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Governance Practices in Platform Ecosystems: Navigating Tensions Between Cocreated Value and Governance Costs

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Abstract. Based on an exploratory multiple-case study in two platform ecosystems, we develop a process theory that explains how and why different ways of practicing ecosystem-wide governance are more or less successful in navigating the tension between cocreated value and governance costs. Our process theory shows that how ecosystem-wide rules and values are practiced considerably varies and changes over time. Initially, governance practices follow ecosystem-wide rules; if and how practices shift toward going beyond the rules hinges on specific necessary conditions. Irrespective of which governance route is taken, the tension between cocreated value and governance costs is more successfully addressed if practices are sensitive to ecosystem-wide values.

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Introduction

In the enterprise software industry, cocreating value by combining the complementary resources of partnering software firms has long been commonplace (Sarker et al. 2012). In the past decade, the importance of value cocreation has further increased as major players in the enterprise software industry, including SAP, IBM, and Oracle, have started to offer their solutions as software platforms. Having transformed into platform owners, these companies have to govern large ecosystems of complementor firms that offer add-on solutions to their platform (Tiwana et al. 2010, Wareham et al. 2014). The bulk of existing research on this new managerial challenge emphasizes the merits of standardization to orchestrate a large ecosystem of complementors in an arm's length way (Baldwin and Clark 2000, p. 66; Parker and Van Alstyne 2005; Wareham et al. 2014). Thus, governance is seen as a problem of designing effective ecosystem-wide mechanisms (Gulati et al. 2012). In the context of enterprise software, such ecosystem-wide governance mechanisms include *rules* that uniformly regulate how and under what conditions complementors are granted access to the platform owner's resources as well as *values* that are supposed to serve as the guiding principles for cocreating value with complementors in the ecosystem (Tiwana et al. 2010, Wareham et al. 2014). By designing these ecosystem-wide rules and values, platform owners shape and standardize local governance practices in partnerships with complementors (Rolland and

Monteiro 2002). However, research on dyadic governance suggests that partnering firms can cocreate additional value if they adapt governance practices to the changing local needs of the partnership (Sarker et al. 2012). Although this work did not consider ecosystem-wide rules and values, the results suggest that practices of situationally departing from ecosystem-wide governance can be a viable alternative to orchestrating all complementors in an arm's length way.

Taken together, prior research looked at either ecosystem-wide or dyadic governance, concealing the tension between the two: The arm's length way of closely following standards entails low governance costs as it limits the effort for combining resources. However, arm's length governance also limits the ability to respond to changing local needs, which may constrain cocreated value. Conversely, departing from ecosystem-wide governance to situationally adapt to local needs may nurture value cocreation but runs counter to the idea of efficiently orchestrating large ecosystems. We refer to this tension between cocreated value and governance costs as the *dyadic governance tension* and ask the following research questions: Are there ways of practicing ecosystem-wide governance that better address the dyadic governance tension than others, and if yes, why? Considering that governance practices can be more fluid than the relatively stable rules and values, how and why do governance practices change or remain stable over time?

Given the novelty of these questions, we conducted an exploratory multiple-case study of governance

practices in eight partner dyads from two platform ecosystems. We present our findings as a process model of navigating the dyadic governance tension, which we inductively developed from our cases. Across all cases, the process of governance started with arm's length interactions between platform owners and complementors that closely followed ecosystem-wide rules. Some partnerships generated additional cocreation opportunities and received increasing attention from the platform owners. In these partnerships, governance developed into closer, more alliance-like collaborations that went beyond ecosystem-wide rules. We model this process as two distinct routes—the arm's length route and the dyadic route. The arm's length route is associated with low governance costs but only moderate cocreated value. The dyadic route is associated with substantial cocreated value but higher governance costs. On each route, partnership managers—i.e., the individuals responsible for practicing ecosystem-wide governance—can address the tension more successfully if their practices are sensitive to ecosystem-wide values. Our process model identifies the self-reinforcing dynamics and necessary conditions that explain whether and how partnership managers go beyond the rules and how successful they navigate the tension over time.

Next, we briefly review the literature on governing platform ecosystems and develop the key concepts of our study. Then, we describe our empirical context and methodological approach. After presenting our findings and abstracting them in a process model, we discuss implications of our study.

Background and Conceptual Foundations

Ecosystem-wide governance refers to standards that uniformly apply for all complementors and that express how things should be done in the ecosystem (e.g., Boudreau 2010, Tiwana et al. 2010, Wareham et al. 2014). By designing ecosystem-wide governance, platform owners try to strike a balance between standardizing across contexts to efficiently orchestrate large ecosystems and being sensitive to the local needs of individual complementors (e.g., Baldwin and Clark 2000, p. 84; Parker and Van Alstyne 2005; Rolland and Monteiro 2002).

Ecosystem-wide governance has two components—rules and values (Tiwana et al. 2010). *Rules* clearly and precisely define the rights and duties of the partnering companies (Wareham et al. 2014). Given our focus on value cocreation, we are interested in those rules that stipulate what resources complementors can access to cocreate value with the platform owner (Ghazawneh and Henfridsson 2013, Wareham et al. 2014). Such standard ecosystem resources include technical resources, e.g., development utilities (Ghazawneh

and Henfridsson 2013, Wareham et al. 2014), and marketing resources, e.g., market reports (Kude et al. 2012, Wareham et al. 2014). In the context of enterprise software, rules manifest as partner programs that stipulate access to different resources for partners from different levels (e.g., IBM 2014). Partners from higher levels are entitled to access more valuable resources (e.g., priority listing in app stores or more comprehensive access to development libraries) but they also have to meet more demanding entry requirements (e.g., stricter design guidelines or additional compulsory certifications; Wareham et al. 2014). The key idea is that partner programs enable complementors to address the local needs of their businesses by self-selecting the appropriate partner level. Because complementors self-select their partner level, the platform owner can take a passive role, thereby efficiently orchestrating a large network of complementors (Wareham et al. 2014). The second component of ecosystem governance is *values*, which refer to “relatively broad and highly abstract” statements about key goals of the ecosystem and the desired spirit of collaboration (Gulati et al. 2012, p. 581). Values are actively and deliberately instilled by platform owners (Ouchi 1980, Tiwana et al. 2010). For example, platform owners promote norms of cooperation through their codes of conduct (e.g., IBM 2014). In contrast to rules, values have hardly received any attention in prior empirical research on platform ecosystems.

In the context of the enterprise software industry with its highly heterogeneous clients, leveraging cocreation opportunities often requires combining and aligning resources with complementors in unique ways (Sarker et al. 2012). To address local needs, platform owners assign partnership managers, who are responsible for enabling the combination and alignment of resources with individual complementors. The challenge for partnership managers is to leverage cocreation opportunities without overly sacrificing the goal of governing many complementors at low costs. Thus, the responsibility for navigating the dyadic governance tension is imposed on partnership managers (Jay 2013). We develop the idea that partnership managers navigate the tension through variations in *practicing ecosystem-wide governance*. Practicing ecosystem-wide governance refers to how partnership managers enact rules and values. Rules and values guide, but do not fully determine, governance practices; i.e., partnership managers have some agency to develop their own distinct practices (Perrone et al. 2003). Accordingly, partnership managers may act in line with ecosystem-wide governance in some situations but deviate from it in other situations.

Differences in practicing ecosystem-wide governance will have consequences for cocreated value and governance costs. The central idea behind cocreated

value is that the platform owner and the complementor combine complementary resources in a process that aims at creating value for their joint clients (Sarker et al. 2012). Variations in governance practices affect cocreated value because different practices entail differences in resource access. Deviating from rules entails access to resources beyond what is stipulated by ecosystem-wide governance. By combining such unique resources, the partnering companies may develop highly specialized solutions that help organizations in important industry segments to better serve customers. The platform owner and the complementor may thus capture substantial levels of cocreated value in the form of high license fees and major projects (Sarker et al. 2012). Conversely, strictly following ecosystem-wide rules entails access to standard ecosystem resources. Access to standard ecosystem resources may limit the ability to respond to local needs and hence lead to lower cocreated value. For example, the joint solution may generate lower license fees and smaller projects.

The concept of governance costs follows the general observation that any economic transaction incurs costs (Williamson 1981). The central idea is that governance practices involve costly activities (Williamson 1981). Variations in governance practices affect governance costs because different governance practices entail different activities. For example, the practice of crafting a dyadic contract that extends ecosystem-wide governance is associated with substantial costs for contract specification and negotiation (Ceccagnoli et al. 2012). By contrast, the practice of strictly following ecosystem-wide rules involves lower effort because of governance-related economies of scale and overhead minimization (Williamson 1981).

Comparing the cocreated value enabled through particular practices with their associated governance costs allows us to assess the relative success of practices in addressing the dyadic governance tension. If a governance practice enables similar cocreated value at lower governance costs compared to another practice, then the former practice is more successful in addressing the dyadic governance tension.

Method

To identify different ways of practicing ecosystem-wide governance and to explore how different practices are linked to outcomes, we chose a multiple-case study approach (Yin 2009, p. 20). We selected partnerships from two different enterprise software ecosystems. The platform owners of the two ecosystems—referred to as Alpha and Beta—are among the 10 largest software companies in the world. Both maintain large ecosystems with several thousand complementors, and both offer various enterprise software platforms, including applications, middleware, and

databases. Both platform owners stratify their ecosystem into three partner levels, which we refer to as bronze, silver, and gold. To gain insights into how ecosystem-wide governance is practiced, we purposefully selected partnerships from the silver and gold levels. This was because only at these two levels do the platform owners assign dedicated partnership managers to govern each partnership. In our cases, partnership managers served 30 to 50 silver partners and 10 to 15 gold partners. We chose two complementors from each of the two partner levels in both ecosystems, resulting in eight cases. By selecting cases from different partner levels and from different ecosystems, we aimed to ensure variation in governance practices, cocreated value, and governance costs. Table 1 provides information on our eight cases.

