Market-Related and Relational Factors in B2B Platform Ecosystems: A Systematic Review and Research Agenda

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Abstract

Digital platforms have gained in popularity in B2B markets, leading to increased interest from researchers in IS and neighboring disciplines. Transferring findings from the much-studied B2C platforms is difficult as the two environments differ in numerous ways. Therefore, we argue that there is a need for a deeper understanding of the specific characteristics of B2B platform ecosystems in existing literature, especially from market and relational perspective. Conducting a systematic review with a focus on B2B platform literature from IS and neighboring disciplines, we identify and discuss three relational and four market-related dimensions. This paper contributes to the understanding of B2B platform ecosystems by structuring existing research and by providing starting points for future research.

Keywords: *platform ecosystems, B2B, business-to-business; systematic literature review, research agenda*

1. Introduction

Digital platforms as a way of organizing economic activities, with the power to reshape the structure of entire industries, have also led to a growing interest in Information Systems (IS) research, resulting in a growing body of literature in recent years (Asadullah et al., 2018; Drewel et al., 2021).

Although business-to-consumer (B2C) platforms still dominate, the number of digital business-to-business (B2B) platforms has been growing steadily for years (Jung et al., 2021; Koenen & Heckler, 2020). Buyers and suppliers increasingly use B2B platforms for business transactions (Zhou et al., 2022), and incumbents and start-ups adapt their business models to the platform paradigm (Geske et al., 2021).

It is often assumed that B2B platforms can be understood using principles developed from the study of B2C platforms (Anderson et al., 2022). However, transferring findings from the B2C context to B2B markets is difficult as the two environments differ in numerous characteristics. Existing work on B2B platforms points to particularities, making their establishment difficult. The fact that winner-takes-it-all effects are less prevalent in a B2B environment is just one indicator (Riemensperger & Falk, 2020; Saadatmand et al., 2019).

From an economic perspective, there are fundamental differences in the market characteristics (Guggenberger et al., 2021; Schreieck et al., 2016). B2B markets tend to have higher barriers to entry (Hermes et al., 2021). Moreover, these markets can often be characterized by smaller customer numbers in less homogenous groups, which makes B2B markets less favorable for leveraging network effects (Hermes et al., 2021; Riemensperger & Falk, 2020). As these market forces are essential to understand growth in platform markets (Teece 1993), it is crucial to examine the specificities and to conduct a separate study of B2B platforms (Pauli et al., 2021).

Another area of B2B platform ecosystems' idiosyncrasies is the inter-organizational nature of the relationships, increasing complexity (Marcos-Cuevas et al., 2016). Therefore, understanding B2B platforms requires to understand relationships between organizations and legal entities, characterized by more sophisticated processes with often various stakeholders on both sides, resulting in more complex and less spontaneous decision processes (Ziegler et al., 2022). Furthermore, in a B2B context, greater effort is needed to encourage actors to participate and interact (Hein et al., 2019). While established B2C platforms can often rely on a large number of relatively loose relationships (Hein et al., 2019), in a B2B context, solid relationships

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between platform owners and potential adopters are more critical (Pauli et al., 2020; Staub et al., 2021). This comes with a higher influence of potential participators on a platform's scope and value proposition (Staub et al., 2021) and a more symmetrical power distribution (Anderson et al., 2022; Schermuly et al., 2019). Therefore, significant differences appear to be inherent in both the market characteristics and the nature of the relationships. Several authors have already contributed to structuring the research field of digital platform ecosystems. Some focus on design and governance concepts (Schreieck et al., 2016), the role of actors across platform types (Kauschinger et al., 2022), or market dominance (Hermes et al., 2021). However, they do not consider the idiosyncrasies of B2B environments. First literature reviews with a focus on B2B platform ecosystems provide an overview of platform characteristics (Hasler et al., 2022) or factors affecting platform adoption and performance (Shree et al., 2021) and thus make an important contribution. Based on the above-mentioned arguments, major differences lie in market-related and relational dimensions. Given this, and the fact that no existing review is focusing on this topic to a substantial extent, we argue that there is a need for a more specific analysis of existing literature to contribute to a further conceptualization of the B2B platform ecosystems field. Therefore, we propose the following research question:

What attributes describe market-related and relational aspects in IS literature on B2B platform ecosystems, and how should they be considered in future research?

To answer this question, we conduct a systematic literature review (SLR) following the guidelines of Webster & Watson (2002) and vom Brocke et al. (2009).

