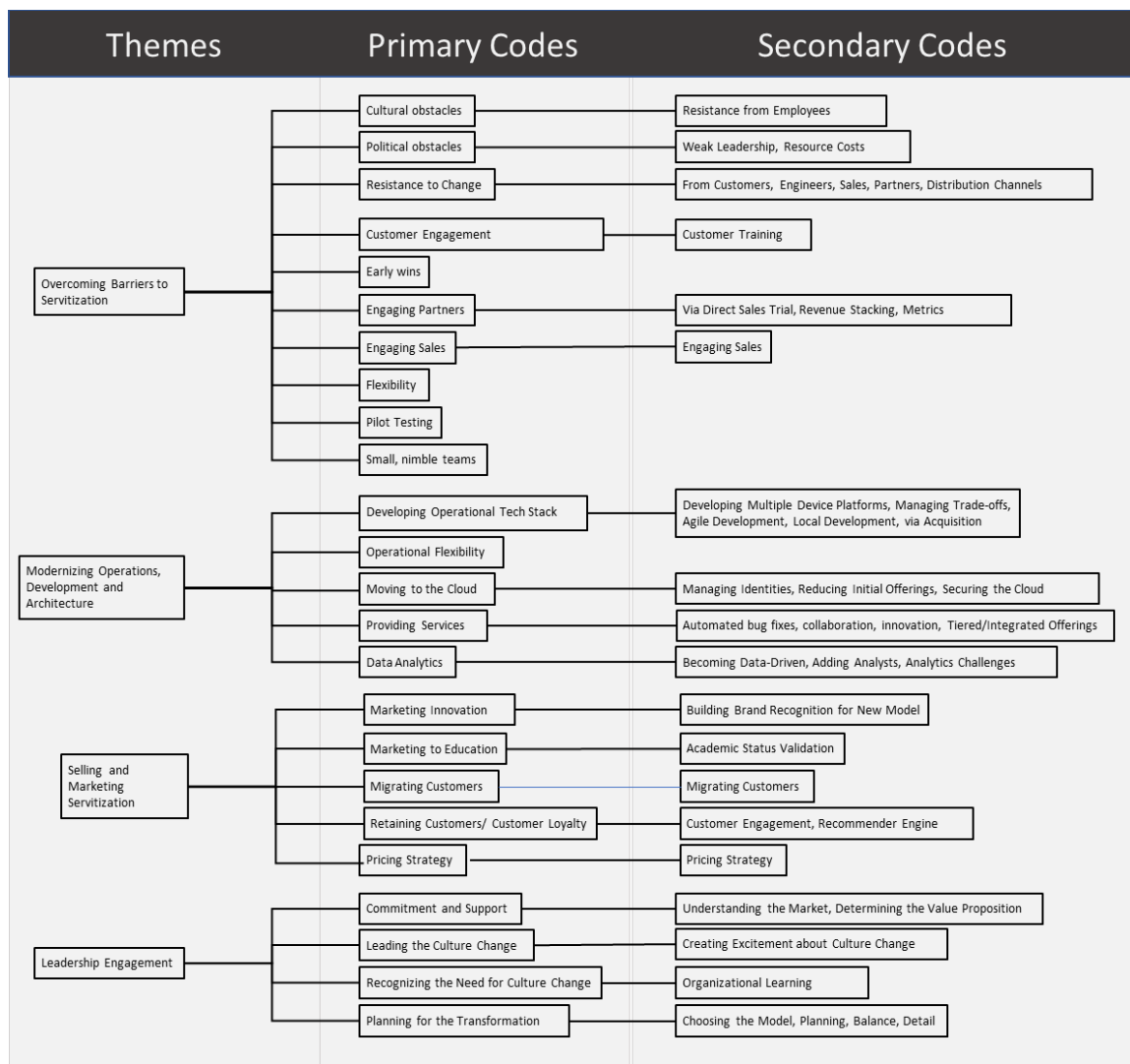
The purpose of this qualitative multiple case study was to explore the successful strategies business leaders in the software industry use for implementing servitization (SaaS) initiatives. I found that leaders who are considering providing SaaS should leverage strong and consistent leverage leadership engagement, change management, ensure customer engagement, and apply data analytics. They should also deploy a flexible sales and marketing approach and should adopt an operations strategy based on cloud architecture and agile development for providing innovative services that customers will want and need.

Presentation of the Findings

The research question was: "What successful strategies do business leaders use for implementing servitization initiatives?" I conducted thematic analysis on data from the interviews. The resulting themes were: (a) leadership engagement; (b) overcoming barriers to servitization; (c) modernizing operations, development, and architecture; and (d) selling and marketing servitization. Additionally, the data contained a lot of information on the results of the leaders' strategies. The primary and secondary codes are mapped to the resulting themes in Figure 1.

Figure 1

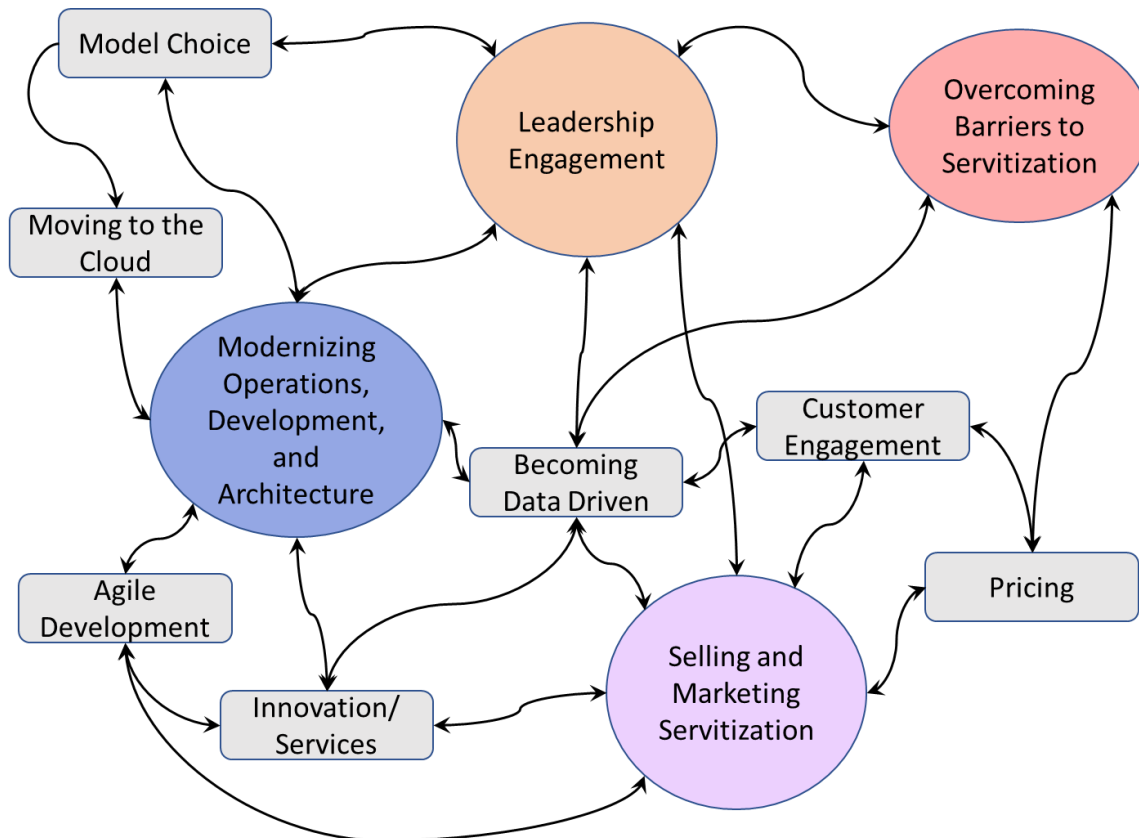
Themes, Primary and Secondary Codes



In addition to the themes, specific strategies related to the strategic themes also emerged from the participants' responses. These included strategies for model choice, going to the cloud, providing innovation/services, data analytics, customer engagement and retention, agile development, and pricing. I created a mind map to relate the strategies and themes depicted in Figure 2.

Figure 2

Mind Map of Themes to Strategies.