Data Collection

We relied on documents and interviews as data sources. To capture ecosystem-wide governance, we collected *ecosystem-wide documents* in which the platform owners define the rules and values for all complementors, i.e., the partnership charter, code of conduct, standard partner contract, and information provided through password-protected online partner portals. To fully understand the nature of the rules and values stated in these documents, we interviewed Alpha's and Beta's ecosystem managers responsible for managing the entire network of complementors. In each of our eight cases, we examined both sides of the partnership and interviewed the key persons in charge of managing the partnership. Subsequently, we refer to the key person from the platform owner as the *partnership manager* and the key person from the complementor as the *liaison*. In total, we conducted 17 paired interviews (in case A2, the partnership manager role was split between two employees). Interviews were semistructured and covered questions related to the governance of the partner dyad, with a particular focus on the role of ecosystem-wide governance. The interviews lasted between 45 and 90 minutes and were recorded and transcribed. To triangulate and enrich the dyadic-level interviews, we conducted an analysis of three types of *case-specific documents*: project documentation (PD) including project plans, project descriptions, and success stories; product information (PI) including white papers, software documentation, and commercial brochures; and press articles (PA) including trade press, professional press, and press releases (see Table 1). We obtained these case-specific documents (referred to with labels showing the document type, case, and unique identifier, e.g., PD-B1-1) either directly from our interviewees, from the websites of the partners, or through LexisNexis.

Data Analysis

We followed an iterative approach to data analysis and theory building that involved moving back and forth

Table 1. Studied Cases

Comple- mentor	Partner level	Brief description of partnership	Interviewees	Number of documents		
				PD	PI	PA
Platform owner Alpha						
A1	Silver	40 employees; Partnership started in 2004; Core product: Web analytics solution built on top of Alpha's middleware and business intelligence platforms	Head of marketing (liaison)/ Partnership manager	2	9	10
A2	Gold	70 employees; Partnership started in 2001; Gold partner since 2008; Core product: Manufacturing execution system built on top of Alpha's analytics and middleware platform	Head of marketing (liaison)/ Partnership managers 1 and 2	4	10	21
A3	Silver	50 employees; Partnership started in 2006; Core product: Ontology-based expert system and knowledge retrieval tool built on top of Alpha's analytics platform	Head of business development (liaison)/Partnership manager	6	5	28
A4	Gold	20 employees; Partnership started in 2000; Gold partner since 2011; Core product: Detailed configuration of Alpha's middleware platform tailored to the life science industries	CEO (liaison)/Partnership manager	4	16	23
Platform owner Beta						
B1	Silver	120 employees; Partnership started in 2010; Core product: Highly secure application for web-based collaboration that connects with Beta's ERP platform	Alliance manager (liaison)/ Partnership manager	4	6	34
B2	Gold	40 employees; Partnership started in 2005; Gold partner since 2011; Core product: Production management system for the meat processing industry built on top of Beta's middleware and ERP platforms	CEO (liaison)/Partnership manager	9	15	18
B3	Silver	25 employees; Partnership started in 2003; Core product: Multilingual configuration of the foreign trade module of Beta's ERP platform	CEO (liaison)/Partnership manager	1	15	3
B4	Gold	400 employees; Partnership started in 2000; Gold partner since 2009; Core product: Point-of-sale system for the retail industry built on top of Beta's middleware and ERP platforms	Product manager (liaison)/ Partnership manager	5	9	37

Notes. PD, Project documentation; PI, product information; PA, press articles.

between data and theory using open, axial, and selective coding (Charmaz 2006, p. 24; Corbin and Strauss 1990). We used the software NVivo 9 for coding. In a cross-validation process among the authors, the concepts were iteratively refined and became more robust and reliable (Yin 2009, p. 53). Next, we describe how concepts, categories, and their relationships surfaced. Table 2 shows definitions and illustrative codes for all a priori and emerging concepts. Online Appendices A–D provide detailed coding examples.

Coding A Priori–Defined Concepts. We started by openly coding our a priori–defined concepts: practicing ecosystem-wide governance, cocreated value, and governance costs. Open coding involved attaching descriptive conceptual labels to interview statements and documents while refining the properties and dimensions of each concept using the constant comparison technique (Charmaz 2006, p. 54; Corbin and Strauss 1990). First, we coded ecosystem-wide documents and interviews with ecosystem managers to understand the nature of rules and values. The rules and values of

the two ecosystems were similar across the two ecosystems. This similarity allowed constructing broad categories of rules and values that represent ecosystem-wide governance across the two ecosystems in our study (see Tables 3 and 4 in Results). Second, we focused on the case-level data and searched the transcripts for statements about how ecosystem-wide governance was put into practice (Corbin and Strauss 1990). The rules and values identified in the preceding step served as reference points to describe variations in practicing ecosystem-wide governance (see Table 5 in Results). Practices systematically differed in terms of the types of resources provided to a complementor and in the ways in which these resources were provided. This allowed us to describe practices in terms of their relationship to rules. For example, in some cases, partnership managers provided access to resources beyond what was defined in the partner program, which we refer to as going beyond the rules. When practicing rules, partnership managers referred to values in varying ways. This allowed us to describe practices in terms

Table 2. Core Concepts

Concept	Definition	Illustrative codes
A priori–defined		
Ecosystem-wide rules	The written regulations that stipulate the rights and duties of all partnering companies with respect to resource access (based on Wareham et al. 2014)	<ul style="list-style-type: none"> • Contracts that apply to all partnerships and stipulate access to technical and marketing resources • Partner guidelines defining eligibility criteria for resource access and ways to access resources
Ecosystem-wide values	The relatively broad and highly abstract statements about key goals and desired spirit of collaboration in the ecosystem (Gulati et al. 2012, Tiwana et al. 2010)	<ul style="list-style-type: none"> • Platform owner commits to fair cooperation with all partners • Platform owner declares to treat all partners equally
Practicing ecosystem-wide governance	The partnership manager’s recurrent, situated actions of enacting ecosystem-wide rules and values (based on Levina and Vaast 2008)	<ul style="list-style-type: none"> • Partnership manager passively executes rules • Partnership manager stretches rules while favoring values
Cocreated value	The tangible and intangible benefits resulting from the combination of resources of the partners (Sarker et al. 2012)	<ul style="list-style-type: none"> • Major extension of platform functionality (<i>substantial</i>), as opposed to a slight extension (<i>moderate</i>) • Revenue from big implementation projects (<i>substantial</i>), as opposed to small implementation projects (<i>moderate</i>) • Major flow of license fees (<i>substantial</i>), as opposed to limited flow of license fees (<i>moderate</i>)
Governance costs	The effort borne by the partners arising from planning, adapting, and safeguarding the resources contributed to the partnership (based on Williamson 1981)	<ul style="list-style-type: none"> • Intense, nonstandardized interpersonal interaction (<i>substantial time and effort</i>), as opposed to infrequent, standardized interactions (<i>limited time and effort</i>) • Effort for concluding dyadic contracts, claiming patents, and bypassing partner management (<i>additional safeguarding</i>), as opposed to no such effort (<i>no additional safeguarding</i>)
Emergent		
Value cocreation potential	The stock of not-yet-realized opportunities for value cocreation between the platform owner and complementor	<ul style="list-style-type: none"> • Opportunities to acquire large or important clients (<i>substantial</i>), as opposed to small or less important ones (<i>low</i>) • Opportunities to better serve new /important client needs (<i>substantial</i>), as opposed to minor improvements of the software offering (<i>low</i>)
Insufficiency of ecosystem resources	A situation in which complementors can only reap a cocreation opportunity with resources from the platform owner beyond what is promised by the partner program	Reaping a cocreation opportunity requires . . . <ul style="list-style-type: none"> • preferential access to ecosystem resources • flexible access to ecosystem resources • resources beyond standard ecosystem resources
Relational capital	The stock of trust, trustworthiness, and norms of reciprocity between complementor and platform owner (based on Kale et al. 2000, Nahapiet and Ghoshal 1998)	<ul style="list-style-type: none"> • Partners perceive each other as mutually trustworthy and develop mutual trust (<i>substantial</i>), as opposed to partners who have doubts about trustworthiness and do not develop mutual trust (<i>low</i>) • Interactions between partners are characterized by risk-taking and expectations of reciprocity (<i>substantial</i>), as opposed to risk aversion and no expectations of reciprocity (<i>low</i>)

of their relationship to values. For example, in some cases, partnership managers did not act in accordance with values, which we refer to as violating values.

Third, we openly coded the reported outcomes of each dyad in terms of cocreated value and governance costs. Our coding of cocreated value was informed by Sarker et al. (2012), who showed that, over time, cocreated value manifests in the form of discernable levels. These discernable levels are the outcome of realizing different instances of cocreated value (Sarker et al. 2012). We coded cocreated value as substantial if the combination of resources from the platform owner and complementor resulted in large implementation projects and a major flow of license fees, and as moderate in the case of smaller implementation projects and a minor flow of license fees. Governance costs manifested in discernable forms across our cases. Partnerships were characterized by either intensive,

nonstandardized interpersonal interaction (coded as substantial time and effort) or by less frequent and less personal interaction (coded as limited time and effort). Moreover, in some cases, specifying dyadic contracts or intellectual property agreements, claiming patents, or bypassing the official partnership management led to substantial additional effort (coded as additional safeguarding).

Uncovering Patterns. We explored relationships between the core concepts via axial coding. The goal was to identify patterns, i.e., cases that were similar with regard to the governance practices partnership managers enacted over time as well as with regard to cocreated value and governance costs associated with these practices. We systematically compared practices and outcomes within and across cases using replication logic, memo writing, and tables (Miles and Huberman 1994, p. 27). This resulted in four patterns.