2. Theoretical Background

Scholars of various disciplines have researched the concept of digital platform ecosystems, resulting in different definitions and perspectives on the phenomenon (Eisenmann et al., 2011; Reuver, 2018; Veile et al., 2022). A central characteristic of a platform ecosystem from an economic point of view is multi-sidedness (Eisenmann et al., 2006; Rochet & Tirole, 2003). Based on technological core infrastructure, digital platforms can be understood as intermediaries, interconnecting actors for information sharing, supply and demand matching, or product or service development (Teece, 2018). As specific concepts are needed to move forward with the scholarly conversation on platform ecosystems (Oh et al., 2016; Reuver et al., 2018; Ritala & Almpanopoulou, 2017), we align with the research paradigm that integrates inter-organizational, economic, business, and social perspectives on platform ecosystems (Hein et al., 2020). Therefore, digital platforms rely heavily on autonomous actors contributing to the platform value proposition (Teece, 2018), highlighting the need to enable and coordinate an ecosystem of actors while exposed to interdependencies. Whereas general literature on platform ecosystems mainly distinguished between innovation platforms and transaction platforms (Hermes et al., 2021), existing literature on B2B platforms encompasses a variety of platform types (e.g., e-marketplaces, IIoT-platforms, service platforms) (Endres et al., 2019; Geske et al., 2021; Schmidt, 2022).

As we are investigating a relatively young and still evolving stream of research, with a limited body of literature examining different platform types that are not always clearly defined, we refrain from explicitly comparing different platform types and focus on the overarching attributes of B2B platform ecosystems. By taking a broad view, we aim to contribute to a holistic understanding of factors characterizing the overall phenomenon of digital platform ecosystems in the B2B sector. Consequently, our understanding of platform ecosystems includes digital platforms as a central element and the actors that complement them and must be enabled and coordinated to allow inter-organizational innovation or transactional activities. Moreover, we explicitly focus on relational and market-related factors.

3. Design of the literature Review

A SLR contributes to the research field by strengthening the foundation of knowledge (Paul & Criado, 2020). To ensure a transparent and straightforward process, we follow the guidelines by Webster & Watson (2002) and vom Brocke et al. (2009). First, we conducted a title-abstract-keyword search using the following search string:

((platform OR marketplace* OR ecosystem* OR IoT OR Internet of Things OR "*sided market*" OR "*sided platform*" OR "platform economy") AND ("business*to*business" OR B2B OR Industrial OR IIoT))*

Using the word platform alongside commonly used synonyms and terms that ensure containment to the business-to-business context, we aim to include work that embraces the broad platform understanding described above to address the existing diversity of terms. We screened the Web of Science (WoS) database as it is one of the most frequently used and comprehensive databases in IS and management research (Schryen, 2015). The search was conducted in

January 2023. To ensure the quality of the literature and open the data set to neighboring disciplines, we applied the JOURQUAL3 ranking system, limiting results to publications with a ranking of B or higher, as major contributions are likely to be published in the leading journals (Webster & Watson, 2002).

Our search queries generated 1.081 results. To ensure that the papers meet our intended content, they were screened for title and abstract, which reduced the sample to 106 articles. In the following step, we conducted an in-depth check for content, resulting in 21 journal articles. In this step, we looked for publications that matched both criteria (1) distinct focus on B2B platform ecosystems as a unit of analysis and (2) analyze market-related or relational aspects. To include the most recent research on the topic, we extended our search to the proceedings of the leading IS conferences of the Association for Information Systems (AIS), namely AMCIS, ECIS, HICSS, PACIS, and WI. Here, we focused on contributions of the last six years (2018-2023). Again, the resulting articles were screened and selected according to the criteria defined above, adding 19 more articles to our set. As a final step, to avoid missing essential contributions, we conducted a backward and forward search, resulting in two additional papers. The selection process was conducted independently by two researchers. The results were compared, discrepancies discussed, and a joint decision was made on including the articles concerned. Applying the filter process described here and shown in Table 1, we reach a final sample of 42 articles.

