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Riefle, L.; Eisold, M.; Benz, C. (2021): Industrial Corporation's Transformation into a Digital Platform Provider: A Case Study on Enablers. Proceedings of 23rd IEEE International Conference on Business Informatics. DOI 10.1109/CBI52690.2021.00024

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Institute of Information Systems and Marketing (IISM)
Kaiserstr. 89
76133 Karlsruhe
Germany



Karlsruhe Service Research Institute (KSRI)
Kaiserstr. 89
76133 Karlsruhe
Germany

Industrial Corporation's Transformation into a Digital Platform Provider: A Case Study on Enablers

Lara Rieflé
Karlsruhe Institute of Technology
Karlsruhe, Germany
lara.riefle@kit.edu

Marcel Eisold
Karlsruhe Institute of Technology
Karlsruhe, Germany
marcel.eisold@student.kit.edu

Carina Benz
Karlsruhe Institute of Technology
Karlsruhe, Germany
carina.benz@kit.edu

Abstract—Digital platforms are among the key drivers of digital transformation. Following the successful example of platform providers within the business-to-consumer (B2C) sector, such as Facebook and Google, B2B companies increasingly strive to tap the potential of digital platforms for their business. Especially for industrial corporations, digital platforms offer novel opportunities to digitalize and to foster inter-organizational collaboration in their networks. Therefore, industrial corporations search for guidance and actionable insights on how to transform into a digital B2B platform provider. For this reason, we conduct a qualitative case study and interview twelve representatives of two companies—an industrial corporation and a start-up—that cooperate to establish a digital B2B platform. Drawing on the dynamic capabilities framework as a theoretical lens, our work identifies seven enablers that foster the transformation of an industrial corporation into a digital platform provider. We find that adopting a service ecosystem perspective supports sensing market opportunities such as complementary service providers to incorporate on the platform. To seize these opportunities and build a digital platform with a cooperation partner, especially social and relational capabilities are required such as establishing a trusting relationship at eye level. Overall, our study offers three valuable contributes to theory and practice. First, it provides empirical insights into B2B platform building and establishing, which is still an under-researched phase. Second, it suggests social and relational aspects in cooperative platform building as a promising area for future research. Third, it equips managers seeking to build digital platforms with actionable guidance with respect to digital transformation and cooperating with platform complementors.

Keywords—digital platform, industrial corporation, platform formation, digital transformation, enabler, dynamic capabilities

I. INTRODUCTION

Digital platforms—as business or organizational models—are among the key drivers of digital transformation [1], [2]. Over the last decades, many digital platforms such as Facebook, Google, or Airbnb have evolved that today occupy an almost monopolistic status in the market [1]. Prominent examples of successful platform companies are found primarily in the business-to-consumer (B2C) sector, yet also business-to-business (B2B) companies are building own platforms. Striving to tap digital platforms' potential to foster inter-organizational collaboration [1], [3], we particularly observe intensified efforts by industrial corporations to transform into digital platform providers (e.g., Siemens MindSphere) [4], [5]. Often, these corporations seek to build their platform by cooperating with complementors [6]—often as part of servitization efforts [7]. These complementors can be other established companies but also digital start-ups, as in the case of the financial sector where banks cooperate with FinTechs [8]. However, many digital platform endeavors fail

[9], [10]. The causes for failure are diverse, ranging from the inability of the cooperation partners to align their conflicting interests [10], [11], to the platform provider deciding for an unsuitable business model [9], [12], to striving towards too ambitious goals [13]. As a result, managers look for guidance on how to build digital platforms and what actions to take.

Existing literature offers only limited practical orientation; especially literature on the initial platform establishment is scarce [14]. Previous studies have developed theories on platform evolution, describing the actors involved and the factors influencing the different evolutionary stages [15]. Further, a plethora of governance mechanisms to orchestrate mature platforms has been examined [16], [17]. Nevertheless, little is known about the capabilities that industrial corporations need to build up a digital platform in the first place. Moreover, further challenges arise from the fact that platform providers often cooperate with complementors to build a platform. The actions industrial corporations should take when cooperating with a start-up complementor for their platform endeavor are not well understood. Hence, this raises the following research question:

What enables industrial corporations to build a digital platform in cooperation with a start-up complementor?

To address this research question, we conducted a qualitative case study [18] and adopted the dynamic capabilities framework [19] as our guiding theoretical lens. We regard dynamic capabilities as appropriate to guide our research as they subsume those capabilities, i.e., activities and processes, that allow companies to adapt to dynamic market environments [19]–[21]. A multinational industrial corporation served as the case company, which was cooperating with a start-up to build a digital B2B platform. Our data include twelve interviews with representatives of the industrial corporation and the cooperating start-up complementor, that were involved in the platform endeavor. Based on our findings, we propose seven enablers that foster the transformation of an industrial corporation into a digital platform provider. Thereby, we contribute to the growing body of literature on digital platforms and provide practical guidance for managers on how to build a digital platform in cooperation with a start-up complementor.

The remainder of this paper is structured as follows: Section II provides an overview of the extant literature on digital platforms and outlines the dynamic capabilities framework as our theoretical foundation. Section III describes the methodological approach of the in-depth case study, followed by the presentation of the results in Section IV. Section V discusses the results. Finally, Section VI concludes the paper by outlining the implications and future research opportunities.

The authors acknowledge the financial support by the Federal Ministry for Economic Affairs and Energy of Germany in the project Service-Meister (project number 01MK20008).