Developing a Process Model. Next, we identified the theoretical mechanisms underlying the dynamics of governance practices and associated outcomes through selective coding (Charmaz 2006, p. 57; Corbin and Strauss 1990). We used memos, case write-ups, data displays, and pattern matching as analysis techniques (Miles and Huberman 1994, p. 46; Yin 2009, p. 141). This final step of theory building resulted in our process model (Markus and Robey 1988) of navigating the dyadic governance tension. In this step, three necessary conditions for different ways of practicing rules and values emerged (substantial value cocreation potential, insufficiency of ecosystem resources, and substantial relational capital). Our analysis also revealed that different ways of practicing ecosystem-wide values nurture two alternative self-reinforcing cycles. These cycles drive the evolution of governance practices and explain why practices are more or less successful in navigating the dyadic governance tension.

Results

Practicing Ecosystem-Wide Rules and Values

Tables 3 and 4 show the rules and values of the studied ecosystems. Rule 1 defines the technical resources and Rule 2 shows the marketing resources that complementors have access to. Both rules specify conditions such that gold level complementors are promised more resources than silver level complementors. The values (Value 1–Value 5) express the platform owners' intention to treat all complementors equally with regard to a number of cooperative norms.

Although both platform owners declared their intention to adhere to the rules and values in the standard partner contract, we observed a remarkable variation as to how rules and values were enacted. This variation is captured in the governance practices shown in Table 5. Different ways of practicing rules and values were systematically connected to differences in cocreated value and governance costs. We abstracted the relationships between practices and outcomes that unfolded over time into four patterns. Each pattern was observed in two cases. For reasons of brevity, we illustrate each pattern with one representative case (narratives for the other four cases are provided in Online Appendix E). These rich illustrations point to the underlying drivers of dynamics in practices and outcomes, which are elaborated in the analytical summary.

Illustrating Pattern 1: From Passively to Proactively Executing Rules

The partnership between A1 and Alpha started in 2004. A1 is a provider of web analytics software for insurance companies. Its core product tracks user behavior on websites. A1's solution complements Alpha's middleware and business intelligence platforms with specific website optimization functionality for the insurance market—a niche market for which Alpha did not

Table 3. Ecosystem-Wide Rules of the Two Ecosystems

Rule	Category	Description
1	Access to defined technical resources depending on partner level	<i>For silver partners:</i> Development environments, API descriptions, automated testing tools, codified technical knowledge, integration support, online training, and access to electronic communities of practice <i>For gold partners in addition:</i> On-site integration support and technical consulting through better qualified personnel
2	Access to defined marketing resources depending on partner level	<i>For silver partners:</i> Industry analyses, market reports, the right to use the platform owners' logo, the right to be listed on the platform owners' partner website, and marketing and sales templates <i>For gold partners in addition:</i> The right to participate in networking events and partner fairs, the right to use facilities at the platform owners' sites, and funding for joint marketing campaigns

Table 4. Ecosystem-Wide Values of the Two Ecosystems

Value	Category	Description
1	Foster mutual success	The platform owners promise to invest in the success of the partnership, mutual profitability, and the provision of resources needed to maximize customer satisfaction.
2	Emphasis on communication	The platform owners promise to constantly communicate with complementors based on reliability, sincerity, and personal responsibility.
3	Efficient management of the partnership	The platform owners promise to create an environment in which meaningful cooperation thrives by providing uncomplicated access to resources and appropriate partner support.
4	Commitment to fair cooperation	The platform owners commit themselves to cooperative as opposed to competitive principles of fairness, transparency, and integrity.
5	Principle of equality	The platform owners promise to treat all complementors according to the same principles and standards.

provide a solution. A1's solution has to be connected to the clients' back-end systems, e.g., enterprise resource planning (ERP) systems and databases, via Alpha's middleware. Alpha's middleware is also used to connect the web front end of A1's solution to its back end.

The first major interaction between Alpha's partnership manager and A1's liaison took place when A1 aimed to obtain certification for the silver status in 2007. When A1's liaison approached Alpha, the partnership

Table 5. Different Ways of Practicing Ecosystem-Wide Governance

Practice	Description	Illustrative codes
Passively executing rules	Partnership managers strictly follow ecosystem-wide rules; i.e., they act upon request and provide access to ecosystem resources through self-service portals.	<ul style="list-style-type: none"> • If approached, the partnership manager redirects partners to self-service portals, online trainings, online communities, or software downloads • If approached, the partnership manager points to industry analyses, market reports, or marketing tools
Passively executing rules while emphasizing values	Partnership managers strictly follow ecosystem-wide rules, while constantly emphasizing the importance of acting in accordance with values.	Partnership manager passively executes the rules but in addition . . . <ul style="list-style-type: none"> • verbally emphasizes the importance of fair cooperation, sincerity, and reliability • frames own actions as being in accordance with the principle of equality, mutual success orientation, and fair cooperation
Proactively executing rules	Partnership managers strictly follow ecosystem-wide rules but actively guide complementors to ensure that complementors are aware of and leverage ecosystem resources.	<ul style="list-style-type: none"> • Partnership manager seeks adequate ecosystem resources on own initiative • Partnership manager calls attention to untapped ecosystem resources • Partnership manager actively provides complementor with useful information
Violating values by amending rules	Partnership managers arrange for the permanent, preferential treatment of a complementor through a dyadic contract that guarantees exclusive access to additional resources.	Partnership manager arranges for exclusive, contractually guaranteed . . . <ul style="list-style-type: none"> • membership in “sector value web” • support through the platform owner’s sales, implementation, or maintenance workforce
Stretching rules while favoring values	Partnership managers make exceptions to the rules of the partner program to occasionally provide complementors with access to scarcer resources.	Partnership manager acts in the spirit of values even if this involves . . . <ul style="list-style-type: none"> • overriding formal eligibility criteria for access to ecosystem resources • bypassing formal application processes to access representative facilities

manager responded to A1’s request by closely following rules. He¹ emphasized that he could only provide those resources that were specified in the partner program and that A1 had to follow the defined procedures for accessing these resources:

I pull all the levers for [A1] that I can, . . . but I cannot override the processes. (Partnership manager)

Specifically, the partnership manager advised A1 to access digital resources (e.g., API documentation and testing tools) through the self-service partner portal. He also pointed to the option of “chats with technical support.” Based on these resources, A1 was able to independently run “scalability” and “integration” tests (partnership manager), which resulted in successful certification. Once certification was achieved, the partners began to set up joint marketing initiatives:

[For the certification, we had to do] technical enablement, i.e., aligning [A1]’s solution with [Alpha]’s software. After that, the next task was go-to-market, i.e., marketing campaigns, demand generation, account planning, and compiling customer references. (Partnership manager)

In terms of marketing support, Alpha’s partnership manager also relied on standard procedures, as defined in the partner program. For example, he enabled the download and use of Alpha’s logo and pointed to the detailed usage guidelines available online. Essentially, the partnership manager executed

rules, and he did so in a rather passive way, i.e., in response to requests by A1’s liaison. At the same time, Alpha’s partnership manager was well aware of the limits of standardized governance. He acknowledged that processes within Alpha are often slow; he knew that this was hard to accept for A1, and that it may even negatively affect the partnership. Nevertheless, he was not willing to go beyond the rules. Yet, he emphasized the importance of embodying values in the everyday struggle between standard governance and satisfying the needs of A1. For example, he emphasized that he would “at least try to be an efficient counterpart for [A1]” (emphasizing Value 3) and that the partnership was of mutual interest (emphasizing Value 1):

It is essential to tell the partners, “you are important to us.” (Partnership manager)

By combining the standardized marketing and technical resources of Alpha with A1’s expertise related to the insurance industry, Alpha and A1 were able to cocreate value. A1’s add-on rounded out the ecosystem’s solution portfolio, and in late 2007, A1 was able to realize a number of smaller implementation projects for insurance companies that were already using Alpha’s middleware. This resulted in an additional flow of license fees for the web analytics solution.

Despite the partnership manager’s focus on executing rules, his commitment to values did not remain unnoticed by A1. A1’s liaison began to see the partnership manager as a trustworthy counterpart and was

willing to risk a leap of faith: In 2008, A1 made a significant up-front investment by advancing its solution in such a way that it would allow insurance companies to run combined analyses of the tracked website data and existing client data stored in their data warehouses. Enabling such combined analyses required A1 to integrate its solution with Alpha's business intelligence platform. Specifically, A1's tracking data needed to be transformed such that it could be entered into Alpha's platform. A1's liaison knew that it would take "weeks for a bureaucratic company like [Alpha]" to decide whether and how they would support this initiative, but she also knew that A1 had to take advantage of its abilities to be "closer to the market . . . and . . . rapidly react to new market conditions." The liaison decided to take a leap of faith and deploy A1's resources—without any contractual agreements or other formal safeguards that would guarantee Alpha's commitment in terms of communicating to clients that the project was a joint initiative of A1 and Alpha. According to A1's liaison, this leap of faith was rooted in the trusted relationship with her counterpart:

[The partnership manager] is, of course, of major importance for the development of trust. Trust is always bound to personal relationships and from our perspective, [the partnership manager] represents [Alpha]. . . . When there are conflicts, it simply helps to like the other person, to trust each other. (Liaison)

Eventually, the investments paid off and A1's solution became increasingly attractive for insurance companies. The positive feedback from clients solidified the trust of Alpha's partnership manager in A1:

If such a small company like [A1] wins over clients like [Company 1] and [Company 2], then this is because their product is good and because they are competent. And after a while . . . something that goes beyond business has developed between us. . . . We trust each other. (Partnership manager)

Because Alpha's partnership manager had developed trust in A1's capabilities and saw the potential for additional value cocreation, he gradually changed his governance practices from passively to more proactively executing rules. Alpha's partnership manager insisted that he "cannot change [Alpha]'s processes"; i.e., the partnership manager still did not provide resources beyond what was specified in the partner program. However, instead of waiting for A1 to request support and merely redirecting A1's liaison to self-service portals, he started to more actively approach his counterpart and to draw attention to untapped resources of the partner program. For example, the partnership manager facilitated participation at events with a restricted number of participants, e.g., a "joint weekend with insurance company executives" (partnership manager), where A1 had the opportunity to

present its products. Alpha's partnership manager also facilitated access to Alpha's own insurance experts:

And because of that [trust], I have initiated a lot of activities with [A1]. For example, once I positioned [A1] in front of 30 account teams of [Alpha]. I set up telephone conferences with them and gave [A1] the opportunity to present its product. And something like this only works with trust. I would never recommend a partner that I am not confident about to one of my colleagues. . . . And likewise, [A1] clearly says, "We want to work with [Alpha]." (Partnership manager)

The proactive behavior of Alpha's partnership manager resulted in increased attention for A1's solution, which led to additional cocreated value and cocreation opportunities:

Last year we won our first bigger project. That was a big success because the client is an industry leader in the insurance market. And immediately afterwards, we acquired the next project. (Partnership manager)

Illustrating Pattern 2: Passively Executing Rules

The partnership between B1 and Beta started in 2010. Since then, B1 had remained a silver partner. B1 is a leading provider of highly secure collaboration software. Its software allows organizations to share confidential documents (e.g., balance sheets or secret project descriptions) with external parties (e.g., auditors, lawyers, contractual partners, or potential targets or acquirers in the context of merger and acquisition activities). Users can access the software using a web front end and import data from Beta's ERP system. B1's software addresses a niche market as its solution targets firms with very demanding security requirements.