Theme 1: Leadership Engagement

In this study, all the interviewees saw leadership as a vital factor in their transformation, and the need for leadership as paramount. Leadership played a role in every other theme, but quickly rose as an important theme in its own right, with three related subthemes: planning the transformation, commitment, and support, and leading the culture change. P2 emphasized the need for leadership during the transition, describing the “massive” risk involved in taking a stable, traditionally successful model

and then “bet the future of this entire organization on [something] we haven't done before.”

Planning for the Transformation

Several of the participants discussed planning but did not discuss many of the details of formal planning. Some leadership teams whose initial efforts had been reactions to changes in the market did not manage to formally plan until well into the shift. P3, for example, said, “Some of our initial sales on the enterprise side really relied on road map ... I don't know that that was actually a planned strategy. But it became a necessity as we got into it, and that's the overarching strategy.” P3 followed up with, “The strategy of executing that transition is almost less important than the groundwork laid to execute that transition. “

At P2's company, the CEO and CFO started the transition rolling, stating, “this environment 2008 and 2009 is pretty terrible. We can't be in this position again. Our company can't survive a second round of this. What are we going to do?” They convened an offsite strategic planning session. One of the results was that the CFO telling the analysts on Wall Street that “We're going to tank our revenue,” and explaining why, and how it was projected to recover and lead to significantly greater growth. This transparency helped keep the company's stock prices from dropping as they made the transition.

While most of the participants talked about the absolute necessity to think things through in detail prior to the transition, some of the participants talked about the volatility of the environment and the need for flexibility and balance. P7, for example, noted, “So,

the strategies are complex. There's the marketing and how you approach that. You can have a three-year plan, but the competition usually doesn't let you execute that. P7 went on to explain, "different products are all on different timelines [with] different competitive challenges and...you have to figure out how to bring it all the way through. You have to think about how we set our policy around security and compliance."

P1 also talked about the need for leaders to anticipate and be prepared to provide resources as needed, stating that initially, "we vastly underestimated how much it would take to do it different and better, and so had product teams...scrambling for resources that were competing with this large central effort."

Commitment and Support

Commitment and support from the top leaders at the organization was a common thread throughout the interviews. P3 talked about the importance of that top-level commitment for dealing with uncertainty, stating, "there needs to be top-down decision-making full support. We know this is risky, [but] we are going to do it. If there's any ambivalence, you're not ready to go (at least if it's a significant part of your business)." P7 described one of the aspects of culture change that came from the CEO, saying, "That didn't happen overnight. You learn by failing. If you're not willing to fail, you're not really willing to drive to create greatness."

P7 discussed how a new CEO set expectations for the top leaders, saying, "One of the things that I love that he did was: not only did he change expectations for our executives, but also he gave some of our internal executives an opportunity." He went on, "...and he made decisions quickly, which I loved because before it would take forever."

P1 summarized the need for top leadership commitment this way: “If you're talking about transitioning the company’s largest business from perpetual to subscription, that requires an upfront deep engagement by the executive team from the very beginning and through the whole process,” because of the negative consequences leadership risks in any wholesale change initiative. If the stock price drops by half, for example, at the next financial analysts’ meeting, it's “just catastrophic.” P1 noted that in companies where leaders have failed to lead in this manner, it can take years to restore fiscal stability and growth.

Leading the Culture Change

Several respondents specifically called out the need for leadership engagement in changing the organization’s culture. For example, P7 talked about the CEO changing expectations for executives and managers, “It drives the culture, it drives the whole system; [it is] an opportunity to step up to say, ‘Here's where we're going. And here's how I want you to operate.’” P4 said, “You do it because I think it's the type of company you want to be...that's not a light switch, because that's a culture change, it's a philosophy change.”

P6 talked about a shift in leadership as having been the primary driver of their servitization success, and in “enforcing the collaboration and growth mindset.” In P6’s view, “The culture had to change, or we would not have been successful ... the culture shift was required for us to begin to work differently.” As the transition progressed, those who would not adopt and become part of the new culture ended up working elsewhere.

Leadership was very specific on expectations and on how the new company was going to revitalize.

During the transition P2 was given the responsibility for getting the company's managers to change the way they worked. P2's greatest lever for change was, he said, that "if you showed up to the CEO for business review and you weren't using my framework to tell him what was happening, he would kick you out of the room." Another executive at that company had a call with the CEO every day, no matter where in the world each might be located, and the CEO would then get directly involved in dealing with anyone who was actively resisting the change. The result was predictable: "It only takes a few people getting cracked on the knuckles by the CEO before everyone realizes we all just have to fall in line."

It is apparent, then, that leadership engagement is an important theme from the leaders I interviewed. Because the companies represented in the study sample were all organizations that had been in the business of selling shrink-wrapped packages containing media and manuals, selling them via distributors, a change to internet distribution, services and innovation on-demand and at least some offerings in the cloud, the way each company did business had had to change dramatically. All the interviewees credited leadership with making the transformation possible.

Correlation to the Literature

The servitization literature contains many studies focused on the influence of leadership. Carreiro and Oliveira (2019), for example, examined the impact of transformational leadership on servitization (mobile cloud computing), finding that

leadership support, vision, and intellectual stimulation are significant drivers for both the adoption of the new business model and its routinization across the organization. Kim and Toya (2018) looked at leadership styles in servitization efforts across manufacturing firms in Japan. The authors concluded that charismatic leadership styles correlated to positive results, and autocratic and autonomous leadership styles tended to impede progress. Chakkol et al. (2018) studied individuals' roles in the servitization transformation, naming boundary-spanners as vital in success and organizational leaders as the most important boundary-spanners. Fretschner et al. (2021) explored CEOs' strategic orientation or cognitive models. The researchers focused on the dynamic tension between innovations orientation (openness to new ideas) and internal operations orientation (focus on efficiency and value cost leadership). At least one study took a different position; Palo et al. (2019) studied servitization with a practice theory lens, positing that servitization is a contestation of the status quo business model in a firm. The authors concluded that servitization could be conceived as emerging iteratively from the bottom up as a business model protestation process instead of a top-down strategic process.

Correlation to the Conceptual Framework

The findings in this research regarding leadership follow and support the research-based view. In Barney's seminal work on RBV (1986), he tied the value of resources to leadership's ability to anticipate the need for them. He concluded that leaders needed to spend significant time evaluating and acquiring strategic resources. Many other researchers working through the lens of RBV have since found leadership to be a

valuable resource. Afriyie et al. (2019), for example, concluded that transformational leadership is a resource capability playing a vital role moderating innovation and marketing; the specific actions involved in planning the transformation and then providing commitment and support are consistent with Afriyie et al.'s research. My findings are also consistent with the conclusions of Iqbal et al. (2021), who also found transformational leadership to be a critical resource both for innovation and for helping to drive an organizations culture to drive toward a focus on innovation.

Theme 2: Overcoming Barriers to Servitization

Not surprisingly, barriers to servitization were discussed extensively. The following subtheme groups were identified: (a) political obstacles, (b) cultural obstacles, and (c) resistance to change. Political obstacles were tied to leadership and policy barriers. Cultural obstacles had to do with reasons for resistance based on the cultural changes that came with servitization. Resistance to change—while closely interrelated with the other two subthemes—was more technical in nature and referred to resistance that could not be clearly and cleanly categorized under the other two subthemes.

Political obstacles.

As noted in the section on the reason to change, a SaaS business model is a very different model, requiring a very different organizational structure. Aligning leaders around a new way of doing business presents challenges. In the software industry, the former model involved coding the software then distributing it as a physical product via a retail supply chain that included channel partners. P8 described it as “engineering is done, and then it moves into manufacturing ... it was all very siloed.” P8 went on to describe

the much more collaborative effort resulting from the switch to SaaS. P7 described a “power struggle” between the silos in that organization between IT and application developers.

P5 mentioned that it was “difficult from a sales perspective, and it wasn't so much the programs that made it difficult for sales. It was the expectations from the sales leaders because you had this enterprise team come in to manage all the business.” P7 described a conflict with a higher-level leader who almost fired P7 over a pricing model. Participants agreed that leadership had to be on board to overcome political obstacles. P3 noted, “there needs to be top-down decision-making full support. We know this is risky, we are going to do it. If there's any ambivalence there, you're not ready to go.”