Table 1. Summary of the literature search process

Database	Screening step	Hits
WoS	Initial search (after applying JOURQUAL3 ranking (B or higher)	1.081
	After checking for title and abstract	106
	After in-depth checking for content	**21**
AIS Conferences[1] (AMCIS, ECIS, HICSS, PACIS, WI)	Initial Search	95
	After checking for title and abstract	33
	After in-depth checking for content	**19**
Selected articles	Backward-forward search	**2**
Final Sample		**42**

As a first step of the analysis, the sample is described towards central meta-characteristics. This overview of the prevalent method helps to assess the general maturity of the research field (Edmondson & Mc Manus, 2007). Afterwards, using a concept matrix comprising uncovered key concepts from the analyzed papers as a starting point, we started to synthesize the relevant literature. As a successful review is in need of a logical structure around the central ideas of a given topic, we followed the guidelines by Webster & Watson, (2002) to code the selected articles along two main coding axes. The first axis covers concepts related to relational attributes, by which we mean characteristics of a relationship between different actors within a certain platform ecosystem. The second axis comprises concepts related to the market. We identify seven key dimensions that allow to describe and structure relational and market-related attributes we found in existing B2B platform ecosystem research.

4. Results

4.1. Sample Description

Out of the 42 selected articles analyzed in detail, 28 (66,7%) apply qualitative methods, of which 20 (47,6%) are based on case studies. The case studies were conducted in a variety of industries, however, with a strong emphasis on manufacturing (e.g., Freichel et al., 2021; Pauli et al., 2020; Riefle et al.), but there were also some case studies with a cross-industry focus (e.g., Endres et al., 2019; Veile et al., 2022). Most of the case studies take the viewpoint of the platform owner, often supplemented by the view of at least one more group of actors. Most scholars investigated platform ecosystems of higher maturity phases. With a number of nine out of 16 studies[2], the predominantly used quantitative methods were surveys (e.g., Liu et al., 2020; Schmidt, 2022). Most quantitative studies originate from neighboring disciplines (e.g., production management). In contrast, the high amount of explorative case studies in IS literature shows that research on digital B2B platforms is still an emerging area. Regarding the types of platforms examined in the articles, a diverse picture emerges. As the classification is not always clear and some studies do not specify the distinct type of platform, the distribution is not clearly quantifiable. While 14 studies focus on marketplaces, IIoT platforms (6 articles) and enterprise software platforms (6 articles) were also the subject of several studies.

4.2. Relational Attributes

As literature indicates, B2B platform ecosystems differ from their B2C counterparts in the nature of

[1] As the ECIS also meets the criterion of a JOURQUAL B-Journal, the ECIS-hits were removed from the journal sample.

[2] Two studies used both quantitative and qualitative methods.

relationships between the involved in B2B markets actors on all market sides are organizations or legal entities (Marcos-Cuevas et al., 2016). In this section, we discuss the results of the sample's analysis along the dimensions: relationship attributes, actors' integration, and ecosystem orchestration (Table 2).

One of the main interests of the analyzed research papers is to better understand the nature and attributes of inter-organizational relationships in B2B platform ecosystems. First, **attributes that describe relationships** are addressed by various studies. Particular attention is paid to the role of trust, which can be understood as the expectation that opportunistic behavior will not occur (Williamson, 1993; Zhou et al., 2022). The concept of trust, its functions, and effects are examined from different angles. According to most studies, it is the responsibility of the platform provider to create a trusted environment to enable secure exchanges and interactions (Guggenberger et al., 2021). As trust is usually built up indirectly, platform owners can build it by aligning themselves with reputable partners, regulating the openness of a platform to third-party developers (Reuver, 2018), or ensuring that all participants meet compliance requirements (Heimburg et al., 2022). Moreover, trust in a platform ecosystem can be induced by technologies like blockchain (Hofmann et al., 2021; Ratnasingam, 2005). A lack of trust can be a main barrier to inter-organizational collaboration (Hofmann et al., 2021) and an obstacle to platform diffusion and network effects (Wallbach et al., 2019). Higher trust levels, however, can convince actors to provide data access (Gierlich et al., 2019) reduce transaction costs by enhanced and smoothed ways of communication and higher communication frequency, making interactions more efficient (Veile et al., 2022). Trust building is not exclusive to platform owners; buyers and sellers can build trust through the use of platforms (Zhou et al., 2022). Furthermore, the presence of trust is also a prerequisite for the occurrence of loyalty among actors within platform ecosystems (Janita & Miranda, 2013; Riefle et al.; Thitimajshima et al., 2018). A construct that is more passive in nature but also critical to success in a B2B context is the acceptance of a platform from the viewpoint of potential contributors. Acceptance can be positively affected by opening a platform for third-party complementors (Benedict et al., 2018). Furthermore, when incumbents launch a platform initiative, industry acceptance is higher when the platform is separated from the original organization (Hermes et al., 2021); consequently, neutral platforms could imply a higher user base (Freichel et al., 2021). Whereas there is general agreement on the discussed relational attributes' critical role in platforms' success, the analysis also reveals certain trade-offs. Although the introduction of transparent, rule-setting instruments and technologies but also the reputation of a platform owner can be beneficial, in some cases, independent platforms seem to be superior.