At the beginning of the partnership, the key task was to connect B1's solution with Beta's platform and to certify this connection. It soon became evident that the connection could not be realized via standardized platform APIs because the platform did not support the sophisticated encryption technologies used by B1. When B1's liaison asked Beta's partnership manager for help, the partnership manager acted in line with the rules and directed her to Beta's dedicated certification website, which offered an "efficient, scalable, and objective technical review model" (partner portal). Following this model, B1 used remote test environments and standard test scenarios to formally demonstrate that its solution did not and could not connect via standardized APIs. The second step of the technical review model involved the option to receive help from Beta's experts against payment of a service fee. B1 accepted the offer, and Beta's experts inspected B1's software regarding "its architecture, its technology, its security certificates, and its compliance with technical standards" (liaison). As a result, the interface between B1's add-on and Beta's platform was established, and

the certification process was successfully completed by 2011.

Once certification was achieved, B1 began to market the new release of its software as an extension to Beta's platform. The partnership manager remained passive and preferred to closely follow the rules:

It's all pretty formal, no informalities, everything is official. (Partnership manager)

Essentially, the partnership manager gave B1 an "introductory online presentation about the benefits of the partner program" and expected B1 to act in a "self-sufficient" way (partnership manager). B1 used Beta's "market reports," "campaign creation tools," and "newsletter creation tools" (liaison) to address clients. B1's liaison stated:

There's a portal that allows [me] to self-organize everything and if there's a problem, I can reach out to [the partnership manager]. (Liaison)

Thus, the partnership manager minimized interpersonal interaction and remained passive, trying to govern the partnership by strictly executing rules. Joint activities and business opportunities remained confined to rather small and short client projects. The parties felt that the relationship did not live up to its potential:

[The joint business with Beta] still leaves a lot of room for improvement. . . . We try to pick up pace in the [Beta] business, but as of today, the revenue coming from the partnership is not very strong. (Liaison)

Because the partnership manager governed the partnership in a purely transactional way, B1 felt the need to secure its own intellectual property (IP) against misappropriation by Beta. Specifically, B1 made sure that Beta would not be allowed to use B1's sophisticated encryption technologies for similar purposes. This resulted in additional formal safeguarding costs:

Intellectual property handling is the most complicated issue. You have to specifically define which IP belongs to whom. . . . This is really comprehensively regulated. . . . For this purpose, we hired a leading IP lawyer as well as a patent agent. (Liaison)

In addition, B1's liaison sought to safeguard its access to resources from Beta—particularly to know-how—by establishing social ties with Beta's personnel outside the partnership management unit. B1's liaison stated:

We need other, additional channels into [Beta]. If you don't have local contacts, it will not work. (Liaison)

B1's bypassing of official channels did not only make governance more costly for B1 but also for Beta, because it tied up human resources and ran counter to Beta's goal of standardizing governance.

Illustrating Pattern 3: From Passively Executing Rules to Stretching Rules

A2 started partnering with Alpha shortly after being founded in 2001. A2 offers a manufacturing execution system (MES) for controlling and optimizing production processes of mechanical engineering companies. The solution is built on top of Alpha's analytics platform to feed the platform's data storage, analytics, and visualization functions with real-time production data. Moreover, the solution uses Alpha's middleware platform to offer users a web-based front end for its application and to connect the MES to peripheral systems, such as manufacturing machines and the ERP platform of a third-party provider.

Since A2 was founded, the company had relied on platform-based software development. A2 leveraged functionalities from Alpha's middleware platform to integrate with other systems via standardized APIs. Therefore, when A2 certified technical interfaces to become a silver partner in 2006, it was able to do so with automated testing suites. It was sufficient for Alpha's partnership manager to react on request and provide access to the resources specified in the partner program.

The key interactions between A2's liaison and Alpha's partnership manager then quickly moved away from technical issues and instead revolved around the question of how to win new customer accounts together. It soon became apparent that to acquire new clients, it was critical to address their specific needs through dedicated account management and tailored offers. A2's liaison emphasized:

In some [industries, including mechanical engineering], I cannot do classic marketing. If I organized, say, . . . an event, none of these clients would join. You have to "kiss them to life" one by one. This is individualized, dedicated account planning. In this context, quality beats quantity. (Liaison)

Owing to its unique access to the mechanical engineering industry and its knowledge about the specifics of this industry, A2 was able to approach smaller mechanical engineering companies with formal offers. In 2007, some larger companies also showed interest, but A2 realized that taking advantage of these opportunities would require support from Alpha beyond the resources specified in the partner program. This was because A2's salesforce and implementation workforce had reached its limits:

With 30 to 35 employees . . . they [A2] just cannot handle it [large projects] alone. (Partnership manager)

Yet, Alpha's partnership manager was reluctant to step in. He was not convinced of the joint cocreation potential and of A2's ability to outperform "more established competitors" (partnership manager) from

the enterprise software industry. Accordingly, he limited his help to what was promised by the partner program:

I am doing what I am obliged to do. (Partnership manager)

While highlighting the importance of ecosystem-wide rules, Alpha's partnership manager also emphasized the importance of values:

Timeliness, reliability, trustworthiness [Value 2]. . . . It's about all these mundane matters that should be taken for granted for someone who is somewhat good-mannered. . . . but of course in this day and age, many only have their self-interest in mind [Value 4]. (Partnership manager)

Thus, Alpha's partnership manager was emphasizing values while executing rules, which seemed to increase his trustworthiness in the eyes of A2's liaison:

[Trust emerged when] I saw that [the partnership manager] provided me with documents in time, when I saw that [he] lives up to commitments. (Liaison)

Because she trusted Alpha and the partnership manager, A2's liaison felt comfortable to take additional risks. A2 made further investments to improve the MES by connecting it to additional input devices from the shop floor. As a consequence, a number of new client accounts were acquired, resulting in a steady flow of license fees. Despite this success, A2's liaison lamented that the joint clients were still rather small in size:

We were able to acquire smaller manufacturing companies, . . . but we are collaborating with [Alpha] to acquire the really big clients. (Liaison)

Acquiring larger clients did not seem feasible as long as Alpha's partnership manager was reluctant to contribute resources beyond what was offered in the partner program. Over time, however, Alpha's partnership manager took note of A2's increasing success at smaller mechanical engineering companies and the growing interest of larger clients. He gradually lessened his skepticism about A2's abilities to successfully compete with established enterprise software vendors. Because of his increased trust in A2's competence and the prospect of joint business, the partnership manager started to be more proactive. In 2008, he arranged for the promotion of A2 to the gold level, which formally entitled A2 to receive more valuable resources, such as on-site integration support and funding for joint marketing programs (see Rules 1 and 2). Moreover, Alpha's partnership manager did not leave A2 alone with these resources. Instead, he proactively ensured that A2 was enabled to better satisfy clients by appropriating the right resources. Specifically, he guided A2 through the benefits of the partner program and actively looked for potentially valuable contacts in Alpha to connect them with A2:

I know who knows what and who is responsible for what. . . . I am looking for the people and items that are a good match for [A2]. (Partnership manager)

A2 leveraged this privileged access to resources to better serve its clients and became the state-of-the-art provider of MES systems for small and medium-sized mechanical engineering companies. In response, Alpha's partnership manager began to relax his strict reliance on rules and instead started to stretch the rules when necessary. Specifically, he flexibly repurposed the rules of the partner program to occasionally give A2 access to additional resources:

It's very important to understand where [A2]'s shoe pinches. . . . and to understand what the partner needs and how we can help. Depending on that, we will support the partner. . . . Not everything is 100% prestructured. We have the means to conceal some things and thereby make up for other things. We can take money out of this or that pot. We are quite flexible. (Partnership manager)

[Stretching Rule 1 and Rule 2:] I am trying to do something good for [A2], something above and beyond the normal partner program. I am trying to walk the extra mile for them. (Partnership manager)

For example, Alpha's partnership manager gave A2 preferred access to rewards for exceptional partner performance and supported joint trade fair appearances. He also gave access to funds for comarketing initiatives. Normally, complementors have to fulfill formal eligibility criteria to gain access to these funds (see Rule 2). Alpha's partnership manager deviated from this rule, "trying to let [A2] get something [i.e., money] from the comarketing program," although A2 had "not even planned a joint campaign yet" (partnership manager), stretching Rule 2. The partnership manager was confident that A2 would use this extra money "for the good of our partnership."