II. FOUNDATIONS AND RELATED WORK

In this section, we provide an overview of digital platforms and related work, as well as introduce the dynamic capabilities framework that guided our research as a theoretical lens.

A. Digital Platforms

Originally defined as “layered modular technology architectures in business networks” [22, p. 186], digital platforms constitute socio-technical systems that enable and coordinate the interaction of actors and resources in an ecosystem facilitating collaboration and innovation [1], [23], [24]. Digital platforms’ architecture comprises a stable core whose functionality can be extended with modular services [17], [25]. Typically, the platform core and technical infrastructure are managed by the platform provider, whereas additional modular services are provided by third-party complementors [26]. Due to this modular structure, digital platforms are an essential means for effective and efficient information exchange and the integration of resources across firm boundaries [2], [17], [24]. In that, they facilitate joint innovation and inter-organizational collaboration, enabling new business models, and ultimately promote long-term market success. Given today’s competitive environment, digital platforms become increasingly popular, especially in the realm of business-to-business (B2B) interactions [1].

Prior research on digital platforms covers a range of topics: Different governance mechanisms to orchestrate actors on the platform have been investigated, e.g., the provision of boundary resources [16] or the allocation of decision rights [17]. Strategies to ensure platform leadership have been evaluated [27]. Furthermore, theories about the evolution of digital platforms have been proposed [15]. However, previous studies predominantly focus on already established, mature platforms—often in business-to-consumer (B2C) contexts [1]. Research on the initial phase of building a digital platform and the capabilities required is scarce. Moreover, even if the initial platform formation phase is examined [28], researchers concentrate on digital-born start-ups and not on incumbents from non-digital industries (e.g., manufacturing) transforming into platform providers [29]. Therefore, especially established corporations with a history in manufacturing seek guidance on how to transform into a digital platform provider.

B. The Dynamic Capabilities Framework

Teece introduced the dynamic capabilities framework “to explain the sources of enterprise-level competitive advantage over time, and provide guidance to managers” [19, p. 1320] on how to adapt to changes in market needs. Accordingly, dynamic capabilities are defined as a company’s “ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” [30, p. 516]. At the highest order of the framework, dynamic capabilities can be differentiated into three categories—*sensing*, *seizing*, and *managing threats*—that each refer to specific activities, processes, and routines [19] (Fig. 1).

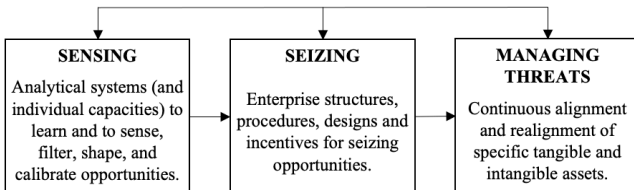


Fig. 1. Dynamic capabilities (adapted from Teece [17])

Sensing refers to activities related to identifying and developing opportunities by scanning, searching, and exploring technologies and market needs [19]. *Seizing* refers to exploiting these (technological or market) opportunities by mobilizing the company’s resources. This can include re-designing or extending company structures and procedures [19]. Finally, *managing threats* refers to ensuring long-term strategic fit by continuous (re-)alignment of the company’s (tangible and intangible) resources [19]. These dynamic capabilities are supported by a range of microfoundations, which represent distinct “organizational and managerial processes, procedures, systems, and structures” [19, p. 1321]. For example, selecting decision-making protocols supports the capability of seizing opportunities as appropriate decision-making structures constitute a means to prevent managerial biases inhibiting innovation. Further microfoundations that are relevant in the context of our study will be explained in Section IV (see Teece [19] for a comprehensive list).

Drawing on the dynamic capabilities framework as a theoretical lens to analyze and inform digital platform evolution has been identified as a promising endeavor [31]. Building a digital platform, almost by definition, is transformational as it entails opening-up firm boundaries for cooperation with complementors. Hence, companies require dynamic capabilities to adapt to the changing environment [20]. Furthermore, this theoretical lens may add a more nuanced company-oriented perspective to digital platform literature by zooming in on activities and processes. Nevertheless, research integrating the topics of dynamic capabilities and digital platforms still remains conceptual in nature [20], [31], and empirical insights are lacking.

The dynamic capabilities framework is also well suited to provide the theoretical lens for our study on enablers fostering industrial corporations’ transformation into a digital platform provider. While dynamic capabilities refer to companies’ *general* ability to adapt to changing environments, enablers can be understood as being more *concrete*. In particular, enablers can be defined as activities that provide the means, i.e., make it possible, for a particular thing to happen [32], [33]. Therefore, the rather abstract dynamic capabilities can guide the identification of more specific enablers.

III. METHODOLOGY

In order to identify enablers that foster the transformation of an industrial corporation into a digital platform provider, we opted for a qualitative research design due to the novelty of the topic and the lack of prior research [18], [34]. In particular, we conducted an in-depth case study at an industrial corporation (*IndustrialCorp*) that is currently undergoing the transformation into a digital B2B platform provider—by cooperating with a start-up (*YoungComp*) as a complementor. A case study approach is suitable for several reasons: First, the phenomenon of interest—an industrial corporation transforming into a digital platform provider by cooperating with a start-up complementor—is complex and dynamically evolving. Hence, it is advisable to study this phenomenon in its real-world context. Second, given the scarcity of prior research on the phenomenon, testable hypotheses can hardly be formulated in advance. Therefore, collecting in-depth data in an inductive case study approach can provide new insights [18].

In the following, we outline the case context, data collection, and data analysis.