Cultural Obstacles

All participants mentioned issues related to changing corporate culture as the business model changed. P4 said that the shift was absolutely a culture change, noting that many people in the organization were happy with the status quo; happy to do their nine to five jobs, collect their paychecks and take a small raise every year. They saw no reason to change a stable business. They were comfortable with the two- to three-year release cycles. As the new business model emerged, requiring more innovation and faster, more agile development, much of what people did had to change, and old patterns of behavior and communication had to change.

P2 stated that the move to subscriptions required everyone to change the way they thought about products and services, product development and the entire business model. P6 talked about the culture around accountability, especially related to development,

where developers had been accountable for writing their piece of the code. The new model required them to think more holistically and become accountable for ensuring the marketability of new features.

Several participants also discussed the need for speed of adaptation and culture change, given the speed at which technology changes. P6, for example, asserted “If you stay stuck in the fixed mindset, ‘this is how we've always done it, and it worked well.’ ... You're going to be stuck, and that's the only thing you're going to know how to do.”

Resistance to Change

In addition to the political and cultural obstacles, there were other sources of internal and external resistance to the changes. P2, for example, talked about resistance from product managers, who were in essence told that the business model that had been successful was going to be scrapped and replaced with a new model requiring new development processes, new developers, new sales teams and an e-commerce model that did not (at that time) yet exist. The compensation model had to change as well, because instead of one-time sales of software packages bringing in \$2,000 - \$5,000 per unit from customers every two to three years, they were going to sell subscriptions for 20 or 30 dollars per month. P2 discussed how the culture of the sales force involved identifying their value with the money they bring in. To P2's salespeople, the new revenue model was (at first sight), “very underwhelming.” P1 Pointed out that if the salespeople do not believe they can make money, they won't sell. P1 discussed some of the problems coming from their distributors: “while the direct business was migrating relatively quickly, the distribution channel was slower to adopt the subscription model. It was ...

stuck in in the perpetual model for about three years before we finally wiped out the vestiges of that.” businesses that use the software.

Outside the sales and distribution channels were the end-user customers, some of whom, as P2 said, “just won’t not align to perpetual because everyone loves the idea of “Here’s my money. I have this thing forever.” P1 discussed this problem in detail, pointing out that many existing customers liked their perpetual licenses, because they had learned to use the software they had and did not see a need for an upgrade every 3 years. They were not happy to move to subscriptions. Some enterprises did not allow subscriptions because their budgeting structures did not allow for ongoing credit card purchases.

P5 had spent time in education sales and described resistance in that channel from instructors and department heads who worried about the need to budget for new licenses. These customers worried about not having ongoing budgets for software purchases, and what would happen in their labs and classrooms if suddenly the software around which their curriculum was built no longer existed.

P1 summed the customer resistance up with, “And so there was I would say a modest but very vocal customer base who was very opposed to this move, and who made it very clear, very vocal, and frankly, were creating a lot of noise that was difficult.” It is clear from the data that resistance to the shift came from stakeholders inside and out. How the leaders dealt with that resistance surfaced in the next theme, covering the change management strategies they employed to overcome the resistance.

Theme 3: Change Management – Overcoming Barriers

In response to the interview question, “How did you address the key barriers to implementing your servitization strategies?” the participants’ answers fell into several narrower subthemes: customer engagement, early wins, engaging partners, engaging sales, flexibility (in offerings), and having small, nimble teams.

It is worth noting that one of the other major themes, leadership engagement, could also be classified as a sub-theme under this theme. Almost every participant listed leadership as a primary driver of change. For example, T6 said, “I think the single biggest thing was the shift in leadership, and leadership enforcing the collaboration and growth mindset. The culture had to change, or we would not have been successful.” Leadership, however, was important in every theme and strategy the participants discussed. Therefore, all the other named subthemes will be discussed in this section; leadership itself is discussed later as a separate theme.

Customer Engagement

Every participant talked about how engaging the customers helped and how they were hindered until they began truly working with their customers. P3 put it this way: “You can't make a business model change if the underlying market doesn't support that decision. It needs to be grounded in: Who are your customers? What do they care about and what are they willing to pay for?” P6 saw a lack of customer engagement as a primary obstacle (and customer knowledge as a remedy for that obstacle). In P6’s words, “The biggest shift was that it required the developers to think about things differently ... that was the biggest barrier to us getting started in the beginning because the culture

didn't think that way.” In addition, according to P6, there were failures in the beginning because engineers did not want to see the problem holistically, they did not “want to look at the end-to-end,” and did not consider how the users were using their products.

Early Wins

Another sub-theme was the idea of getting some of the features of the new model out to the market early to demonstrate that it could work. This idea took many forms. P6 talked about a formal agile method for getting trials out into the market quickly, describing a shift to being able to conduct development, pilot testing, adjusting and re-release cycles in ever-shorter time cycles and near-real time feedback from their partners and testers.

At P3's company, they used a similar approach to proactively running experiments for marketing, running migration promotions to test pricing models, finding that “lower price - shorter lock-in” was a better model for capturing LTV. That model drew more customers in and built higher retention. P1 conducted similar experiments, feeling that the success of that company's early trials helped, asserting “[the lower price point] was quite successful, in terms of actually generating new customers into the business ... it was very attractive and sort of proved that that could work.” P2 described engaging partners and customers using the trials by developing a direct sales model going to customers on their primary company website first. Success there helped convince partners that the new strategy could be successful and profitable.

Engaging Partners

Because the companies all transitioned from a product-out business model that required partnerships throughout the supply chain for distribution, transitioning to a predominantly direct-sales model inherently meant drastic changes to those relationships, P5 explained pointed out that the partners “also had to transition, so success was also ensuring that they also were moving with you and finding a way to do their business at the same time this transition was happening.” At P5’s company, they could point to success on the customer side (in terms of revenue), and that helped ease the partners while “their world was changing quite a bit.”

Engaging Sales

In the transition from product-out to SaaS, salespeople were concerned about how their roles would change. Some had spent years cultivating relationships with retail and other partners who were going to be lost in the shift. All were concerned that the revenue model was changing from a very expensive perpetual license to a monthly or yearly subscription that might cost considerably less. P1 told the story of going to a sales conference at the end of one year where most of the salespeople were complaining about subscriptions and listing all the reasons they could not sell subscriptions. Two weeks later, in January, leaders promulgated the new sales compensation structure. From that point forward, they were only to be compensated on subscription sales. P1 was not surprised to find that the same salespeople had a successful year selling subscriptions after that. P1 did tie the success of the sales engagement strategy to leadership, noting

“the company’s executive team had made a very conscious, conscientious decision to drive a significant reduction in its revenue ... and it might take years to get back.”

Leaders at the companies represented in the study also engaged the salespeople through measures, showing them that the revenue math would actually work in their favor. P2, for example, said that leaders explained the concept of “revenue stacking” to the sales force – the idea that in transitioning to a subscription model, there is an initial revenue dip, but as customers are added (and retained), the growth accelerates and revenue “stacks” to accelerate growth.

Another process that helped was re-training the sales people to re-engage the distribution partners that would still be there. P3, for example, discussed how lessons learned from a pilot study were used. The pilot team conducted its study in another country, trying different models for distributor compensation. When they made the decision to roll the new model out worldwide, there were already people in place who could work with those channel partners to get them past their resistance. They prepared training on revenue stacking, front-loaded the compensation and reduced retention compensation, telling the partners “it’s our job to retain them, and you’re not really going to be doing much versus us making sure that they’re still happy with their product, but where you are really earning is in the acquisition and the migration.”

An additional challenge to sales was the resistance from loyal customers, some of whom had been using a company’s software for years. The participants reported that there were several types, including individual consumers who had bought an earlier version of the product and invested in learning it and might have upgraded once or twice

over the years (but might still have their original copy). Others were enterprise customers for whom buying an upgrade meant having their IT departments install it, checking it to ensure that it still worked with their architecture, and training the workforce to use the new interface and features.