When stretching the rules, Alpha's partnership manager seemed to consciously act in the spirit of values, and stressed that in case of doubt, he would orient his practices toward values rather than rules (favoring Values 1 and 2):

Of course, there are distinct processes and patterns that we should follow. Yet, ultimately, it should be a win-win situation—[Alpha] and [A2] should be successful [see Value 1]. And that is what my communication with partners is based on—sincerity, trust, and regular exchange [see Value 2]. (Partnership manager)

Despite the partnership manager's general willingness to accommodate the partnership's needs through rule stretching, he did not subscribe to the idea of exclusivity agreements that would guarantee one partner exceptional benefits:

Yes, I make exceptions to the rule . . . , but there is no exclusivity principle. The partner is an independent company and so are we. (Partnership manager)

In response to the partnership manager's change of practices and his proven commitment to the partnership, the liaison arranged for intensifying A2's commitment to Alpha. For example, early in 2009, A2 used its technical and industry expertise to add a visualization feature to its solution that was specifically designed to run on Alpha's platform—it heavily relied on the visualization engine offered as part of Alpha's analytics platform. The feature enabled the visualization of the current status of machines, plants, and hall layouts, as well as the creation of visual reports used to optimize factory productivity. With A2's MES becoming increasingly sophisticated and more integrated with Alpha's platform, the partners finally succeeded in acquiring a major aerospace company as their first "really big [joint] client" (partnership manager). Encouraged by this experience of joint success and the positive relationship, a high level of mutual trust developed "as if we were one company" (liaison).

Once you realize the other party is reliable and you have proven to be reliable yourself, then this simply facilitates collaboration . . . , and of course if you have had joint successes, then . . . this welds you and the other party together. (Partnership manager)

The interaction became increasingly driven by positive self-reinforcing dynamics. The way in which A2's liaison provided access to resources mirrored the way in which Alpha's partnership manager granted access to Alpha's resources, and vice versa:

It is important to live the partnership. It is important to support each other such that both partners give and get, . . . [in particular] since we have received more support from [Alpha]. (Liaison)

For example, A2's liaison was "passing on [confidential] lead information" to Alpha, knowing that there would be nothing in it for A2—the potential client was acting in a different niche. Over time, the partners developed norms of reciprocity to govern the partnership. Both parties informally agreed to always support each other.

One norm that has evolved over time is that we try to make projects with our trusted partner [A2] by all means. As soon as a project smells like MES, I try the best I can to bring [A2] in. And [A2] does the same for us. . . . In this case, there are no rules; that is just collaboration, this is just human. Sales is always about emotions—about human beings acting with each other; that [emphasized] makes the difference. (Partnership manager)

[Alpha] always looks out for business opportunities for us, . . . but of course I am doing the same for [Alpha]. (Liaison)

The deep collaboration between Alpha and A2 led to additional cocreated value. By late 2009, A2's MES had become the "unofficial industry standard" (PA-A2-18) for factory optimization with many major clients in the automotive, aerospace, mechanical, and medical engineering industries. The increasingly sophisticated MES helped clients to optimize the productivity of factories. The real-time transparency regarding the status of machines enabled production firms to optimize the sequence of orders and to adequately react to disturbances in the production process, e.g., downtimes of machines. For example, a large aviation company reported that before introducing A2's MES, highly qualified shop floor personnel had to manually collect the information necessary to plan and control production processes, whereas with A2's solution, the relevant information is just "one click away" (PD-A2-2).

Based on the trustful relationship between A2 and Alpha as well as the established norms of reciprocity, the intensive collaboration between the two organizations seemed to be realized in an efficient manner:

After years of partnering, our partnership is based on a very strong foundation. . . . Therefore, formal agreements are not important. . . . With trust, everything is just easier. . . . The whole collaboration is just less complicated. (Liaison)

Illustrating Pattern 4: From Passively Executing Rules to Amending Rules

B2 began partnering with Beta in 2005 and became a silver partner soon thereafter. B2's core solution is a production management system (PMS) for the meat processing industry. The PMS supports the entire value chain of meat processing firms, including production planning, breeding, slaughtering, disassembly, and processing. B2's solution builds on and enhances Beta's ERP platform with functionality specific to the meat processing sector. The solution also relies on Beta's middleware platform to connect external input and sensory devices to its core product, e.g., touch screens in meat factories, mobile scanners in warehouses, and ear-tag RFID chips at farms.

From the very beginning of the partnership, the goal was to tightly integrate B2's solution with Beta's ERP platform. B2's solution was built to exclusively run on Beta's platform. B2 sought to complement Beta's platform with specific features for the meat processing industry. For example, B2 developed specific functionality to overcome the inability of Beta's ERP platform to address the "reverse bill of materials" problem in the meat processing industry. In contrast to discrete manufacturing industries, where several inputs (e.g., tires and engines) are put together to form one output (e.g., an automobile), the meat industry has "only . . . one input [e.g., a cow] but several outputs [e.g., briskets and sirloin steaks]" (liaison). B2 recognized this unique

business process and was able to “model this process directly in [Beta’s ERP platform]” (PI-B2-3). This tight and “extensive integration” (PI-B2-3) was achieved by intensively exploiting Beta’s platform functionality via standardized APIs.

Despite the added value provided by B2, sales and marketing of B2’s PMS turned out to be challenging. The standard marketing resources provided by Beta, such as Beta’s logo and newsletter creation tools, were insufficient to attract clients. B2 had to approach each client directly. Moreover, enterprise software solutions for the meat processing industry usually require substantial customization to map idiosyncratic business processes. Therefore, even the small client projects that B2 was able to acquire at this point required significant implementation effort. B2 lacked the resources to make these marketing and implementation efforts—it had neither a large salesforce nor sufficient implementation staff to handle client projects unilaterally. Beta’s partnership manager acted in line with Beta’s general preference for large projects and was unwilling to step in with additional resources. Instead he relied on standard marketing procedures, as defined in the partner program; i.e., he was executing rules.

B2’s liaison perceived this practice as “merely [meeting] the minimum standard.” The situation worsened in 2007 when Beta recommended the solution of another partner—a competitor of B2—to its clients. B2’s liaison considered this practice at odds with ecosystem-wide values. She emphasized that Beta usually follows a nondiscrimination policy—i.e., “[Beta] does not recommend any of the partner solutions” (liaison) to clients when several complementors offer comparable solutions. Therefore, she was disgruntled when Beta recommended the competing solution “on the sidelines” (liaison). Accordingly, her trust in Beta was severely damaged:

There was a time when we had no trust at all. . . . I would not have called [this] a partnership. (Liaison)

Because of the high quality and tight integration of B2’s software, B2 was still able to win a number of smaller meat processors as clients during 2008. This resulted in small client projects and a limited flow of license fees for B2. However, the relationship was still overshadowed by Beta’s violation of the nondiscrimination policy (see Value 5):

Our fiercest competitors were not companies outside [Beta]’s ecosystem but other [Beta] partners, . . . and in that situation, the partnership was useless and even negative for us. And it was also negative for the clients. I would put it like this: we acquired clients despite [emphasized] [Beta]. (Liaison)

During this time, B2’s liaison even considered discontinuing the partnership. Yet, B2 refrained from this option. B2 had already invested substantially into the

partnership, and switching to another platform would have rendered much of B2’s investments obsolete. Eventually, however, B2’s tenacity paid off. Recognizing the added value of B2’s meat processing functionality, one of the largest meat processing companies worldwide considered implementing B2’s solution along with Beta’s ERP system in 2010. With such a large client interested in B2’s solution, both Beta and B2 knew that winning the project required a closer collaboration. They had to make a concerted sales and implementation effort, which included refining B2’s software to meet the client’s needs.

However, the prior troubles still weighed heavily on the partnership. B2 was only willing to contribute the required resources—i.e., “to really collaborate at all” (liaison)—on the condition that Beta would bindingly guarantee permanent and exclusive access to nonstandard resources, such as sales and development resources. Facing the prospect of acquiring additional major clients, Beta’s partnership manager gave in:

We have 10 to 20 new clients per year. So that’s worth it [a closer collaboration]; there is more revenue associated to it. We are talking about millions or tens of millions of euros of joint business. We are open to [giving] this [partnership] more attention. (Partnership manager)

Beta’s partnership manager accepted B2’s condition and arranged for B2 to move to the gold level. Yet, even as a gold level partner, B2 did not receive access to all desired resources. Therefore, the partnership manager arranged for a dyadic contract to be concluded in early 2011. The dyadic contract guaranteed that Beta would market B2’s solution via Beta’s own sales channels and that Beta would provide maintenance and support for B2’s solution through its own technical workforce. In addition, the dyadic contract made B2 a member of Beta’s sector value web for consumer products. Sector value webs bring together key representatives from clients, complementors, and Beta to explore solutions to specific client problems in particular industries. Beta offers this privileged access to nonstandard resources only to a small number of complementors. The guaranteed privileged resource access helped B2 to immediately increase its visibility in the market and to gain unique insights into client needs. B2’s PMS and Beta’s ERP system became so deeply integrated that B2’s solution became “indistinguishable from our own product [i.e., Beta’s platform]” (partnership manager). B2’s liaison emphasized that the meat processing solution has become operationally critical for clients:

We [B2] are not just optimizing some minor function. If our software does not work, then nothing works [at our clients’ sites]. We are running their core business and if something is wrong [with the software], then we are jeopardizing their existence. (Liaison)

With access to more valuable resources, B2 was also able to add more sophisticated features. For example, during 2011, B2 addressed problems related to units of measurement—an idiosyncratic requirement of the meat processing industry. Across the value chain, different measurement units are used, e.g., pounds, pieces, or cases. When traveling through the value chain, items need to be stored with several units of measurement.

Without parallel units of measure, it would not be possible. . . . to plan [the inventory] based on the number of sausages you want to sell, and vice versa. (Liaison)

Clients became increasingly aware of the added value of B2's solution. Many new clients chose Beta's ERP system specifically because of the superior performance of B2's solution compared to those of competing firms.