A. Case Context

IndustrialCorp is a multinational industrial company focusing on the transportation industry. To seize the opportunities of digitalization, *IndustrialCorp* strives towards transforming into a digital B2B platform provider—although having no prior experience in building digital platforms. At the beginning of our study, *IndustrialCorp* predominantly manufactures and sells physical assets, regarding themselves as part of a supply chain rather than taking a service ecosystem perspective [24]. Being aware of the competitive market environment, *IndustrialCorp* thus aims to complement its current business model by service offerings. As part of this servitization [7], they seek to integrate third-party services and open up and collaborate with other service providers in order to enhance value creation. To facilitate that, *IndustrialCorp* decided to build a digital platform with the corresponding interfaces to enable the collaboration with third-party service providers. To this end, *IndustrialCorp* cooperates with the start-up *YoungComp*, a digital service provider in the transportation industry. Together, *IndustrialCorp* and *YoungComp* pursue the goal of building a B2B platform with *IndustrialCorp* as the platform provider and *YoungComp* as the first of many third-party complementors. In particular, *IndustrialCorp* has assigned an internal team to tackle the platform endeavor. One of the authors of this paper was allowed to accompany this team as a researcher and follow the joint platform establishment process. The researcher joined the platform endeavor at the very beginning of the platform building process. During our research involvement in the case context, both the technical platform architecture and the business model were set up, along with the required organizational changes. Especially on *IndustrialCorp*'s side, this process included the involvement of multiple stakeholders ranging from IT, over sales, to the product owners ultimately responsible for the platform operation.

This case context is of particular interest for our study of enablers that foster the transformation of an industrial corporation into a digital platform provider for two reasons: First, *IndustrialCorp* is a prime representative of an industrial corporation with a successful history in the manufacturing business that is now seeking to transform into a digital platform provider to seize the opportunities of digitalization [35]. Thereby the case constitutes an appropriate instance of the phenomenon of interest. Second, our unique access to the case company enabled us to collect primary data. These could be used to derive insights and advance our understanding of the phenomenon of an industrial corporation transforming into a digital platform provider by cooperating with a start-up complementor.

B. Data Collection

In order to obtain in-depth qualitative data, semi-structured interviews served as the primary source [18]. A total of twelve interviews were conducted with representatives of *IndustrialCorp* and *YoungComp*, who were selected following the guidelines by Glaeser and Laudel [36]. All interview partners were actively involved in the establishment of the digital platform and pertained to a cross-section of functions (i.e., business, IT) and hierarchy levels ranging from management to operational team members [34].

TABLE 1. OVERVIEW OF CONDUCTED INTERVIEWS

No.	Interviewee Role	Pseudonym	Company	Duration
1	Team lead	Tim	IndustrialCorp	1:15 h
2	Team lead	Sam	IndustrialCorp	1:10 h
3	Innovation manager	Eli	IndustrialCorp	0:53 h
4	Product owner	Bob	IndustrialCorp	1:22 h
5	Team member	Gus	IndustrialCorp	0:57 h
6	Product owner	Max	IndustrialCorp	2:06 h
7	Technical lead	Jay	IndustrialCorp	0:33 h
8	Team member	Tom	IndustrialCorp	1:07 h
9	Technology expert	Ben	IndustrialCorp	0:23 h
10	Managing director	Joe	YoungComp	0:59 h
11	Managing director	Ray	YoungComp	1:07 h
12	Technical lead	Ash	YoungComp	1:14 h

Interviews were conducted and recorded using MS Teams. As the first part of the interview, interviewees were asked about their role in the platform building process in order to tailor subsequent questions to the role and the specific area of their involvement. The overarching topics were the same for all the interviewees: The interview questions covered the process of building the platform, the collaboration between the involved partners, challenges as well as factors facilitating the collaboration. Special emphasis was put on the resources and capabilities needed to build the platform and establish the cooperation. The interviews lasted 65 min on average. An overview of the interviews conducted is provided in Table 1. After conducting twelve interviews no additional useful information was yielded, indicating theoretical saturation [34].

All interviews were transcribed for the following analysis.

C. Data Analysis

To analyze the gathered data, we applied qualitative content analysis according to the recommendations of Mayring [37]. We followed a deductive-inductive approach, which is based on an iterative process of paraphrasing, reducing, and aggregating statements relevant to the research question. In particular, we first extracted interview statements that reflected the dynamic capabilities (as described in Section II) of sensing, seizing, and managing threats with the corresponding microfoundations and paraphrased them. For example, when an interviewee reported on specifying the technical interfaces for the platform or making decisions on the functionalities to be included in the initial platform version, this interview statement reflected the microfoundation ‘delineating the customer solution’, which pertains to seizing capabilities. We found 31 statements describing sensing capabilities and 332 statements on seizing capabilities. Next, these statements were inductively analyzed by coding them according to the two-cycle recommendations of Saldaña [38]. In the first cycle, descriptive coding was used to summarize the main topic of each statement (e.g., specifying the technical platform architecture), which was then followed by pattern coding in the second cycle to aggregate the descriptive first-cycle codes to a higher level of abstraction to derive insights on the research question. Thereby, seven enablers were identified that foster the transformation of an industrial corporation into a digital platform provider in cooperation with a start-up complementor.

As the collected interview data only allowed us to obtain qualitative insights, we cannot provide quantitative insights.