From management's point of view, though, maintaining earlier versions of the software meant a lot of overhead, as P3 explained, "that means we have to have people who know that version. There are bug fixes." P1 also discussed the dilemma the software company faces with these customers: "a customer calls you with a version that's three years old, it's not like we hang up the phone and cancel ... there's a balance here. [You] want to set the party line, but you also don't want to alienate customers." P1 went on to describe one tactic used to motivate customers to upgrade, running a marketing campaign called "Don't get left behind." The thrust of their argument was that people with perpetual licenses were missing out on all the new, useful and exciting innovation.

Several of the participants talked about a strategy that I came to think of as "the cold turkey approach." This strategy essentially involved waiting until they reached a given revenue target, then pulling the perpetual licenses off the market and (at least ostensibly) pulling support for legacy versions of applications. Leadership did this, according to P1, because they understood that "The only way we can really turbocharge this movement to subscription is we have to take that perpetual option away from customers so they can't choose it." Many customers were unhappy, but as P2 described the aftermath: "There was a gradual pickup of those customers over time—some that just

grinned and bore it and went and moved into it—but there was still a fair amount of vocal opposition for years.”

Flexibility

Most of the participants pointed out the importance of flexibility, both in helping to overcome barriers and in ongoing operations (another theme). Flexibility in pricing, in development, in the mix of offerings—all were keys to a successful transition. P7 stated that, when it came to development, sometimes acquisition was the key, but that decision comes with caveats. For example, in developing the tech stack, acquisitions were seldom perfect – “I have yet to see any acquisition where you just plug it in.” The important thing about purchasing a solution was in the ideas behind the acquired technology. Most of the code, P7 said, “cannot be fully reused and usually gets rewritten, which is expensive” because of acquisition costs and costs to revamp the software to make it fit.

P3 discussed about the “frenzy” in the initial stages of the transition, and how it forced the culture of the company’s employees to become more flexible. According to P3, the company’s employees were traditionally consensus-oriented and that some leaders had been frustrated by the time taken to make decisions before any action could take place. The transition developed into a forcing function that required teams to “be a little scrappy and move quickly, and if we have to adjust because we made the ‘wrong’ decision because somebody wasn’t involved, then we’ll adjust.”

P1 described how some flexible pricing and features offered led to a lower cost offering for one class of loyal customers and brought in a lower (but steady) revenue stream. “We came out with a model for reaching those customers called the “special”

edition, which was a repackaged lower-priced version of the cloud offering ... at \$9.99 per month ... that move got us quite a few of those customers.” P1 pointed out the advantage: “they could get over the math associated with the move with that offering.”

Flexibility also became important in the way the company met the challenges of rapid technological change. P2 said, “The medium that people are using is changing, so the idea of a really powerful desktop-oriented application isn't as compelling as something quick and easy that you use on your phone... We have to evolve in that regard.”

Small, Nimble Teams

For development teams, the shift to SaaS usually meant a complete overhaul of how they produced software. As P7 described it, “Release cycles come into play here. [We] used to release products sometimes as much as three years out, sometimes longer.” Some companies had an 18-month release cycle. These release cycles meant that developers would work on a new version of the software for 1 to 3 years, and then that version would be tested, marketed, and released. With the advent of subscriptions, direct online sales, online licensing, and (eventually) cloud offerings, though, the value proposition changed from ownership of a complete package to essentially “renting” the capabilities offered by the software, with constant updates and upgrades added to the subscription for no additional cost. From a development standpoint, then, the paradigm had to shift.

P1 supported that concept, asserting that “some...newer, more nimble products are innovating on a quarterly basis...they'll have a few sprints and then they'll throw

something out...do a few more sprints and throw something out...it allows them to stay relevant in market and adapt quickly. P1 also talked about the advantages when addressing some of the challenges of the shift away from the legacy model, stating, “the teams that reacted the best were the small, nimble teams that were relatively new and didn't have all the legacy behind [them].”

It appears, from all the participants, that the change management strategies employed were ongoing. The leaders' approaches continued to evolve as the technology and the competitive environment changed. As a result, there were interactions between the change management, leadership, sales and marketing, and operations, development, and architecture themes.

Correlation with the Literature

The finding that these companies all experience barriers to completing the transition to SaaS remained a theme throughout is consistent with the servitization literature. Baveja et al., as early as 2004, found four faulty assumptions managers make when attempting to servitize, including the assumption that current employees and current knowledge bases are what will be needed to make the change. This idea is mirrored in the subthemes of political and cultural obstacles, wherein the current employees, happy with their current knowledge, resisted making the transition. The findings also reflect the conclusions from Kazcor et al. (2017) that leaders are seldom aware of the challenges that lie ahead in the transition, notably internal problems (culture, internal operations structures) and customer issues such as pricing and marketing.

The findings represented by this theme also confirm some of the findings of West et al. (2018), who cataloged seven major classes of barriers: economics and finance, products and activities, organizational structure, suppliers and partners, knowledge and information, society and environment, customers, and competitors.

Correlation with the Conceptual Framework

Findings regarding overcoming barriers are consistent with RBV. In the literature discussing RBV and change management, the barriers and strategies. Wang and Wang's 2017 work, for example described dynamic capability-based and ad hoc problem-solving methodologies as resources for change management. reAka-Wolugbom and Eketu (2021) saw the failure of firms to anticipate and manage change as a resource problem, viewing change management itself as an invaluable resource for effective supply chain management.

Barriers to change are also discussed in the RBV literature, going back to Barney (1986), who tied the value of a firm's resources to its ability to correctly anticipate the need for them and identified uncertainty in those valuations as a driver of competitive advantage. More recently, Wang and Wang (2017) compared dynamic capability-based and ad hoc problem-solving methodologies for strategic change, finding that the dynamic environment is a moderator. Aka-Wolugbom and Eketu (2021) saw the failure of firms to anticipate and manage change as a resource problem, viewing change management itself as an invaluable resource for effective supply chain management.

The finding that the shift to SaaS required these leaders to use change management strategies for successful implementation provides another example that

confirms the findings of researchers discussed in the previous section. Baveja et al. (2004), for example, included lack of flexibility in approach as a trap leaders fall into in servitizing. Kazcor et al. (2017) found that leaders who failed to recognize the need for higher levels of customer interaction and agile customization tended to fail in servitization. This was consistent with West et al. (2018); both these conclusions are in line with the sub-themes of engaging with partners and engaging with customers. Those findings also support Ruiz-Alba et al. (2018), who found that high customer co-creation levels drive the servitization-performance level.

Theme 3: Modernizing Operations, Development, and Architecture

The excerpts and codes related to this theme are related to changes that the leaders had experienced related to how the company's processes and systems changed to respond to the technical challenges that arose as the transition unfolded. The primary subthemes included the development of the operational "tech stack" (the technology required to execute necessary processes), operational flexibility, moving to the cloud, providing services, as well as the introduction and use of data analytics to drive decisions and continuous improvement to meet customers' needs and stay ahead of the competition.

Developing the Operational Tech Stack

As companies transitioned toward the new SaaS model, new processes and systems were needed. New software development tools, sales interfaces, credit card, and other payment-handling systems, data collection systems, data centers to store and manage all the new data collected, and the overall architecture to allow management of

these new systems had to be developed; many from scratch. P3 noted, “And then, frankly, we had a whole new go-to-market that did have to get developed.” P2 said, “we had to kind of start the flywheel of this business model by building our own direct business capability with customers. Our primary website was the foundation of that. It was the cornerstone.” P2 went on to describe how they evolved from there, stating that “You've got to build...in such a way that it serves all of your customers if you want to move off of perpetual, and the reason is that we have a really wide array of customer segments or customer types.”

It was not easy to develop the technology and build the architecture. P1 discussed the level of back-office investment in the first five years of the transition as a primary challenge involved in the evolution. P1's leadership had decided to use their own resources to develop the subscription engagement engine. This technology involved “subscription services: the logins, the subscription management, the billing, the customer cancellations, credit cards, all that kind of thing.” Leaders had considered outsourcing, but felt that their own developers understood the unique features of their business processes and would provide a solution more optimized to their internal systems. P1 concluded, “We were a software company, after all.”

At P7's company, some of the system was built from scratch, and some was built through acquisition of third-party vendor products that filled some technical gaps. That brought some of its own challenges, though, as he pointed out earlier when talking about flexibility.