There are customer situations where it's us [B2] who tip the scales. (Liaison)

Despite this increasing success of the partnership, B2's liaison remained skeptical about the trustworthiness of Beta. B2's liaison was still concerned about Beta's discriminatory behavior against other complementors. She noted that the discriminatory behavior *against* B2 turned into discriminatory behavior *in favor of* B2, as the dyadic contract between Beta and B2 "basically killed competition." This behavior appeared inconsistent with ecosystem-wide values that promise fair and nondiscriminatory cooperation with all complementors (Values 4 and 5). Thus, for B2's liaison, the climate of the partnership "remained troublesome and negative." Consequently, she was only willing to contribute additional platform-specific resources to the partnership as long as Beta would continue to contractually guarantee its own resource contributions through a dyadic contract. This led to ongoing governance costs that had to be borne by both parties. The significant costs required for negotiating and drafting "customized contracts" (liaison) ran counter to Beta's preference for efficient and nondiscriminatory governance.

We need to be as efficient as possible; that's why we've created the partner program. . . . This allows us to not put human resources in. . . . The problem is the time spent to [personally] support a partner. Then, I don't do anything else at this moment. So what's the ROI for [Beta]? (Partnership manager)

Analytical Summary: Developing a Process Model

The four patterns have shown how different ways of practicing ecosystem-wide governance resulted in different levels of cocreated value and governance costs. We take the similarities and differences between

the patterns as a basis to develop a process model that explains how partnership managers navigate the dyadic governance tension over time. Table 6 summarizes the patterns and links them to the ingredients of our process model, which is presented in Figure 1 and explained next.

The process logic of our model is iterative such that a new model iteration begins each time the tension recurs. This reflects the fact that in all our cases, partnership managers recurrently faced the choice between closely following ecosystem-wide governance and catering to specific dyadic needs. Across all patterns, partnership managers initially followed ecosystem-wide rules closely. In our process model, this is represented as the *arm's length route*. On the arm's length route, practices of closely following the rules enable complementors to access standard ecosystem resources, resulting in rather low governance costs but only moderate cocreated value. Because this more standardized collaboration played a role in all patterns, it can be seen as the default way of governing partnerships. Whereas governance practices were relatively stable in Patterns 1 and 2, they changed dramatically over time in Patterns 3 and 4: in addition to following the rules, partnership managers went beyond the rules through practices of "stretching" or "amending." In our process model, this much closer, more alliance-like collaboration that occurred later in Patterns 3 and 4 is represented as the *dyadic route*. The practices on the dyadic route respond to specific dyadic needs, resulting in substantial cocreated value but also in higher governance costs compared to the arm's length route. The transition from the arm's length to the dyadic route occurred in response to changing situations. This is reflected by the two necessary conditions for taking the dyadic route that our model proposes, i.e., insufficiency of ecosystem resources and substantial cocreation potential (see Table 2).

On each route, partnership managers can practice ecosystem-wide values in different ways. These differences are key for answering our research questions. Next, we analyze which practices address the dyadic governance tension more successfully. Then, we explore the roles of two alternative self-reinforcing cycles, which span multiple model iterations, in explaining why different practices address the dyadic governance tension more or less successfully and in explaining change and stability in governance practices.

Practices for Successfully Addressing the Dyadic Governance Tension

On both routes, the dyadic governance tension is addressed more or less successfully depending on how partnership managers practice ecosystem-wide values. When following the rules on the arm's length route,

Table 6. Summary of Findings

	Pattern 1: From passively to proactively executing rules	Pattern 2: Passively executing rules	Pattern 3: From passively executing rules to stretching rules	Pattern 4: From passively executing rules to amending rules
Practicing rules	Passively executing rules Later: Proactively executing rules	Passively executing rules	Passively executing rules Later: Proactively executing rules	Passively executing rules Later: Amending rules
Practicing values	Emphasizing values	Not emphasizing values	Emphasizing values Later: Favoring values	Not emphasizing values Later: Violating values
Necessary conditions for going beyond the rules ^a	Never simultaneously fulfilled	Never simultaneously fulfilled	Not simultaneously fulfilled initially Later: Simultaneously fulfilled	Not simultaneously fulfilled initially Later: Simultaneously fulfilled
Necessary condition for stretching ^b	—	—	Later: fulfilled	Not fulfilled
Dynamics	Virtuous cycle	Vicious cycle	Virtuous cycle	Vicious cycle
Addressing the tension...	... <i>successfully</i> : Moderate cocreated value, limited time and effort, and <i>no additional safeguarding</i>	... <i>less successfully</i> : Moderate cocreated value, limited time and effort, but <i>additional safeguarding</i>	... <i>successfully</i> : Initially: Moderate cocreated value, limited time and effort, and <i>no additional safeguarding</i> Later: Substantial cocreated value, substantial time and effort, but <i>no additional safeguarding</i>	... <i>less successfully</i> : Initially: Moderate cocreated value, limited time and effort, but <i>additional safeguarding</i> Later: Substantial cocreated value, substantial time and effort, and <i>additional safeguarding</i>

^aThe necessary conditions are insufficiency of ecosystem resources and substantial cocreation potential.

^bThe necessary condition is substantial relational capital.

partnership managers enact values in two different ways; i.e., they put emphasis on values or not. This has direct implications for governance costs. If partnership managers do not put emphasis on values, additional governance costs are incurred, e.g., for IP agreements (see Pattern 2 and the beginning of Pattern 4). If partnership managers emphasize values, such additional governance costs are avoided (see Pattern 1 and the beginning of Pattern 3). Therefore, following the rules while emphasizing values helps partnership managers achieve a similar level of cocreated value compared to the alternative of not emphasizing values, but at lower governance costs. Thus, on the arm's length route, emphasizing values is superior to not emphasizing values in terms of successfully addressing the tension.

On the dyadic route, partnership managers can also enact ecosystem-wide values in two different ways. Partnership managers can violate values (by amending ecosystem-wide with dyadic rules). Alternatively, partnership managers can favor values (by stretching rules). When partnership managers violate values by amending rules, the partners have to bear additional governance costs for negotiating and crafting dyadic contracts (see later in Pattern 4). By contrast, favoring values implies avoiding these additional governance costs (see later in Pattern 3). Thus, on the dyadic route,

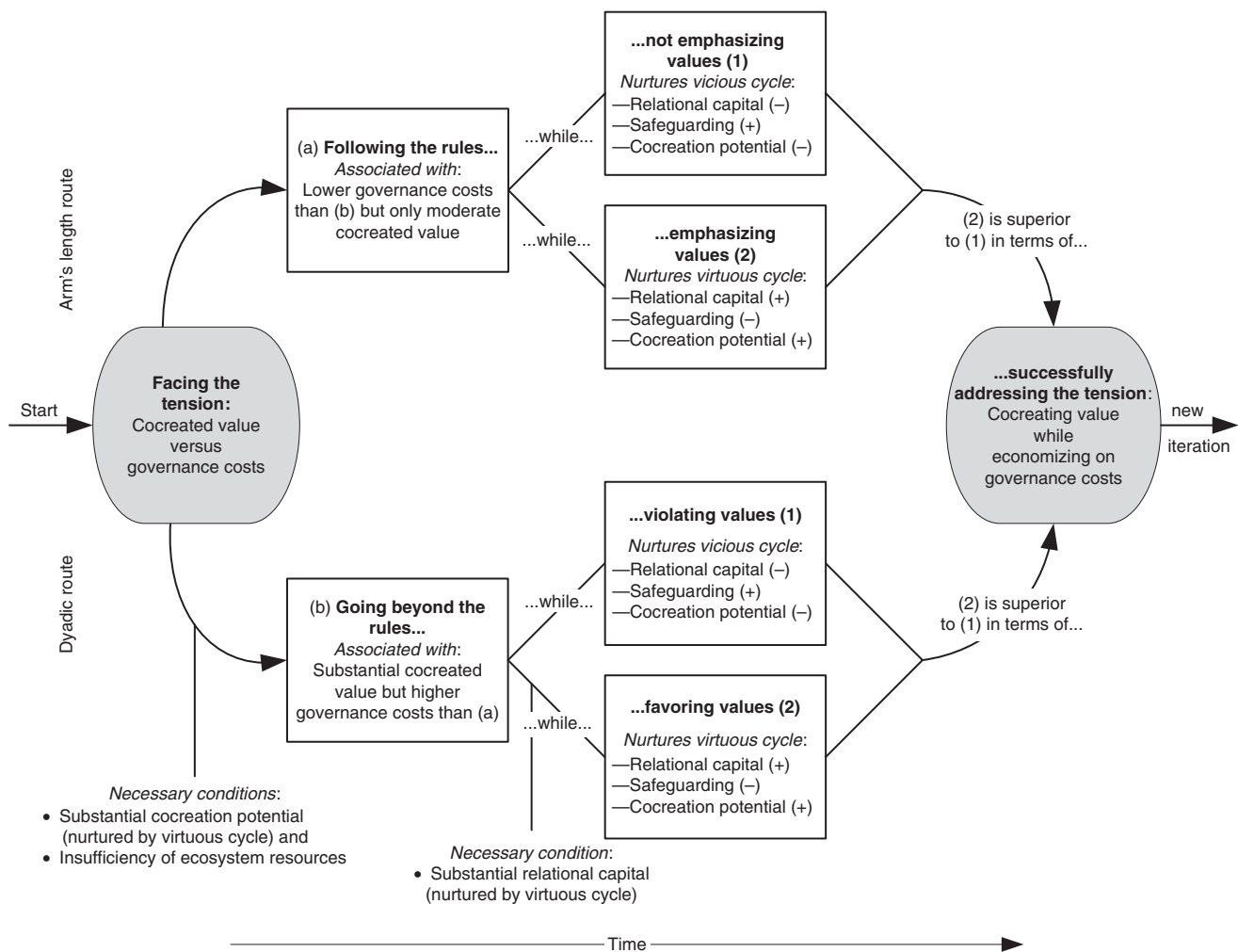
favoring values is superior to violating values in terms of successfully addressing the tension.