IV. RESULTS

The analysis of our interview data yielded seven enablers that can guide industrial corporations in their transformation into a digital B2B platform provider. Table 2 provides an overview of these enablers with the corresponding four microfoundations—namely, 1) sensing complementor innovation and customer needs, 2) building loyalty and commitment, 3) delineating the customer solution, and 4) selecting decision-making protocols—that pertain to sensing and seizing capabilities. We will elaborate on the results in the following and illustrate our findings by exemplary interview quotes.

A. Sensing Opportunities by Adopting a Service Ecosystem Perspective

Sensing complementor innovation and customer needs is an important microfoundation of a company’s dynamic capability of sensing opportunities [19]. This microfoundation involves scanning and monitoring the environment for promising technological developments as well as assessing customer needs [19]. We found strong support that adopting a service ecosystem perspective facilitates sensing opportunities throughout the process of building a digital B2B platform. In our case, adopting a service ecosystem perspective entailed looking beyond the respective company boundaries to search for innovation potential. To this end, *IndustrialCorp* scanned its network of suppliers and performed competitor analyses to identify products or services that could complement their own offering [Eli, Ray, Sam, Tim]. Having departed from its traditional product-centric view [Sam], *IndustrialCorp* was able to identify complementary third-party service providers [Tim, Eli]. They shifted to a customer-centric perspective: “*We are not IT-biased, not technology-pushed, but we were able to work it out almost from a customer’s point of view, a workflow point of view or an overview of the added value. We were able to work out where we wanted to start*” [Eli]. By interacting with customers, *IndustrialCorp* could better detect their needs [Ray, Bob]. Furthermore, they conducted market research to collect broad information on their customers [Sam, Bob]. All these data and information were incorporated in hypotheses on customer demands, which were then validated [Jay, Bob, Tom, Max].

In addition, *IndustrialCorp* reflected on their own strengths, which then helped them to identify a suitable cooperation partner with complementary competencies [Bob, Eli, Sam, Tim]—in this case, *YoungComp*. This is shown in the quote “*sometimes I just need the pragmatic approach of a start-up and maybe a more aggressive approach in the market, maybe also a higher willingness to take risks to tackle things. And sometimes, it is also good to have the stability, reputation, and financial resources that a large corporation simply offers. And if you play it nicely—there is the famous term best-of-both-worlds—then it really is the case that everyone contributes their strengths*” [Eli]. For example, *IndustrialCorp* validated the platform’s value proposition by interacting with their broad customer base [Bob, Ray], while *YoungComp* brought in its flexibility and innovativeness and shared its service design know-how [Joe, Sam]. Together, *IndustrialCorp* and *YoungComp* could advance their service offering and better meet the customers’ needs. Moreover, *YoungComp* shared *IndustrialCorp*’s service ecosystem perspective and endorsed *IndustrialCorp*’s platform endeavor including collaboration and data sharing to offer a joint value

TABLE 2. OVERVIEW OF DYNAMIC CAPABILITIES, MICROFOUNDATIONS, AND IDENTIFIED ENABLERS

Dynamic Capability	Microfoundations (adapted from Teece [19])	Identified Enablers
<i>Sensing opportunities</i>	Processes to tap complementor innovation and identify changing customer needs	1) Adopt a service ecosystem perspective
<i>Seizing opportunities</i>	Building loyalty and commitment	2) Agree upon a shared vision 3) Establish trusting relationships at eye level
	Delineating the customer solution	4) Adopt a learning mentality starting with a limited version 5) Protect the traditional business and pivotal assets
	Selecting decision-making protocols	6) Integrate diverse knowledge and skills 7) Endow autonomous change teams

proposition meeting the identified customer needs: “*networks, automatism, data transfer, interfaces—in my opinion, that is the way to success*” [Joe]. Summing up, adopting a service ecosystem perspective laid the foundation to sense opportunities related to customer needs. It also facilitated identifying complementary service offerings and a suitable complementor for cooperation in the platform endeavor.

B. Seizing Opportunities

The capability of sensing opportunities must be complemented by the capability of seizing these opportunities, i.e., after having identified promising opportunities, companies should address them by adapting their business structures and processes and developing new services or products [19]. Our analysis revealed enablers pertaining to the supporting microfoundations of (1) building loyalty and commitment, (2) delineating the customer solution, and (3) selecting decision-making protocols, as they are described by Teece [19].

1) Building Loyalty and Commitment

Building loyalty and commitment comprises social capabilities such as demonstrating leadership, effective communication, or understanding culture and values [19], [20]. Based on our data, we identified two enablers for building loyalty and commitment: (1) agreeing upon a shared vision and (2) establishing a trusting relationship at eye level.

Agreeing upon a shared vision. Both *IndustrialCorp* and *YoungComp* emphasized the importance of agreeing on a shared vision for the platform right at the beginning of the cooperation [Joe, Bob]: “*First of all, it was important to create a common ground in workshops, to find a feasible solution and structure it into a roadmap (...). Together we then agreed on a very high level on outline lines, on common rules of the game, and integrated the idea into the existing (company) vision. And in the end, we arrived at principles, goals, and a roadmap*” [Bob]. This platform vision was made transparent to all stakeholders and explained the greater purpose and, thus, provided meaning for the individuals involved in the platform establishment [Gus, Sam, Tom, Tim]. Thereby, all cooperation partners’ commitment was ensured, and collaboration was facilitated [Max, Jay, Bob, Sam]—even in

more difficult phases of the cooperation: “*So every cooperation partner causes effort.... That is why we knew that it was not the easier way, but we did not want the easy way, we wanted to go the right way*” [Joe].