Another key concept describing the relationship between actors within B2B platform ecosystems is **actor integration**, which can be understood as a dimension determined by a platform owner's governance decisions on the level of openness (Geske et al., 2021). Actor's integration includes, for example, the inter-organizational sharing of capacities within a production network that allows buyers to find the right supplier and sellers to utilize available and unused capacities (Hofmann et al., 2021). A different approach is the direct integration of partners in sales activities with the goal of reaching new customers (Schaffner et al., 2021). In the literature, the term 'boundary resources' has emerged as a more specific concept to describe the integration of actors. These mostly intangible resources (e.g., SDKs or APIs) offered by the platform owner enable the integration of complementary assets. If partners use them, standards evolve in both supply and demand sides, enabling value co-creation interactions and the extension of a platform's scope (Heimburg et al., 2022; Hein et al., 2019). Heimburg et al. (2022) extend this construct to so-called auxiliary services that directly increase the platform's attractiveness for both complementors and the demand side. By removing process- and system-inherent barriers, they enable the interaction of two market sides with very different organizational structures. As a dimension that describes the extent of processual and strategic interrelatedness of a platform ecosystem's actors, actors' integration seems to have a substantial impact on the relationships' complexity within platform ecosystems. Since it also comes with instruments and concepts that could counteract existing barriers, it seems relevant to bring these components into balance.

Table 2. Dimensions and attributes of relational and market-related perspective

Perspective	Dimension	Attributes
Relational	Relationship attributes	Trust; acceptance; loyalty
	Actor integration	Boundary resources; resource integration; auxiliary resources
	Ecosystem orchestration	Orchestration; participant attraction; partner management
Market related	Market structure	Market segmentation; cross-market heterogeneity; market complexity
	Entry barriers	Standards; regulation; design principles
	Network effects	Hindering factors; levels of network effects
	Competition environment	Competitive pressure; competition as a governmental element

Using the term **ecosystem orchestration,** we summarize activities related to the coordination of actors in a platform ecosystem. In a B2B context, well-orchestrated value creation networks, in which each partner benefits, are crucial to success (Riemensperger & Falk, 2020) as B2B industries rely more on close and strategic partnerships (Hein et al., 2019). The necessary degree of orchestration is determined by characteristics of a network (e.g., member interdependence, type of network effect). Environments with weaker cross-sided network effects need stronger orchestration well beyond the start-up phase (Svedsund et al., 2023) to meet the interests of all stakeholders and take advantage of each participant's competencies (Staub et al., 2021). The analyzed papers also contribute to the subsumption of the construct ecosystem orchestration. Blaschke et al. (2018) identify system orchestration as one of four critical capabilities for platform survival, besides ecosystem preservation, system reformation, and ecosystem diversification. Tian et al. (2021) determine the orchestration capabilities targeting, legitimizing, envisioning, and expertise building. Participant attraction as a key activity for platform owners is especially relevant in the early stages (Endres et al., 2019), and additional value-adding services can be key to reaching both market sides (Pauli et al., 2020). Penttinen et al. (2018) suggest that when it comes to getting a focal firm's suppliers to adopt a given connectivity platform, enforcement (e.g., pressure from customers) has a greater influence than enticement (e.g., encouragement).

Partner management is a continuous task in B2B platform ecosystems and can be considered a key requirement to increase mutual value (Guggenberger et al., 2021). Compared to B2C, more extensive partner management is needed, as the transition from a product to a platform can be individual and happens at different times for each customer (Schermuly et al., 2019). In principle, B2B relationships have a complex structure and require significantly more additional coordination effort and consultancy (Anderson et al., 2022; Hein et al., 2019). Complementors often choose to engage in a platform because of existing, long-lasting business relationships with the platform owner (Pauli et al., 2020). Therefore, when launching the platform, reaching out to existing supply chain partners could be beneficial (Jovanovic et al., 2022). Schaffner et al. (2021) recommend building extensive partnerships with existing partners by letting them become complementors and sales partners.