Why Practices Successfully Address the Tension and Why They Change or Remain Stable

On both routes, governance practices set alternative self-reinforcing processes in motion. At the center of these self-reinforcing processes is the development or absence of relational capital between the platform owner and the complementor. Relational capital builds up over the course of a partnership when trust, trustworthiness, and norms of reciprocity grow (see Table 2). We abstract the interactions between relational capital, the tendency to renounce safeguards, and cocreation potential into two alternative cycles. The positive interactions are modeled as a virtuous cycle in which these three elements reinforce each other (see Figure 2 for details). The negative interactions are modeled as a vicious cycle in which the three elements weaken each other (see Figure 3 for details).

Setting the Cycles in Motion. Key to the emergence of the virtuous and vicious cycles is the way in which partnership managers refer to values right from the beginning of the partnership. The practice of executing rules while emphasizing values (see Patterns 1 and 3)

Figure 1. Process Model—How Partnership Managers Navigate the Dyadic Governance Tension



verbally expresses that even if partnership managers constrain access to desirable resources, they still live up to the spirit of a true partnership. This demonstrates that their behaviors are appropriate and desirable within the system of values, i.e., they are sensitive to values. This value-sensitive practice sets the process of building up relational capital in motion because partnership managers signal their trustworthiness to liaisons. By contrast, the practice of executing rules without emphasizing values is not value-sensitive because partnership managers do not verbally express that their behaviors are in the spirit of a true partnership (see Patterns 2 and 4). This practice undermines the emergence of relational capital because it does not signal the trustworthiness of the partnership managers.

Reinforcing Interactions Between the Elements of the Cycles. Relational capital is at the center of the two alternative cycles because it interacts with (1) the tendency to renounce safeguards and (2) cocreation

potential. First, in the virtuous cycle, increasing relational capital increases complementors' tendency to renounce safeguards, which in turn strengthens relational capital. In Patterns 1 and 3, complementors that had come to trust the platform owner were willing to contribute resources without insisting on safeguards such as patents, IP agreements, and dyadic contracts. Renouncing safeguards, in turn, increased mutual trust and thus strengthened relational capital. These increases in relational capital and the associated stronger tendency to renounce safeguards explain why value-sensitive practices lead to lower governance costs and, thus, better address the dyadic governance tension. Second, increasing relational capital increases cocreation potential, which in turn strengthens relational capital. In Patterns 1 and 3, complementors that had come to trust the platform owner became more inclined to take risks by making significant upfront investments to advance their enterprise solutions. Upfront investments made the complementors' solutions more attractive for potential clients. The

positive customer feedback, in turn, strengthened relational capital because it further increased trust between the parties.

In the vicious cycle, decreasing relational capital leads to more safeguarding, which in turn weakens relational capital. In Pattern 2, the complementors had doubts about the platform owner's trustworthiness and therefore insisted on safeguards, such as IP protection. Similarly, in Pattern 4, complementors did not trust the platform owner. Therefore, complementors were willing to intensify the partnership only if exclusive benefits were guaranteed through a dyadic contract. Additional safeguarding, in turn, weakened relational capital because it was perceived by partnership managers as distrust. These decreases in relational capital and the associated weaker tendency to renounce safeguards explain why practices not sensitive to values lead to higher governance costs and are, thus, inferior in terms of addressing the dyadic governance tension. Second, decreasing relational capital leads to decreases in the cocreation potential, which in turn weakens relational capital. In Patterns 2 and 4, mutual trust was low and neither of the partners was willing to take the risk of contributing additional resources to the partnership. As a consequence, the parties felt disappointed because the partnership did not live up to its potential. These disappointments further weakened mutual trust.

Cycles Solidify How Values Are Practiced. The virtuous and vicious cycles over time solidify how partnership managers practice ecosystem-wide values. The virtuous cycle—set in motion by emphasizing values—creates the conditions for value-sensitive governance practices in the future. In Pattern 1, given the increases in relational capital nurtured by the virtuous cycle, partnership managers reciprocated the complementors' risk taking with the practice of proactively executing rules (see example from Pattern 1 in Figure 2)—a practice that not only expresses verbally that the behaviors of the partnership managers are appropriate and desirable but expresses it through actions. In Pattern 3, the value-sensitive practices of emphasizing values and proactively executing rules led to increases in relational capital. Once relational capital had become substantial, complementors were willing to closely collaborate with the platform owner without insisting on safeguards. Hence, the practice of stretching rules while favoring values—another behavioral expression of value sensitivity—became a feasible option (see “necessary condition” in Figure 1 and example from Pattern 3 in Figure 2).

The vicious cycle—set in motion by not emphasizing values—undermines the conditions for value-sensitive practices in the future. In Pattern 2, not emphasizing values undermined the emergence of relational capital. As a consequence, complementors did not renounce

safeguards or make risky investments, and relational capital remained low. In particular, norms of reciprocity did not develop, and partnership managers did not become more proactive, but continued to passively execute rules while not emphasizing values (see example from Pattern 2 in Figure 3). In Pattern 4, not emphasizing values and acting inappropriately with regard to values hindered the emergence of relational capital. Accordingly, relational capital never became substantial, and thus the necessary condition for the value-sensitive practice of stretching rules while favoring values was never fulfilled. Liaisons were only willing to contribute resources if the platform owner would contractually guarantee exclusive resource access through amending rules—a practice at odds with the value of treating all complementors according to the principle of equality (see example from Pattern 4 in Figure 3).

Cycles Affect Shifts in Practicing Rules—The Organic Transition from the Arm's Length to the Dyadic Route.

Partnership managers are only willing to transition from the arm's length route to the dyadic route if the two necessary conditions for going beyond the rules are simultaneously fulfilled: (1) the cocreation potential has to be substantial, and (2) drawing on the resources from the platform owner as promised by the partner program needs to be insufficient to reap cocreation opportunities. In Patterns 1 and 2, these necessary conditions were never simultaneously fulfilled, and partnerships remained on the arm's length route. In Patterns 3 and 4, situations changed over time, and partnership managers transitioned from the arm's length to the dyadic route.

This transition can be organic in that governance practices gradually ascend to the dyadic route. Such an organic transition is fueled by the virtuous cycle. As in Patterns 1 and 2, partnership managers in Pattern 3 initially remained on the arm's length route because the two necessary conditions for going beyond the rules were not simultaneously fulfilled. Although liaisons deemed the standard ecosystem resources insufficient early on in the partnership, the partnership managers did not see cocreation potential substantial enough to justify going beyond the rules. However, because the practice of executing rules while emphasizing values had initiated the virtuous cycle, cocreation potential and relational capital endogenously built up over time. Specifically, complementors that had come to trust their counterpart made risky investments to improve the software, and partnership managers acknowledged the increased cocreation potential because they had come to trust the complementors. Partnership managers, then, began to cushion the constraints of the partner program by proactively executing rules. Given that partnership managers increased their effort beyond a usual arm's length relationship