Furthermore, *IndustrialCorp* and *YoungComp* created their shared vision to be comprehensive yet flexible, which allowed to include different stakeholders’ interests and did not obstruct later decisions on details of the platform’s design [Sam, Joe, Ray, Eli]. For example, the adequate automation degree and system data integration among the platform provider and the complementor could be specified when enough information was available for an informed decision on these design aspects [Sam, Bob]. In addition, efficient and timely decision-making was fostered as both cooperation partners knew that their strategic objectives and interests were aligned by means of the vision [Rax, Eli, Sam, Tim]. Thereby, also compromises during the joint platform establishment were enabled: “*we simply did not lose this final goal in the discussions. You can be flexible, sure. You also have to be willing to compromise. But at the end of the day, you still have to reach the goal*” [Joe]. Overall, a shared vision that was communicated among all stakeholders involved in the platform establishment ensured everyone’s commitment and facilitated efficient decision-making processes.

Establishing trusting relationships at eye level. In the beginning, *YoungComp* reported a feeling of mistrust towards the considerably larger corporation *IndustrialCorp* [Joe, Ray, Ash]: “*we were a little skeptical because we are a small company start-up, a new project, and then you sit across from IndustrialCorp*” [Joe]. In its traditional hardware business, *IndustrialCorp* had exploited its size and power advantages and exhibited dominant behavior before [Eli]. However, *IndustrialCorp* recognized that each cooperation partner can bring their own competences and strengths into the joint platform endeavor [Tim, Sam, Jay, Tom]. This realization then built the foundation for successful collaboration at eye level: “*The classic case is that we almost always talk about ‘suppliers’ and less about partners at eye level. And I think it’s more important than ever, when I do a partner-up like this, that this start-up is not just any supplier that I bring there with price pressure, so that it does something for me, but that it’s a partner at eye level (...). And I believe that for the platform idea, the moment I know, I can’t and don’t want to do some things on my own, I have to lay my cards on the table and ask who is bringing which things? And then there is a partnership of equals, and then the size of the company does not really matter. It’s really just about the one project and who brings what with them. And I think this is extremely important*” [Eli].

The initial mistrust could further be dissolved and turned into mutual trust as *IndustrialCorp* repeatedly demonstrated cooperative behavior, that was reciprocated by *YoungComp* [Tim, Sam, Ray, Joe]. For example, during the platform establishment both sides delivered on all agreements [Joe, Ray, Eli] and took each other’s requirements seriously [Joe, Ray, Tim]. This mutual trusting relationship increased both cooperation partners’ commitment and facilitated their collaboration [Ray, Ash, Tom, Gus]. It also enabled the partners to readily accepted mutual dependencies: “*Of course, we are also one hundred percent dependent on IndustrialCorp in terms of multiplication, communication, and internationalization*” [Joe]. *YoungComp* even trusted *IndustrialCorp* to that extent that they began implementing the platform (i.e., made an upfront contribution) before having

signed the final cooperation contract, which was delayed due to cumbersome corporate decision-making [Joe]. Furthermore, our interview partners put forward that open communication contributed to mutual loyalty [Tim, Sam, Ray, Joe, Tom, Gus]. The clarity and regularity of communication accelerated information exchange and eased knowledge sharing; and the transparency of communication built trusting beliefs and credibility of the joint effort to achieve the shared vision [Ray, Joe, Max, Tom, Gus, Tim].

An interesting aspect to note is the form of trust that was central to the cooperation between the two companies: None of the interview partners reported on trust towards the cooperating company, *IndustrialCorp* or *YoungComp* respectively. Rather they underlined the importance of interpersonal trust between the individuals involved in the platform endeavor [Ray, Joe]: “*First of all, I believe that everything depends on the people involved, even if the company is behind it. But it’s still the small team, ... that handles such a project, which is certainly very decisive*” [Ray].

Summing up, establishing a trusting relationship at eye level and agreeing upon a shared vision enabled *IndustrialCorp* and *YoungComp* to build loyalty and commitment, which fostered their joint endeavor to build a digital B2B platform.

2) Delineating the Customer Solution

A second microfoundation of the dynamic capability ‘seizing’ is the delineation of the customer solution, in our case, the platform solution. This microfoundation entails outlining the platform architecture including the core functionality, deciding on the targeted complementors and customers, designing the mechanisms to capture value, and defining governance mechanisms [19], [20]. We found two enablers that facilitate delineating the platform solution: (1) adopting a learning mentality starting with a limited platform version and (2) protecting the traditional business and pivotal assets.

Adopting a learning mentality starting with a limited platform version. As a long-established corporation, *IndustrialCorp* was facing the complexity and uncertainty of the transformation into a digital platform provider, and, at the same time, had to cope with the legacy of complex internal structures and decision processes [Tim, Eli, Max]. One interview partner described the corporate situation as follows: “*An extremely large number of departments and their managers are involved. Accordingly, the saying that many cooks spoil the broth may be appropriate at this point*” [Max]. Aware of these challenges, *IndustrialCorp* decided to start with a platform version of limited functionality and, thus, reduced complexity [Tom, Tim, Sam]. This allowed to keep the required changes in *IndustrialCorp*’s legacy IT systems to a minimum [Bob] and begin early with the testing phase of the implemented platform solution [Ben].