Some analyzed studies consider the transformation of relationships induced by B2B platform ecosystems in different ways. Here, platform ecosystems can change relationships either towards complex, competitive situations, where former competitors can become key partners (Endres et al., 2019; Veile et al., 2022) or towards a loosening of existing as transactions get more anonymized and automated on a platform (Schmidt, 2022). Also, after joining a platform, relationships can change over time as participants can move from pure implementation partners to being engaged in sales activities (Schaffner et al., 2021), and complementors on an innovation platform can become future partners in marketplaces (Hermes et al., 2021). Overall, B2B platforms are of a dynamic rather than a static nature, as they can intensify or weaken relationships between organizations or even fundamentally change their character. As the alignment of interests takes a lot of attention and resources, the integration of additional value-adding services can be one instrument to compensate for the absence of (strong) network effects.

4.3. Market-Related Attributes

B2B markets tend to have higher entry barriers, smaller target groups, and higher transaction volumes compared to their B2C counterparts. This section summarizes dimensions related to the market, namely market structure, entry barriers, network effects, and competition (Table 2). Although the attributes included influence each other and tend to overlap, we see value in looking at them individually to gain a basic understanding of their role in the field of research B2B platform ecosystems.

From an economic perspective, there are fundamental differences between B2C and B2B platforms regarding **market structure** (Guggenberger et al., 2021). In B2B industries, often limited market sizes and the weakened impact of word of mouth on adoption decisions reduce virality (Anderson et al., 2022). Strategic decisions can be influenced by market structure and the position of a platform within a market (Pauli et al., 2020). Overall, the market is often fragmented and heterogeneous and, therefore, complex (Schermuly et al., 2019), and B2B environments are more focused and specialized (Riemensperger & Falk, 2020). The more complex a platform's participant's operations, the more likely it is to be industry-specific (Anderson et al., 2022). However, platform ecosystems themselves can help to shape how markets operate. A platform's auxiliary services, for example, can minimize cross-market-heterogeneity as a barrier to cooperation (Heimburg et al., 2022).

In general, within a B2B environment, it is more difficult for industry outsiders to cope with the heterogeneity of customers and harness network effects (Hermes et al., 2021). Some studies identify different **entry barriers** relevant to B2B platform ecosystems, including technical and regulatory requirements as inhibiting factors for platform diffusion (Wallbach et al.,

2019). Jovanovic et al. (2022) discuss high switching costs of industrial equipment as a critical factor. A platform ecosystem's design can also affect existing barriers: by setting standards, they can simplify market access and overcome heterogeneity between supplier and demand side (Heimburg et al., 2022). Again, auxiliary services can add direct value to platform participants while removing external and internal barriers and lowering transaction costs (Heimburg et al., 2022). So, providing low entry barriers can be seen as a major design principle (Guggenberger et al., 2021).

The self-reinforcing mechanisms of **network effects** have enjoyed a major interest in general research on platform ecosystems and are considered critical to success (Cusumano et al., 2020). In B2B markets, conditions are less favorable as they are often characterized by fewer participants. This limits the potential benefits of network effects (Hermes et al., 2021). Wallbach et al. (2019) identify factors limiting the emergence of positive network effects. IT infrastructure, conflict of interests, and contractual relationships are detrimental to cross-side network effects. The reliability of the platform ecosystem owner impacts same-side network effects.

Nevertheless, network effects are still relevant to generate customer value (Veile et al., 2022), and despite the difficult circumstances, their existence in B2B markets has been shown at several levels. On IIoT platforms, for example, network effects evolve not only on actors' but also on an asset level as each new device increases the perceived value of demand-side users to join the platform ecosystem (Hein et al., 2019).

On manufacturing platforms, indirect and direct network effects can evolve as actors can join as complementor and on the demand side at the same time (Freichel et al., 2021). Penttinen et al. (2021) identify cross-side network effects on B2B connectivity platforms. According to Wallbach et al. (2019), community-specific requirements, legal requirements, and governance structure impact both – cross- and same-side network effects. As the source of network effects varies, different types of scaling strategies are required. In case of weaker cross-sided network effects, stronger network orchestration is needed (Svedsund et al., 2023). Additionally, ecosystem management, interconnectivity, and communication foster network effects and their value (Veile et al., 2022). The analysis shows that network effects are considered in a variety of contexts. Market environments and platform types can determine the type and strength of network effects. The active impact of network effects can be increased through partner management activities and, therefore, be linked to relational attributes.