Operational Flexibility

The transition from the old model to the new was a learning journey for all the companies studied. In many cases, they were building processes and systems that had not been tried before, and progress largely depended on the flexibility to experiment. P7, for example, discussed what happened as they modified the architecture. Their developers built a common infrastructure “that ... could be used across all the different services, even though the architecture of those services (once you get in) may be completely different.”

P7 discussed the need for flexibility when moving from longer to shorter release cycles: “[we] used to release products sometimes as much as three years out, sometimes longer ... that's really painful for our enterprise customers and the cost of upgrading from one version to the next ... multiyear ... huge investment.” P7 went on to contrast that approach with SaaS: “I can actually put new features and code out daily if I choose to... I can actually be way more competitive, which is fabulous. But a lot of enterprises are not used to that level of change.” One product at P7’s company “would release their new platform and let customers go into the environment and have six months to play with it before they rolled everything into that.”

P4 mentioned the need for flexibility when dealing with customers and support, especially with legacy shrink-wrap (but loyal) customers. The policy at P4’s company was to support legacy versions of the perpetual products for up to 20 years. That maintenance model required having engineers who were familiar enough with the software to provide technical support.

Moving to the Cloud

As technology improved and companies built out their architecture to exploit the improvements, moving to hosted infrastructure (“the cloud”) became a large part of each company’s strategy. The cloud carries some challenges beyond the need for fast broadband and large data centers, though. The advantage to the cloud is scalability – a company can add many users from diverse geographical and industrial clients. This raised security concerns, and some companies were reluctant to store their data where they did not have complete control over the servers. P4 talked about the impact of that factor on sales and marketing, discussing many customers who want to buy the software, but cannot convince their companies’ cybersecurity specialists that a cloud application will comply with their security requirements. P14 went on to say: “You absolutely can secure it [but] you have to be very thoughtful about how you engineer your product to be able to do that.”

Another issue is ensuring that only people who are authorized to use software in the cloud are the ones using the applications. P7 talked about that issue when it came to the education market, describing identity challenges, and the need for “common infrastructure” as a prerequisite to SaaS. Customers who buy separate tools want integration, and “don’t want to go to five different portals.” With that type of flexible integration, controlling access and verifying identities is a vital task; without the ability to verify identities within the common infrastructure an SaaS cloud model would be commercially untenable.

Providing Services

One reason given for going to the new model was to take advantage of the benefits that arise from offering services. P1 put it this way: "...ongoing there would be the actual development of services that would help to support the model, customer-oriented value services." P6 discussed the change in thinking required for product managers when shifting to providing services: "...when you're running a service, and you're accountable for that service, you really have to now begin to look end-to-end. So, there were some shifts in how engineering began to work." In addition, P7 pointed out, "Looking end-to-end shifts even how we were looking at support. Because if you have a customer now paying for a service, and it's not working, then your support model needs to change as well."

P3 described the evolution at one company, explaining that in the beginning they did not offer services, because "You don't sell services with perpetual." They had experimented with a few minor services. However, at P3's company the leaders recognized that the speed of technology was driving customers to seek innovation, and making them impatient for the next feature, the next upgrade. It became clear that firms who wanted to be competitive had to invest in services that customers need and want..

P4 talked about how the pace of innovation had increased because of services provision, saying, "From a product and a feature standpoint we probably did more in the last couple years than we had done in the previous 20 years combined." P4 went on to explain that "If your customers understand that every quarter or every year, they're

getting something meaningful and getting something valuable, that's when you can actually transition.”

Data Analytics

This subtheme was discussed by every participant because the shift to a model where the customer is connected to the company's servers enables very rich data collection. As the companies began to understand the type of data available to them, the way they used those data—and the things they measured—evolved. P1, talking about metrics, stated that “With the subscription model—and particularly in a transition from a desktop model—the establishing of analytics is critical.: P8 talked about what guides projects: “Any project that we do now, we make sure we have pretty solid KPIs, which will indicate whether or not we're failing or we're succeeding, and that's always a part of the equation on any new process or project.” P8 went on, “I think it's a different way of looking at things now. Not that we're not no longer creative.” P3 said, “There has been an evolution in the way that we measure our business and what we would describe as success in our business.”

P7 also discussed one of the challenges of finding the right metrics: operational definitions; saying, “we went through an upheaval where a lot of white papers were created for...(thinking about SaaS service), ‘What do you consider usage?’ We went through this whole thing about, ‘OK, if I log on, am I considered using it?’” This was not a trivial problem because a user logging on without actually performing any functions might or might not be counted as “usage,” depending on how the question the company wants to answer from the data analysis.

P1 talked about how the measures were used to drive improvement, describing how the developers had tracked the waterfall projects from end-to-end. This helped them identify steps in which customers dropped off. P1: “Going from the very first step where a customer has subscribed to your product to the very next step, inevitably there's a 3% drop off [and] you never see that customer again, and they never even made it to the download stage.” And you're like, “What the heck happened?” And I think we began to realize that those same drop-offs were happening in perpetual software, we just never saw them because the customer buys, and there's no interaction with the company after they've taken their CD-ROMs home.

Several participants talked about the shift in resources driven by the now-abundant data. P8, for example, stated, “You've replaced your manufacturing resources with program managers and other resources—marketing, for instance, or data scientists (which we didn't have back then). You have data scientists. You have people that are doing all the analysis. P2 discussed the need for analysts, as well, saying “data science is the new black,” and “everybody got data scientists, it's not enough to have an analyst. You have to have somebody who can write code and stitch your data from 15 different systems and tell you the future.

P2 talked about the prerequisites for ensuring quality in the data and becoming data-driven, listing three things. First, create a single source of truth, to eliminate ambiguity between databases. Second, decide which measures are most important. Third, “Your operating model. How do you get people to operate differently?”

Operations and Development and the Literature

Many of the peer-reviewed papers in the literature define and describe the structures required for SaaS delivery. Plummer et al. (2008), for example, provided a definition for the cloud that included the requirement of massive scalability and discussed the delivery of services via the internet. In a cloud offering, the software resides in the provider's servers; customers log in to the servers and use the software online. Krishna (2021) described the problems related to securing the cloud and add to the overall SaaS architecture that could be provided Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS). In these architectures, customers rent VPNs, IP addresses, and other infrastructure elements from the provider. This relieves the customer organizations from having to staff massive IT departments to deal with everyday IT problems. Nordin and Rodsiahlatih (2021) discussed the impact of SaaS on development productivity.

Because the developed tech stack comprises the technical resources of the company, RBV is relevant to most of this theme because the primary thread consistent throughout most of the RBV literature is resources—largely, what comprises them and how they can be valued—starting with Penrose (1946) and Barney (1986) and running to more recent research, such as Barney (2021).

Theme 4: Selling and Marketing Servitization

Most of the executives interviewed for the study were or had spent large portions of their careers in sales or marketing, and so many of their remarks touched on sales and marketing strategies. As was the case for the other themes, there were similarities and interactions with the other themes. Some of the resistance to change, for example, came

from sales and marketing people—both within the participants’ companies and in their distribution channels. P2 explained some of the complexity of the target markets for their software: “We have individuals, we have students, we have professionals..., people who make a living using our products as individuals and then folks who work inside big organizations...such as government, customers, etc.” With that diverse customer base, the question became, “Where to start?” P2 went on to explain, “we said, let's start with [a] focus on individual users. We won't worry about businesses and enterprise for right now; it's a bit more complicated. We're going to create our cloud offering. And we're going to orient towards individuals.”

Marketing Innovation

Some participants talked about the challenges of developing marketing approaches to selling a new concept. P2 talked about what was needed to get customers to buy an innovative value proposition, saying it had been important to set up their cloud offering as “not just the next version of this, but something so much more powerful and so much more valuable to you that you want to move to it,” and asserted that it followed that the first thing to do in sales and marketing is to create a brand that carries credibility with customers, and noting that credibility in technical services is tied to innovation.

P4 discussed the challenges of marketing innovation and setting up for success in that effort, suggesting that the reason some leaders have failed is that they did not sufficiently prepare the groundwork for innovation. In P4’s view, it is important to be “thoughtful about the ‘why.’” It was also important, P7 said, to think through the balance,

creating significant innovation and value, but not so much that customers are not happy with the result.