In addition, the approach of starting with an initially limited platform solution was complemented by the adoption of a learning mentality by both cooperation partners, *IndustrialCorp* and *YoungComp* [Tim, Sam]. To institutionalize this learning mentality, an agile development process was introduced: “*The introduction of this agile and incremental process in the company helped us a lot. We noticed relatively quickly that there are other forms (than the traditional ones) and possibilities to work on topics and I think*

that was also a game changer in the way we work here in the company” [Jay]. In fast development sprints the cooperation partners prioritized design features and functionalities to be implemented first [Bob, Ash, Ray], which enabled them to test their platform solution early with actual customers and receive valuable feedback for the further improvement of the platform [Ben, Sam, Max, Jay].

Limiting the initial platform version further enabled *IndustrialCorp* to efficiently use the available resources. Due to the reduced complexity, defining platform governance mechanisms was facilitated [Tim, Sam, Eli]. Further, current and future target customer segments were identified, and decisions on a roadmap for platform functionality extensions were made to meet customers’ needs [Bob, Eli]. Altogether, adopting a learning mentality starting with a limited platform version helped *IndustrialCorp* to reduce the complexity inherent in their platform endeavor, efficiently use the available resources, and implement an initial functioning platform solution together with the cooperating start-up *YoungComp* [Eli].

Protect the traditional business and pivotal assets. When *IndustrialCorp* launched out into establishing a digital platform, they were confronted with the difficulty of obtaining the necessary approvals from the responsible decision-makers [Eli]. The reason for this were concerns about the impact of the digital platform endeavor on the corporation’s traditional business and pivotal assets [Eli]. They feared that *IndustrialCorp*’s brand image and reputation of delivering premium-quality products and services could be damaged [Tim, Max]. Moreover, they were eager to keep up their carefully built customer relationships [Jay, Ray]. One interviewee summarized it as follows: “*If sales sell only one machine less because of us, if our solution threatens the current operating model of our current customers, or even if there are problems in communication through our solution, then we will have a very, very difficult time. ... That means, in my opinion, taking away the fear and rightful concerns about something new was very important here*” [Bob]. Therefore, the team building the platform aligned the traditional business’ interests with their platform business model and ensured to protect the pivotal assets [Eli, Tim, Bob]. They integrated experts from the traditional business in decisions and followed the traditional decision-making making structures (e.g., management committees) in early planning phases [Tim, Eli, Bob]. Thereby, they protected intellectual property and pivotal assets. Additionally, they coordinated their platform development with other development processes in the company to avoid negative impacts on regular activities of the traditional business [Eli, Bob].

3) Selecting Decision-Making Protocols

The microfoundation of selecting decision-making protocols supports seizing opportunities. It comprises two aspects: On the one hand, changes in the market and technological developments need to be monitored. This allows companies to recognize inflection points where an increase in resource investments and strategy adjustments are required to generate or maintain competitive advantage [19]. On the other hand, appropriate decision-making protocols can prevent biases preserving the status quo and impeding innovation [19]. This is especially relevant in large corporations with complex hierarchical structures and multi-tiered decision-making processes. Our analysis revealed two enablers for selecting

decision-making protocols: (1) integrating diverse knowledge and skills, and (2) endowing autonomous change teams.

Integrating diverse knowledge and skills. For an industrial corporation, building a digital platform represents a novel and complex endeavor with which they have no experience [Jay, Tom, Eli, Tim]. Transforming into a platform provider impacts a range of business areas in the company—and, hence, demands for the corresponding knowledge ranging from IT to marketing and sales, to legal aspects and product domain knowledge [Tom, Gus]. *IndustrialCorp* integrated individuals with knowledge from all these areas in the team that built the digital platform. In addition, “*someone who knows all the processes and procedures*” [Jay] fostered faster decision-making [Joe, Ash, Eli]. *IndustrialCorp* was able to tap broad internal knowledge, yet also sought external experts’ support where required [Gus, Bob]. For example, they resorted to an external technology expert with experience in setting up digital platforms [Tim, Sam, Max]. In total, the broad and diverse knowledge of the people involved in the platform establishment ensured that market and technological developments were comprehensively monitored and understood [Jay, Tom, Eli, Tim, Ray]. This enabled *IndustrialCorp* and *YoungComp* to recognize inflection points and leverage their resources accordingly [Jay, Sam, Ray].

More importantly, the team mandated to build the digital platform had the necessary skills to leverage the knowledge [Jay, Eli]. One interviewee expressed this as follows: “*staff that is equipped with the right skillset. Not just anybody can do that, but people have to be up for it, and they have to be able to do it. And if I don't have the right people there at the beginning for such a project or if I don't inspire the right people to participate in such projects, then it can only go wrong (...) is not something where I simply take some resources and put them to use, which is never good anyway, but it simply wouldn't work here*” [Eli]. In addition, several interviewees pointed out that pursuing their “pioneering” [Eli] work was facilitated by the openness of team members to take new or extra responsibilities and (well-assessed) risks [Tim, Sam, Eli, Ray, Jay]. Overall, integrating diverse knowledge and skills in the team building the digital platform enabled fast and flexible decision-making and ensured a platform implementation compatible with *IndustrialCorp* and *YoungComp*’s applications, data, and work processes [Joe, Tim, Sam, Ash, Ray, Tom, Gus, Eli].