The role of the **competitive environment** in a B2B platform context is studied in several studies both as an external factor and within a platform ecosystem. A rising competition intensity can motivate to establish a platform ecosystem as an incumbent with a leading market position (Gierlich et al., 2019). Competition also has an impact on the strategies, tactics, and design options for companies to establish a successful platform ecosystem (Guggenberger et al., 2021). The more competitive a market, the less likely a platform will offer solely cross-side value (Anderson et al., 2022). On a platform ecosystem, competition situations can be of high complexity as competitors can become key partners at the same time (Veile et al., 2022). Here, appropriate incentive mechanisms help to balance the tensions between cooperation and competition (Zhang et al., 2021).

5. Directions for Future Research

Based on the structured analysis of relational and market attributes in the context of B2B platform ecosystems, this section aims to provide specific directions for future research. The phenomenon of network effects, which is a fundamental element of platform ecosystems, has received much attention in B2C research and is considered a key element of their success. While there seems to be a consensus on the relevance and impact of network effects on B2C platforms (Armstrong & Wright, 2004; Rochet & Tirole, 2003), our analysis shows that the body of knowledge on the impact and principles of network effects in B2B platform ecosystems is much less comprehensive. Although conditions here seem less favorable, network effects are present in different types of B2B platform ecosystems, their starting point and level seem more complex. Even if some research discusses ways to control those effects to unveil their potential, the picture is ambiguous. Some indications suggest that network effects play a different role depending on the platform archetype. However, the character and role of network effects seem to vary, and no overall comparison across platform archetypes has been made. A more detailed look at the role of network effects may contribute to a better understanding of B2B platforms, their success factors, and design principles. Foundational work aiming to create comparability and make differences recognizable could contribute to a better understanding of network effects' role and importance. Research on the exact determinants and on how to harness those mechanisms across platform types within B2B markets will be of high value for both researchers and practitioners. Therefore, a conceptual framework that aims to describe and compare those platform types in a uniform structure could lay a foundation for future B2B platform strategies and governance decisions. Here, the attributes identified in this work can provide a suitable

starting point for comparing and reflecting the differences between B2B platform types and thus enabling a more profound distinction to be made.

Furthermore, some of the studies carve out idiosyncrasies of B2B platform ecosystems, both in their market environment and on a relationship level. Looking for attributes explaining the difference in their nature. Anderson et al. (2022) attempt to range different B2B platform companies according to their similarity to their B2C counterparts, using the complexity of the actor's relationships as a decisive attribute. In order to explore this complexity in more detail and to contribute to a deeper understanding of the principles and rules of the relationship, it would be promising to continue this approach. A criterion influencing the complexity of relationships in B2B platform ecosystems is the extent to which a digital platform is integrated into the organizational processes and systems, which may influence platform adaption and platform usage. Adoption and transaction decisions in a B2B context are not a process on the individual level, and, in most cases, at least the IT department, purchasing department, and the department(s) that would use the platform are involved. In addition, the degree of usage and interaction of B2B platforms seems to be mainly affected by process frequency (e.g., purchasing processes, manufacturing processes). Investigating the idiosyncrasies of actor integration in B2B platform ecosystems could lead to a clearer understanding of different constellations and help to derive principles of how to design interfaces and relationships in different types of B2B platform ecosystems. Both conceptual work and empirically based theory-building approaches are promising approaches for future research.