P4 felt that there had been great advantages to having the ability to market the innovation that came with SaaS, remembering, “we said we need to drive innovation, more innovation, more rapidly, ... every year something new and intriguing is coming out. That has to do with both convincing you to go to software-as-a-service and keeping you satisfied.” P4 went on to explain that “If your customers understand that every quarter or every year they're getting something meaningful and getting something valuable, that's when you can actually transition.”

Marketing to Education

One path that some companies in the sample followed to grow their customer base was to market to education. By providing software at greatly reduced prices (or for free), they were able to get their applications into more computers and have a customer base that was trained and experienced with their software who might become long-time loyal users. P8, for example, explained the approach they took, stating that “The path was just, ‘Put it out there, we don't really care as long as the students have it in their hand and they're using our product.’ P8’s company gave subscriptions to any school presenting their classes. P8 went on: “So now the student [did not] have to buy it. They [could] get the software, the schools could teach it, and now everybody's happy.” The strategy paid off, as they captured those students as customers after they moved into post-graduation careers. As P8 put it, “What we were doing was building the customers for tomorrow, and the cost was we sent it out for free. That was really the strategy.”

P5 talked about some of the challenges of this approach, explaining that “there's also concern around pricing for students. We took forever to come up with a student licensing price and to have students get access to the tools.” P8 talked about some of the organizational learning that happened as the approach evolved, saying that although they had been using this approach for several years, “up until recently we weren't validating, we didn't do a lot of heavy validation of the fact that they were a student. Now that process is in place where we're validating that you are student. You just can't say you're a student and get the software.”

P5 told a story about the success of marketing to education using free subscriptions. The sales team was meeting with one of their large customers. P5's firm was competing for this customer with one of their rivals. The customer had been using the rival's product, and related what happened in an interview with a prospective new hire. :

He asked, “What software do you use?” and this kid said, “[P5's application].

That's what we all use,” and the light bulb went off for this guy, he went “Oh my God. All these kids that are coming in are using a tool that we are not using,” and they flipped to [our application] based on that.

Migrating Customers

The participants also talked about some of the tactics and strategies they used to migrate customers from ownership to subscription. For example, P2 said, “...in the early days we added migration plans. We had really advantageous pricing models such that if you were an existing customer, we wanted you to come across to our cloud offering.” At

P2's company, leadership committed to the model, and "we didn't telegraph, we explicitly said, to everyone in the industry and to our customer base, "Our cloud offering is the future. We're not going to continue to innovate on [that cloud offering]." Once customers realized that all the support and innovation was only going to be available in the cloud but that it would be available more consistently, they tended to move to the cloud offering.

Retaining Customers/Customer Loyalty

As the transition progressed, there were challenges in maintaining and growing a customer base. Most agreed that new customers could be retained by some of the other strategies mentioned in other themes but retaining customers who had been loyal prior to the shift was sometimes more challenging. P5, for example, talked about the specific complexity they faced in dealing with some of the legacy customers. "There were always those customers that got left in the lurch: smaller customers, customers that might have seen someone from [us] in the past but wouldn't see them anymore because they weren't on anyone's account list." Distribution channels would have assisted with those customer relationships in the older model, but if distribution partners were lost in the transition, then the resources had to be divided so those customers could be retained. Eventually, they evolved to a new concept: "Customer care representatives—people that are actually calling and really checking out what's happening with customers" and were able to keep those customers loyal.

At P4's company, the approach to retaining these customers involved flexibility, explaining, "Using the football analogy, there's a 'bend, but don't but don't break' kind of

philosophy. Like I said, we have to stop servicing somebody that's five years old.” There is another side to that for P4, though, who went on to say, “...but if...you've got a client with a five-year-old license, you can't hang up the phone on them, either. You can hold the line. There's got to be reasonable accommodation. You have the benefit of determining what's reasonable, what isn't.”

Pricing Strategy

When the companies had been selling a new release every 3 years, the prices had been stable, and financial modeling could be done along more traditional product-out lines. Shifting from that pricing equation to a monthly or yearly, or by-use prescription meant trying to find a balance where customers saw a price advantage and would be willing to shift. P1, for example, pointed out how a low initial price might attract customers who would later purchase other services: “I think also the model of having a monthly payment and the ability to add on services to that monthly payment provides a low entry point for other capabilities.” At P1’s company, they experimented with several different pricing strategies, including month-to-month (no contract), a less expensive monthly subscription (annual contract – monthly payments), and a similar plan with an annual contract, but one lower annual payment. Most of the companies eventually adopted that type of model for subscriptions.

P3 discussed the use of tiered plans for different customer segments: “The original plan was to have a lower-tier version and a higher-tier version, ignoring branding; and we had a high degree of confidence in what the price sensitivity would be, who would-be buyers and what they would value.” P1 discussed the use of introductory

offers at a lower price to lure customers, explaining that they eventually “got very good at coming out with these promotions that would last for a year on the product lines, and then the migration rate to the full price was phenomenally good.” Once they had established the customer relationship that way, they began to see a rise in renewals that was stronger in some instances than new customers that had bought at the full price.

P7 discussed the challenges with pricing structure for enterprise customers, who might buy a package of subscriptions to take advantage of volume discounts, but who had to deal with usage questions internally. They might buy 50 licenses to get the discount, but if all those licenses were not used, they were paying for something for which they were not receiving full value. SaaS solved some of that problem because it became easier to track installation and tying it to what they called creating a “sticky” customer. Knowing what customers would and would not use enabled sales to present tiered offerings tailored to individual customers or classes of customers.

Correlation to the Literature

These findings support the already considerable discussion in the servitization literature about sales and marketing and the various models needed for success in shifting the business model. Kaczor et al. (2017), for example, directly addressed challenges of pricing, marketing, and customer relationships. Almumay (2020) explored the benefits of flexible pricing strategies and maintenance. Freitas and Freitas (2017) examined the impact of service quality on customer retention. Saltan and Smolander (2021) found that companies need a coherent process for making pricing decisions, less complex models to support decisions, competent analysis using sufficient data, and a recognition of market

dynamics and ambiguity. However, in what may be a departure from the findings regarding retention and pricing, Zhang (2020) found that differentiating between older and newer customers is not a good strategy for established firms.

Correlation to the Conceptual Framework

In the RBV literature, sales and marketing strategies and tools important resources have been found to be factors in success. Lukovski et al. (2020) synthesized sales resources and innovation to create a model that shows the effects of the various resources and their interactions with innovation to create success. That research is consistent with the subthemes regarding marketing innovation and pricing strategy. The findings also support Afriyie et al. (2018), who found marketing capabilities including pricing, channel management, and marketing planning as valuable and inimitable resources providing. Their conclusions were all consistent with the findings, especially with relevant specific subthemes – pricing strategy, marketing to education, and migrating customers.

Results

Every participant wove some discussion of the transformation's results into their answers. The subthemes that emerged included enhanced customer satisfaction, an expanded breadth of service offerings, greater access to high-quality data, growth, an impact on organizational culture, and a leaner overall system.

Greater Access to High-Quality Data

With the old business model, where software might go through an 18- to 36-month development cycle, the availability of end-user knowledge was limited, usually to users who might be recruited for beta testing. Once the software was released, users

usually could not expect any improvements until the release of the next version. Once bandwidth became available for consumers to download software and connect to a licensing management application, a direct sales channel opened. Customers no longer had to find a retail outlet and purchase a shrink-wrapped package with the license included. Bug fixes could be offered online, and upgrades might be available for an additional purchase. Software companies were now in direct contact with many of their end-users; with the advent of cloud-hosted software, the companies had direct access to customers' usage data.

This availability of data helped drive changes in the companies' approaches. At P3's firm, for example, "Data-based decision-making capacity increased significantly; and I guess the other thing I would say is that that business is more mature organizationally." P8 talked about the advantages of customer data availability, stating, "Technology has allowed us to know more about customers than we've ever known," explaining that prior to SaaS, their only customer insight came via surveys, usually provided by independent companies. With the SaaS model, the company knows how often customers open and close their applications, where they get stuck, which help file topics are searched most, and how many files are on their systems. P4 concluded, "Now we can make more informed decisions, whereas before we...had a just straight gut check ... all these other artificial different ways of trying to understand our customer."