Endowing autonomous change teams. Often, in industrial corporations with a tradition in manufacturing, such as *IndustrialCorp*, there are managers that do not recognize or even question the benefits of digital transformation [Eli, Tim, Sam]. Therefore, they show only limited willingness to support innovative endeavors such as building a digital platform [Sam]. Given these circumstances, it is crucial that committed managers in higher hierarchical levels of the corporation protect the team responsible for the platform establishment from internal politics and provide support [Sam, Tim, Eli]. Our data shows that, in particular, providing resources and granting autonomy facilitates the responsible team to successfully build the digital platform [Tim, Sam, Jay, Bob]. One interviewee stated that *IndustrialCorp* “*understood well (that they needed to) listen a little more to the people in charge*” [Max]. Hence, the team was endowed with the autonomy and decision rights necessary to take the required actions to build the digital platform in cooperation with *YoungComp* [Sam, Jay]. This facilitated faster and more

efficient decision-making and prevented problems and mistakes caused by uninformed decisions [Sam, Eli].

Taken together, flexible and efficient decision-making during the process of building a digital platform was facilitated by setting up a team with diverse knowledge and skills and endowing this team with resources and autonomy.

Table 3 provides an overview of the identified enablers and the corresponding actionable guidelines.

TABLE 3. OVERVIEW OF ENABLERS AND CORRESPONDING ACTIONABLE GUIDELINES

Enabler	Actionable guidelines
Sensing complementor innovation and customer needs	
Adopt a service ecosystem perspective	<ul style="list-style-type: none"> • Perform competitor analyses • Conduct market research • Interact with customers to identify their needs • Assess own strengths and competences of potential cooperation partners
Building loyalty and commitment	
Agree upon a shared vision	<ul style="list-style-type: none"> • Align strategic interests of all stakeholders • Provide transparency on the vision
Establish trusting relationships at eye level	<ul style="list-style-type: none"> • Refrain from dominant behavior • Demonstrate cooperative behavior • Deliver on agreements • Dissolve mistrusting beliefs • Communicate clearly and transparently
Delineating the platform solution	
Adopt a learning mentality starting with a limited platform version	<ul style="list-style-type: none"> • Build a limited starting version in fast development sprints • Reduce the complexity of the platform implementation by prioritizing design features and functionalities • Seek feedback from customers early
Protect the traditional business and pivotal assets	<ul style="list-style-type: none"> • Take into consideration the interests of the traditional business • Integrate people from the traditional business in decisions • Follow the traditional decision-making structures during early planning
Selecting decision-making protocols	
Integrate diverse knowledge and skills	<ul style="list-style-type: none"> • Adjust internal and external knowledge flows • Integrate a broad skill set in the team
Endow autonomous change teams	<ul style="list-style-type: none"> • Use personal connections to ensure management support • Transfer decision rights to the project team

V. DISCUSSION

After having presented the results of our case study, i.e., seven enablers that foster the transformation of an industrial corporation into a digital platform provider, this section provides a discussion of our findings.

To guide our analysis, we adopted the dynamic capabilities framework [19] as a theoretical lens. Although the framework distinguishes between capabilities for *sensing* and *seizing* opportunities as well as for *managing* threats, the enablers we found in our study only relate to sensing and seizing capabilities. This is not surprising, as Teece [31] states that especially these two dynamic capabilities are relevant during initial digital platform establishment. When building a digital platform, companies need to be able to sense market demands and identify potential complementors and innovative

ideas. Hypotheses on customer needs and new services should be developed and tested; and resources need to be orchestrated. Only in later evolutionary stages in the platform lifecycle, the capability to manage threats (e.g., securing the leading position and control in the platform ecosystem) becomes important.

Similarly, our finding that adopting a service ecosystem perspective enables companies to sense opportunities is in line with previous research [20], [39]. Broadening the view—from looking only at suppliers and direct customers to including competitors and complementors in adjacent industries—has been found to foster recognizing potential for innovation [40], [41]. Yet, our data suggest that adopting a service ecosystem perspective is more difficult for industrial corporations: Their predominantly product-oriented mindset often results in fixed mental models confining perception of innovations [42]. Rigid hierarchical structures as well as restrictions imposed on external interactions additionally complicate communication and exploring possibilities with potential cooperation partners. Nevertheless, in *IndustrialCorp*'s case, these difficulties could essentially be overcome through the cooperation with *YoungComp*. Not only did *YoungComp* provide access to new customer segments, *IndustrialCorp* and *YoungComp* also performed sensing activities together, which further broadened the perspective.

With regard to seizing opportunities, we found that a shared vision supports building loyalty and commitment. The relevance of developing a platform vision is also recognized in literature [13], [43], as well as the positive impact of communicating a vision on forming loyalty [44]. Nevertheless, our results add a novel aspect to prior research: While, for example, Venkatesh et al. [45] report on the vision being communicated in a top-down approach by management, in our case, the platform vision was developed by the operative team charged with building the platform. Furthermore, prior research mainly investigates the vision in its function to shape the design evolution of the platform in rather mature development stages, i.e., to ensure compliance with the roadmap defined by the platform provider [15]. We find, however, that developing a vision for the platform is already important in the initial stage of platform formation to guide the platform design and business model. Moreover, in our case, the vision was developed by *IndustrialCorp*, the platform provider, and *YoungComp*, the complementor, together—which further increased commitment and loyalty in the cooperation. This is an interesting aspect as prior research concentrates on the platform provider developing and defining the vision alone.

Another enabler, that was highlighted as crucial by the interview partners, is establishing a trusting relationship at eye level. Although trust is being researched in inter-firm alliances for more than two decades, in platform literature, the concept of trust has only recently been integrated. For example, Hodapp et al. [46] point out establishing trust as a major challenge for practitioners in the context of IoT platforms; whereas Hurni and Huber [47] investigate the relation between trust and power in platform ecosystems. Besides the relevance of single enablers per se, the entirety of our results provides even more insights.