The role of data and data sharing in B2B platform ecosystems is another promising subtopic that has not been a core part of our initial investigation but is seen as relevant by numerous of the considered literature. Here, a multi-layered picture emerges comparing the studies' views on the subject. First, regarding IIoT platforms, enabling data consistency and access to data is crucial. Especially from a complementor's point of view, significant value is generated from the data collection capabilities of platforms (Pauli et al., 2020). Also, the demand side can benefit from the value resulting from platforms enabling consistent data delivery (Heimburg et al., 2022). If data is shared in platform ecosystems, this can lead to a higher dependency, accompanied by an increase in loyalty in buyer-supplier relationships, which can be seen, among other things, in more intensive social interactions (Schmidt, 2022). On the other hand, if the data input is incorrect, sharing data could also act as an inhibiting factor on positive network effects (Wallbach et al., 2019). But even if sharing data brings mutual benefits to actors in B2B platform ecosystems, managing diverging interests seems to come with some challenges and downsides. Cross-organizational data sharing can motivate incumbents to build up a platform ecosystem (Hermes et al. 2021). However, the willingness to share data from a partner side appears to be a critical barrier (Gierlich et al., 2019). According to Anderson et al. (2022), companies are generally more sensitive about their data than customers. Hence, even if they are willing to share information, they will be more likely to demand compensation from the platforms. Since data sharing seems to be a critical success factor for B2B platforms and the phenomenon is very complex, we see added value in further research on this topic. What would be relevant is a better understanding of the circumstances and criteria under which companies are willing to share data in B2B platform ecosystems. This could contribute to designing platform ecosystems in a way that promotes the willingness to share data to create a basis for the development of network effects.

6. Conclusion

This article summarizes recent IS literature on B2B platform ecosystems and identifies relevant dimensions and attributes in existing research. We argue that a more detailed understanding of the market and inter-organizational relations is crucial to understand B2B platform ecosystems. Our results show that relational and market aspects are closely linked but that they also represent a tension area. Therefore, a deeper analysis of these factors seems promising.

Following the guidelines by Webster & Watson (2002) and vom Brocke et al. (2009), we provide a clear overview of academic literature that could help to understand the relevance and dimensions of market-related and relational attributes in B2B platform ecosystems. Our work contributes to B2B platform literature by identifying and condensing a total of seven relational and market-related dimensions. By summarizing existing work for each of these dimensions, we compile the current body of knowledge and allow a conclusion about the boundaries and gaps of the research field. Moreover, we identify and discuss issues for further research that are worth pursuing. Of course, our literature review is not free of limitations. First, it might not cover all relevant studies due to the choice of databases and keywords. As various alternative terms and concepts exist in this field of research, work that emphasizes B2B platform ecosystems but does not explicitly label it this way may be sorted out despite their relevance. Since coding simplifies the results of studies to make them comparable, some insights might be lost and are not represented in our results. Also, the analyzed sample is

not comprehensive enough to draw sound conclusions on differences between industries and platform types. Beyond that, the questions for future research derived from our findings may be influenced by the background of the authors and the topic. Further open questions may, therefore, exist and can be discovered by future work.

Table 3. Coding Dimensions

Article	Relational perspective			Market-related perspective			
	Relationship attributes	Actors integration	Ecosystem orchestration	Market structure	Entry barriers	Network effects	Competitive environment
Anderson et al., 2022	x		x	x	x	x	x
Benedict et al., 2018	x						
Blaschke et al., 2018			x				
Reuver, 2018	x					x	
Driedonks et al., 2005	x						
Endres et al., 2019			x				
Freichel et al., 2021	x					x	
Fruhwirth et al., 2020	x						
Geske et al., 2021		x					
Gierlich et al., 2019	x			x			x
Guggenberger et al., 2021	x		x	x	x		x
Heimburg et al., 2022	x	x	x	x	x		
Hein et al., 2019		x	x			x	
Hermes et al., 2021	x			x	x	x	x
Hofmann et al., 2021	x	x					
Janita & Miranda, 2013	x						
Jovanovic et al., 2022			x		x		
Kalvenes & Basu, 2006	x						
Liu et al., 2020			x				
Pauli et al., 2020			x	x	x		
Penttinen et al., 2018				x			
Penttinen et al., 2021	x		x			x	
Peruchi et al., 2022			x				
Ratnasingam, 2005	x						
Riefle et al.	x						
Riemensperger & Falk, 2020			x	x			
Schaffner et al., 2021		x	x				
Schermuly et al., 2019			x	x			x
Schmidt, 2022	x						
Son & Benbasat, 2007	x		x	x			
Staub et al., 2021	x	x	x				
Svedsund et al., 2023		x	x	x		x	
Tessmann & Elbert, 2022					x		
Thitimajshima et al., 2018	x					x	
Tian et al., 2021	x						
Veile et al., 2022	x					x	x
Wallbach et al., 2019	x		x		x	x	x
Wang & Cavusoglu, 2015							x
Yoon et al., 2021	x						
Zaheer & Zaheer, 2001				x			
Zhang et al., 2021							x
Zhou et al., 2022	x						

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