P2 emphasized the advantages of having the data as well, describing the advantages of accruing a large customer base connected via a direct digital business model. The ability to test multiple scenarios with predictive analytics often reveals now

opportunities for growth. In going from a product release every 18 months to a constant stream of information, P2 stated: “Now we're at a place where we're digging so deep into that information that we're seeing things we've never known about our business. What it does is it unlocks your actual ability to be customer centric.”

Enhanced Customer Satisfaction

The availability of extensive real-time data has allowed the companies to become more customer-focused. Several of the interviewees discussed how it has worked for them. P8, for example, said that it has become their focus. Previously, they did not have insights into how customers were using their software. “When you release more often, you get more feedback, and you can hone that feedback to be more in tune with your customers.” Being more in tune with customers leads to more consistent delivery of features and upgrades that customers want. According to several of the participants, customers have responded positively, and as a consequence, revenues have grown.

Expanded Breadth of Service Offerings

As they progressed, most companies found that the combination of rich, timely voice-of-the-customer data driving greater customer focus with all the advantages of small, nimble development teams using agile development techniques helped create a suite of customer-centric services. P1 pointed out that competitive advantage at that company “is always tied back to the breath of ... market leading products, so it's always most difficult for competitors to try to go after the core market when it involves innovating on multiple product lines to kind of get the critical mass.” P1 also addressed the company’s ability to offer ancillary services, “...a critical part of our customers’

process, [and] something that our company had now a direct lever into, whereas the competition mostly of a standalone ancillary service business didn't have that engagement,” seeing that integrating services and products “was an important part of the growth of the cloud offering effort.”

P7 also touted “The vastness of our services. We have the platform, and we have the software stacks that run on it, so what we lead with (from a sales perspective) is the breath of our portfolio.” P7 went on to say that the ability to push updates and bug fixes on the fly was important to customers, and the customers liked the fact that they didn’t have to “change anything ... or go to add something.”

P1 saw their services as vital to the company’s competitive position in the market, explaining that “What services do for this company is just provide another layer of glue between desktop products that are market-leading, that make it that much harder,” and going on to explain that a competitor might go head-to-head with one product, but that product is linked to a lot of value-add services, as well as fully integrated with other products.

Growth

During the interviews, whenever the conversation turned to results from the transition, business growth was discussed as an important outcome. P1, for example, noted that “There were a lot of new customers that were very attracted to this model, and so drove huge growth in the business that we were seeing.” P2 said, “We started at double-digit millions ... and went to triple-digit millions.” P3, when asked about the impact of the new model, answered, “Clearly the retention ... We added subscribers as

users who were not perpetual buyers, and so they are less vested. and it's not the best word).” P3 also cautioned that growth was not a given, adding, “They are more likely to leave, so the growth part was great, but now you have to really make sure that you are meeting their needs and retaining.”

P4 talked about the importance of growth and its self-reinforcing benefits, discussing how company growth means resource growth, which feeds development and innovation, which creates more features that customers need or want, so attracting and retaining customers becomes easier, which drives more growth. In addition, the SaaS model and enhanced customer connectivity and insight enables leadership to optimize development investment decisions to be made.

P2 discussed the revenue dip that happens in the initial stages of the transition, saying, “There's a revenue dip, but over 24 months plus you stack revenue, and as you add new customers, your growth accelerates way faster than it would on the perpetual model. That's why you do this.” P2 also talked about measuring growth using “ARR... Annual Recurring Revenue, because it's a subscription product...all the subscription companies used this...as a means of evaluating the worth of a customer over 12 months,” and went on to say that when they started using ARR as the metric, “we realized holy mackerel, we've got a lot more ARR than we used to have revenue. We should start counting ARR, and that should be the metric for how we drive...our objectives, goals and success.”

As the transition evolved, though, P2 said that the way the company measured growth had to evolve, as well. In a subscription model, there is an attrition rate. Your

customer base churns as you gain some customers in a month and lose some customers. P2 offered details of moving from ARR to long-term value as the SaaS business matured, which is value over time divided by costs to acquire. According to P2, “That's the magic formula of what the value of the customer is over a period of time. And so our current north star is really around LTV versus cost to acquire.”

Impact on Culture

In earlier sections, discussing the themes of barriers to servitization, leadership engagement and change management, some of the excerpts addressed culture. Some of the participants went on to discuss the cultural changes that had resulted from the transition. P3 talked about one such change, saying that their CEO has recently said, ‘if you know exactly how you're going to get to from point A to point B, you're probably not thinking big enough...challenge yourself...don't wait for it all to be figured out.’

P6 described the culture change at that company in detail. In that company's previous culture, “If you failed, it was on your reviews and the rating system ... and then they also had if you were in the bottom 10%, you were likely being ‘managed out,’ so it wasn't conducive of collaboration.” In that culture, leaders tended to protect what was in their spheres of influence and shied away from working with people from other areas (even if it advantaged customers or the company as a whole). They were not reviewed based on cooperation, though; rather it was how they were doing in the internal competition. That has changed. At P6's company now, leaders “need not have a fear of failure. You have to get out and try things. You have to be able to do it in a way where you're not crippling systems (and we have very specific criteria how that works)” The

culture now requires people to allow for some level of failure, and to grow as a result of the lessons learned from those failures. They now see failures as opportunities for improvement.

P4 described the change in attitudes that had come with the culture change, saying, “Some people love it; some people opt out, some people can't handle it and they get opted out. So, it's not easy, but once you start to build momentum (for the people that are excited), their pace gets faster.”

Leaner System

In the transition to the new model, the methods used to produce and distribute software and services had to be re-engineered. Long development cycles and slack-time management had to give way to small, nimble teams using lean agile development cycles whose duration might be measured in weeks instead of months or years. As P6 pointed out, “We needed to move to much more agile development, agile release; being able to pilot and test things.” P2 described it this way: “That pace of change is very different, and the mindset around how you would sequence the way you're going to build and improve a product is very different ... Now the majority of our business flows through our direct sales motions.” With the old model at P2’s company, there were over 20,000 partners; during the shift that number was reduced by more than tenfold. The remainder “are still important partners for us and we are very, very aligned and strategically linked up with them ... other partners continue to sell our stuff at a very low margin, because [it] still sells really, really well.” The leaner, more agile organization did not mean that the companies could not provide employment for more people; as mentioned earlier, the new

availability of data meant hiring analysts and data scientists. P4 talked about that change, saying, “there are jobs that exist today that didn't exist in a perpetual world.”

Correlation to the Literature

The findings regarding results are, of course, extensions of much of the servitization literature, in which the impact of servitization on firm performance (usually measured in terms of results) is the focus of many papers. For example, Feng et al. (2021), Kohtamäki et al. (2019), and Bustinza et al. (2019), all studied the effects of servitization on firm performance. Li et al. (2021) measured the influences of servitization, finding interactions between servitization, culture and customer satisfaction. These findings are supported by my subthemes regarding culture and customer satisfaction.

Correlation to the Conceptual Framework

Since the findings in this paper describe resources (high-quality data, expanded breadth of offerings, leaner organization) resulting from servitization, they support the resource-based view. The RBV literature contains a rich debate about the nature of resources arising from successful strategies; see, for example, Hussin, et al. (2018), or Gupta et al. (2018) for discussions of resources captured through servitization. Most researchers using RBV as a theoretical or conceptual framework describe firm's strategic assets in terms of resources.

Applications to Professional Practice

The findings from this study may help business leaders who are considering the use of an SaaS business model with guidance as to what could be important to their

success. It appears clear that the leaders in successful companies in this study leveraged leadership engagement to drive flexible change management, sales and marketing, operations, development, and architecture strategies. The findings suggest that developing an improved system for production of services requires leaders to build trusting relationships with their customers, to gain intimate knowledge of customers' requirements. This knowledge will guide them in creating lean systems to produce high-quality services that will help them grow the customer base and enhance customer loyalty.