Based on our case evidence, we find social and relational aspects to play a particularly important role in platform building. We recognize this, among others, with regard to internal transformation processes: Within the industrial

corporation *IndustrialCorp* we found a range of interdependencies and challenges arising from complex corporate structures. These could be addressed through personal connections—for example in the context of enabler (7). To achieve autonomy and secure resourcing, the team needed the support of higher-level managers. Most often, the contact to these managers could be established based on previous social connections, and the pre-existing relation further enhanced the commitment to the platform endeavor [Eli, Bob, Sam]. Furthermore, several interview partners emphasized the influence that individual team members' characteristics and behavior had on the performance of the whole team. For example, they reported that seeing other team members handle setbacks well during the platform development, had a positive impact on other team members' persistence [Tim, Eli, Sam]. Similarly, the motivation of a few team members to explore and learn about novel ideas inspired and further motivated the whole team and increased commitment [Max, Bob, Tom, Ray, Eli]. Finally, as already discussed, for the cooperation between *IndustrialCorp* and *YoungComp*, trusting relations between the individuals involved in building the platform played an important role. An interesting aspect we observed in this context, is the origin or form of trust: Our results do not suggest inter-*organizational* trust as the foundation of the cooperation between *IndustrialCorp* and *YoungComp*, but rather point to inter-*personal* trust between the team members charged with establishing the platform together [Ray, Joe]. Trust developed between individual team members as everyone openly shared information and communicated at eye level in their daily work [Tim, Sam, Tom, Gus]. Despite these indications of their influence on platform establishment, social and relational aspects are not yet well-explored in research on digital platform formation.

This study is not without limitations, which might also provide opportunities for future research. As we used a single case study approach, the generalizability of our findings may be limited. Although we were able to collect in-depth data and rigorously followed established analysis guidelines, our case context still only covers one industry. Additional research might be required to evaluate whether the findings of this study also hold true in different contexts and across industries.

Furthermore, the case context was limited to a dyadic cooperation of a corporation and start-up complementor establishing a platform. Therefore, future research should draw on further cases to investigate the relevance of the suggested enablers for the cooperation of three or more companies jointly building a platform.

Finally, we finished our data collection and investigations when the digital platform had successfully been built and, thus, are not able to make any statements about its long-term success. Specifically, longitudinal case studies would be helpful to confirm, and potentially refine, the required capabilities and enablers for later evolutionary stages of digital platform establishment.

VI. CONCLUSION

Establishing a digital platform represents a complex endeavor. Especially for industrial corporations with their legacy systems and structures due to their tradition in manufacturing, the transformation into a B2B platform provider can be a challenge. Furthermore, they often cooperate with start-up complementors in building the

platform. Yet, practical guidance for industrial corporations on how to build digital platforms in cooperation with start-up complementors is scarce. Therefore, this study sought to identify enablers that can guide companies and managers in transforming into a digital platform provider.

To achieve this research objective, we conducted an in-depth case study at *IndustrialCorp*, an industrial corporation specializing in the transportation industry. Adopting the dynamic capabilities framework [11] as a theoretical lens, we analyzed which actions were beneficial in pursuing their goal of building a digital platform in cooperation with a start-up complementor. Our results indicate seven enablers, namely: 1) adopting a service ecosystem perspective, 2) agreeing upon a shared vision, 3) establishing trusting relationships at eye level, 4) adopting a learning mentality starting with a limited platform version, 5) protecting the traditional business and pivotal assets, 6) integrating diverse knowledge and skills, and 7) endowing autonomous change teams. Thereby, our findings entail several implications for research and practice.

A. Theoretical and Managerial Implications

Our study offers three valuable contributes to theory and practice: First, this study contributes to research on digital platforms by providing empirical insights into B2B platform building. Thereby, we respond to the call for more empirical platform research as well as for investigating the emergence of digital platforms [1], [14]. By collecting first-hand data in a case study with an industrial corporation transforming into a digital platform provider, this study offers unique empirical insights into the phase of platform building. Furthermore, by drawing on the theoretical lens of the dynamic capabilities framework, we extend the investigation of platform phenomena to include more activity-oriented aspects.

A further contribution to research is that, based on our case evidence, we suggest social and relational aspects in cooperative platform building as a promising area for future research. Our results highlight the influence of social and relational aspects during the process of platform building. For example, we have discussed the relevance of personal relations within the industrial corporation or trust between the cooperating team members. Nevertheless, these aspects are under-researched and offer potential for future research.

Third, this study offers valuable contributions to practice by investigating what capabilities industrial corporations need to transform into a digital platform provider. The seven proposed enablers equip managers seeking to build a B2B platform with actionable guidance on how to foster digital transformation and cooperation with platform complementors. Drawing on the results of this study, managers are better positioned to understand the corporate context and take informed action to facilitate building a digital platform in cooperation with complementors.

B. Future Research

Based on the findings of this study, we foresee three areas for future research: First, future studies should further investigate social and relational aspects during early platform establishment. In particular, supplementary insights into the mechanisms on the individual, group, and organizational level as well as on the influence of industry context will deepen our understanding.

Second, subsequent research could identify required capabilities and enablers for later evolutionary stages in the

platform lifecycle such as platform expansion or leadership. Apart from an analogous case study approach, also action research [48] might yield interesting insights for practice and research alike.

Third, the results of this study could be complemented by examining cases of unsuccessful platform-building endeavors to determine the reasons for failure. This would allow managers to recognize potential pitfalls early and act accordingly. Overall, we believe our study can stimulate an interesting stream of research.

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