The findings also suggest that leaders have to create a culture that enables the people in their organizations to understand and accept risk, learn from failures, and embrace continual improvement and innovation. The leaders interviewed in this study all led "from the front," setting a vision for where they wanted to go, and constantly, visibly, seeking better methods and systems to get there. When systems and processes needed to change to make that happen, these leaders committed to and then openly supported those changes. They built systems that could quickly test and implement innovations, and constantly improved those systems, reducing cycle time for proposing, prototyping, testing, and go-to-market. In the end, as well, they all recognized that although they had achieved leadership positions in their industries, they had to keep an eye on the future, because technology is certain to change again.

Although the studied companies were all in the software industry, the findings from this study and the literature around servitization suggest there are potential benefits for leaders in other servitizing industries. Manufacturing firms' leaders, for example, will

need to decide what services to offer and how; it is not difficult to see that many of the lessons learned described in this study would help guide decisions regarding the extent and structure of those service offerings. As an example, interactive troubleshooting and technical support cloud applications for subscribers to any Product-as-a-Service offering would provide information to manufacturers about what is going wrong and how often, with their products.

A specific case-in-point could be electric vehicles, which have now essentially become computers on wheels. There are fewer moving parts, and services that were required for traditional drivetrains are not needed – no periodic lubrication, tune-ups, transmission or differential maintenance. For an electric vehicle, the only periodic maintenance needed are tire rotation and replenishing wiper fluids. In any case, the leadership and change management lessons findings should apply to strategic leadership in any industry and help garner more success from servitization initiatives.

Implications for Social Change

Each of the firms represented in this study experienced growth following their transition to a SaaS model. This was borne out in the responses from participants and review of public documents (e.g., annual reports) relevant to these firms. The companies in the study realized higher revenues, expanded employment, higher levels of organizational learning, increased knowledge about their customers, and a consequent ability to provide better service to those customers. It follows, then, that leaders who implement similar strategies at their businesses contribute to positive social change by providing opportunities for employment in their communities and more resources for

philanthropic work, which benefit society by enhancing the quality of life for individuals and communities. In addition, the provision of higher quality products and services at lower prices are beneficial for all consumers of those products and services.

Recommendations for Action

The leaders who participated in this study were able to guide their organizations to develop profitable, flexible, agile, efficient, and customer-focused systems for providing services to all their customer segments. Business leaders who are embarking on a servitization journey have the potential to emulate this success by doing the following:

- Take a strategic approach to the transition by developing robust strategic plans, building enough flexibility into the plans so they can be adjusted as needed to meet new challenges.
- Embrace data-based decision-making early and build organizational knowledge throughout the journey. More than one participant pointed out that as they progressed, they got to the point where the question was no longer “why did *that* happen?” but “why didn’t we *know* that would happen?”
- *Lead* the transformation. Develop a compelling vision and a plan to get there, anticipate the inevitable resistance to change and be prepared to mitigate it, and take every opportunity to create excitement about the new way with pilot tests, early wins, and constantly, consistently, sharing your own excitement and commitment.

- Develop the best possible operational tech-stack and drive continual data-driven improvements and innovation.

The findings from this research and these recommendations could be published in appropriate industry-related journals and presented at relevant conferences.

Recommendations for Further Research

This research started from an assumption that there are inherent benefits accrued when an organization's leaders shift from a product-focused business model to a services-focused model. Further, given both that inherent-benefit assumption and the servitization paradox, it would follow that any firm failing to reap the benefits of servitization would have failed due to a lack of strategy. If the inherent benefit assumption does not hold, then it could be that benefits from servitization are not inherent. This would imply that those leadership teams that were more successful following servitization reaped those benefits as a result of some other confounding factor. It might, therefore, be beneficial to attempt to design a study to examine the validity of the inherent-benefits assumption.

A limitation of this study was that the small purposive sample used for the study—although useful in the sense that the data appear to be valid for the narrow focus of the study—means that the findings may not be transferable. Although most of these findings were consistent with the findings of other researchers on servitization and SaaS, researchers' knowledge about servitization strategies is far from exhaustive (see Johnson et al. (2021), Khanra et al. (2021), and Ruiz-Martin & Díaz-Garrido (2021)). Further studies examining leaders' strategies at other firms and in other industries could provide more evidence bolstering the transferability of results.

A delimitation of the study was that it was confined to successful efforts. While the strategies deployed by leaders in my study proved successful, they may have been used by other less successful leaders. Comparative studies looking at successful and failed initiatives across similar firms might provide insight into which strategies can be relied upon to increase the probability of success.

The conceptual framework of the study (the resource-based view or RBV) was useful because it deals with strategic advantage, an important measure of success in any strategic initiative. Because servitization is inherently a change in a firm's business model and did precipitate cultural change in the organizations I studied, I believe it would be useful to build studies that would examine servitization from a change management perspective using, for example, diffusion of innovations theory. This could help develop more specific change management strategies and accelerate acceptance of the technical, political, and cultural changes involved.

Finally, in one of the recent papers on servitization, Androdegari and Sacconi (2020) offered a maturity model that appears to hold promise for future research. If their proposed maturity model could be validated, it might provide a coherent assessment instrument for guiding servitization strategy.

Reflections

Although I have been a quality consultant for over 32 years, working in a diverse cross-section of industries and government, I had not heard of servitization (at least not that word) until I was assigned to write a problem statement in an early DBA class. I had not intended to make this the focus of my study, but each class I took required that I build

on that initial problem statement until I found that it was too late to study anything else. Having said that, however, as I dove into the literature stream around servitization, I did find it to be a very interesting problem. The shift from shrink-wrapped software to the cloud was most intriguing.

I have enjoyed the learning, the research, and the writing. As a quality consultant who is constantly on the lookout for methods to improve processes, I can say that I believe the academic review process is rife with opportunities for improvement. There is entirely too much waste and rework built into the current process. It could be made radically more efficient and effective with a few relatively simple changes and could cut what is a years'-long process down to a few months (at worst) and make the whole experience less about compliance and more about actual learning. It could also help mitigate some of the negative perceptions of for-profit online learning. My frustration with that review process is probably driven by my personal bias against such processes resulting from everything I have learned in my professional life.

Conclusion

In conclusion, success at servitization is possible, but it is important to proceed thoughtfully once the decision to follow that path is made. Given the strides in technology over the past few years, it is hard to imagine any industry that will not be touched by the need for service provision in the future. Leaders should recognize that it is not a simple addition to their business model, however. Servitization requires leaders to embrace a paradigm shift—a radical change in how they think about and plan strategy. It will require significant transformation of their organizations' culture. The recurring

message from all the successful leaders interviewed for this study was clear: “You have to think it through.”

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Appendix A: Interview Protocol

What you will do	What you will say
Introduce yourself and set the stage	<p>Hello, my name is Rip Stauffer, the researcher conducting this study. Thank you for agreeing to spend some of your valuable time with me today. Your participation is vitally important in this study to explore strategies that leaders use for servitization. During the interview, I will ask you 7 questions, along with any clarifying questions that might arise. We have one hour scheduled for this interview; I intend to respect your generosity with your time, and keep the interview within the time allotted.</p> <p>Following the interview, I will transcribe the interview and seek validation of the accuracy of that transcript with you via email. Please feel free to ask clarifying questions as we go.</p>
Review the correspondence sent	Hopefully, you had a chance to review the

<p>previously and the consent form, and verify the interviewee's signature on the consent form</p>	<p>email I sent you. I received your signed consent form, thank you for that. Can I please confirm that I am speaking to (Participant's full name as it is on the consent form), and that the signature on this consent form is your signature? Do you have any other questions before I begin?</p>
<p>Describe the process and ask for permission to record the interview.</p>	<p>To help ensure that I get all your responses verbatim, I would like to record the interview if possible. I will, of course, keep the recorded file confidential and non-attributable; upon your validation of the transcript I will delete and write over that recorded file.</p>
<p>Conduct the interview, asking clarifying questions to check for understanding and probing questions to explore in-depth, as needed.</p>	<ol style="list-style-type: none">1. What were your strategies for servitization (the transition to SaaS)?2. How did you assess the effectiveness of your strategies for servitization?3. What are the critical differences between the servitization strategy and previous strategies?

4. What services that you now provide are difficult for others to emulate or imitate?

5. What were the key barriers to implementing your servitization strategies?

6. How did you address the key barriers to implementing your servitization strategies?

7. What else would you like to add—about your organization’s successful servitization strategies—which was not covered in this interview?