Figure 2. Virtuous Cycles

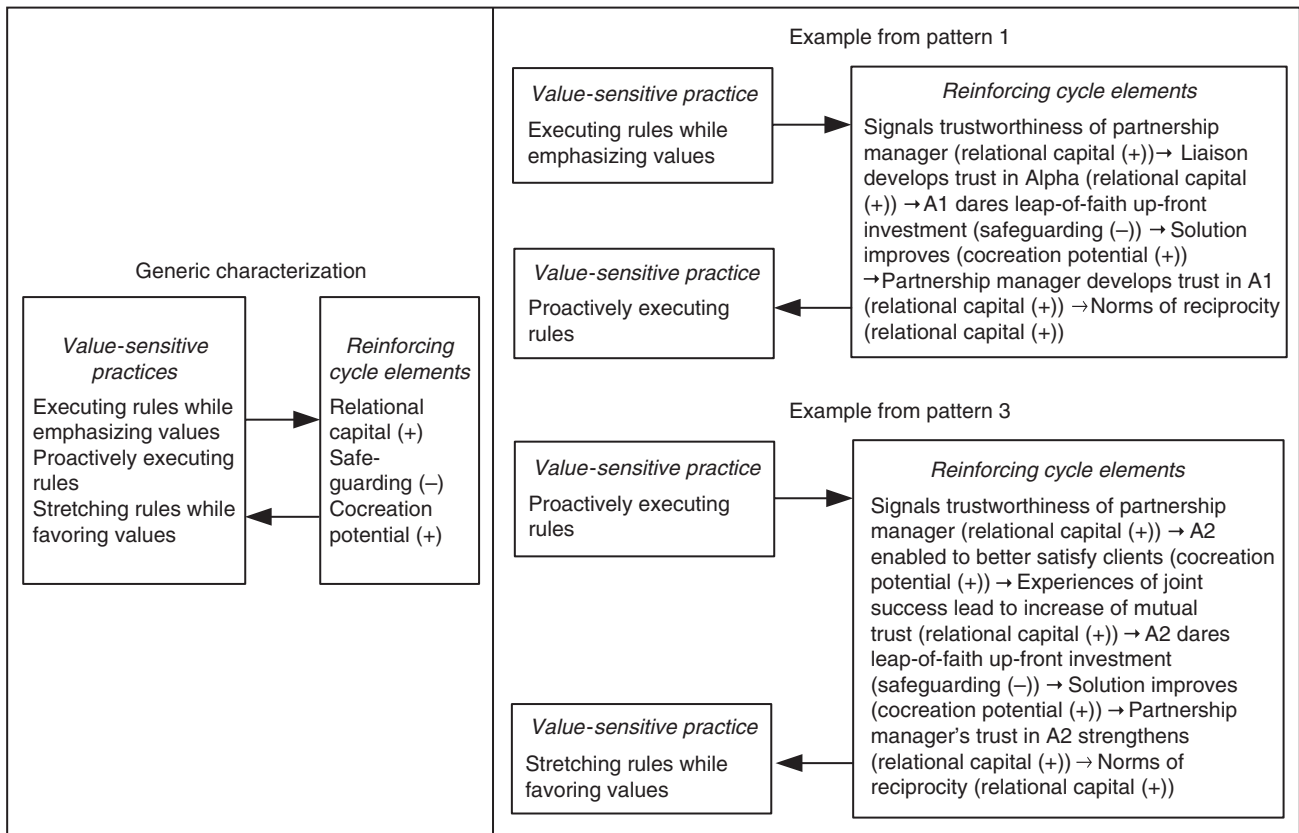
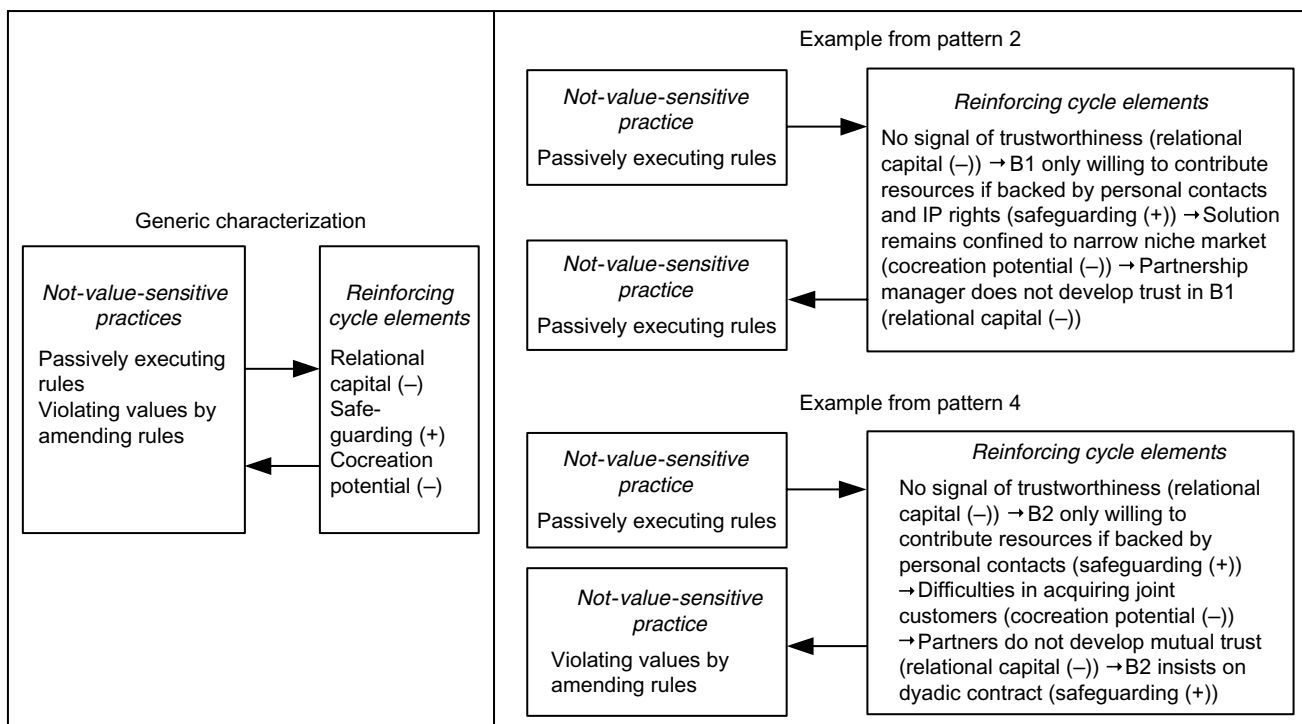


Figure 3. Vicious Cycles



but still remained within the boundaries of the partner program, the practice of proactively executing rules can be seen as a transitional practice connecting the two routes. The practice of proactively executing rules and the reciprocal behavior of the complementors enabled the parties to combine their resources in more unique ways, and the parties cocreated systems that became highly compelling for larger clients. Because of the substantial cocreation potential associated with these state-of-the-art systems, partnership managers eventually became willing to overcome the limitations of standard ecosystem resources by going beyond the rules.

Such an organic transition from the arm's length to the dyadic route seems infeasible if partnerships are driven by the vicious cycle. Similar to Pattern 3, partnership managers in Pattern 4 did not see substantial value cocreation potential in the beginning. In contrast to Pattern 3, cocreation potential did not grow endogenously. The vicious cycle initiated by practices not sensitive to values undermined the development of relational capital and cocreation potential. Instead of gradually shifting from the arm's length route to the dyadic route by becoming more proactive, partnership managers kept passively executing rules. Notably, in Pattern 4, cocreation potential did eventually become substantial. Yet, it did not develop endogenously through joint activities of partnership managers and liaisons. Rather, complementors managed to attract a major client through their own tenacity.

Discussion

Our study shows that the governance of platform ecosystems is a process of considerable variation and change in practicing ecosystem-wide rules and values. This process has tangible consequences for cocreated value and governance costs. Early in the partnerships between platform owners and complementors, platform owners seek to minimize governance costs by closely following the rules—but this also tends to limit cocreated value. Over time, some complementors increasingly attract the platform owners' attention by demonstrating that the partnership has substantial cocreation potential—e.g., by acquiring particularly important clients. When standard ecosystem resources are insufficient to reap such substantial cocreation potential, platform owners are willing to go beyond the rules of the ecosystem. While this results in higher levels of cocreated value, it is also associated with substantially higher governance costs.

Our inductively developed process theory models and explains how governance practices and outcomes evolve in particular partnerships. The process model shows that partnership managers recurrently face the tension between cocreated value and governance costs.

When faced with this dyadic governance tension, partnership managers either opt for an arm's length or for a dyadic route. Whether and how partnership managers take the dyadic route hinges on necessary conditions. Although partnership managers cannot fully resolve the dyadic governance tension, the process model shows that on both the arm's length route and the dyadic route, practices that are sensitive to ecosystem-wide values better address the tension than practices not sensitive to values. This is because value-sensitive practices nurture a virtuous cycle, whereas practices not sensitive to values nurture a vicious cycle. Notably, the virtuous and vicious cycles feed into the necessary conditions, thereby explaining why some partnerships transition organically from an arm's length to a more alliance-like relationship, and why the way values are practiced solidifies over time—resulting in persistent differences in successfully navigating the dyadic governance tension. In Table 7, we summarize the answers to our research questions.

Implications for Theory

Our process model acknowledges the contingent and dynamic nature of platform ecosystem governance. It complements prior research that has focused on the design of stable ecosystem-wide governance (e.g., Baldwin and Clark 2006, Boudreau 2010, Gulati et al. 2012, Parker and Van Alstyne 2005, Tiwana et al. 2010, Wareham et al. 2014). The premise of prior research was that complementors cocreate value through unilateral activities by drawing on the resources provided through ecosystem-wide governance. Under this premise, ecosystem needs and local needs can be reconciled by designing effective ecosystem-wide governance (Baldwin and Clark 2006, Boudreau 2010, Parker and Van Alstyne 2005). Our process model shows that partnerships in the early stages are indeed consistent with this idea of arm's length governance. However, our process model also shows that as partnerships evolve they may be faced with situations in which platform owners and complementors can only reap additional cocreation potential by going beyond arm's length governance. Thus, our findings complement prior research by showing that once the premise of unilateral, arm's length governance is relaxed, it is insightful to not only consider ecosystem-level design but also local discretion in practicing standards—a mechanism that was suggested by prior work (Berente et al. 2016, Huber et al. 2013, Lawrence and Lorsch 1967, Rolland and Monteiro 2002) but that has not received attention in the context of platform ecosystems. By acknowledging such discretion, our study shows that ecosystem-wide design neither fully replaces nor fully standardizes governance practices. Quite the contrary; behind the façade of ecosystem-wide standards, there is a thus

Table 7. How Our Findings Answer the Research Questions

Research question	Findings
Are there ways of practicing ecosystem-wide governance that better address the dyadic governance tension than others?	There are two different routes of governing partnerships in platform ecosystems—the arm’s length and the dyadic route. On both routes, value-sensitive practices economize on governance costs. Thus, partnership managers can navigate the dyadic governance tension more successfully if their practices are sensitive to values.
Why do practices differ in their ability to successfully address the tension?	Virtuous and vicious cycles explain why practices differ in their ability to successfully address the tension. Value-sensitive practices nurture the virtuous cycle, whereas practices not sensitive to values nurture the vicious cycle. In the virtuous cycle, relational capital and the tendency to renounce safeguards strengthen each other, which entails economizing on governance costs. In the vicious cycle, relational capital decreases and complementors tend to insist on safeguards, which entails additional governance costs.
How and why do governance practices change or remain stable?	Governance practices can change from following the rules to going beyond the rules. <i>Whether or not</i> partnership managers are willing to go beyond the rules hinges on two necessary conditions—substantial cocreation potential and the insufficiency of ecosystem resources. <i>How</i> partnership managers go beyond the rules hinges on the presence of substantial relational capital. Virtuous and vicious cycles feed into the necessary conditions. This interplay creates distinct paths of practicing rules and values. First, because the virtuous cycle nurtures cocreation potential, value-sensitive practices trigger a process of organic transition from following the rules to going beyond the rules. Second, because the virtuous cycle strengthens relational capital, value-sensitive practices in the past create the conditions for value-sensitive practices in the future. Conversely, because the vicious cycle weakens relational capital, practices not sensitive to values create the conditions for not-value-sensitive practices in the future.

far hidden variety as to how ecosystem-wide governance is practiced. Specifically, our process model suggests that how ecosystem-wide governance is practiced is contingent in two ways. First, governance practices are situationally contingent on the presence or absence of necessary conditions. Second, governance practices are temporally contingent in the sense that the process history of the partner dyad shapes governance practices. This contingent nature of governance practices is important because it allows for accommodation of specific and ever-changing local needs without effecting permanent change in ecosystem-wide governance. Thus, in the context of platform ecosystems, reconciling local differentiation with wider imperatives is more than just a design problem; it is a complex and dynamic interplay between designing and discretion in practicing ecosystem-wide governance.

By shedding light on the complex and dynamic interplay between ecosystem-wide governance and governance practices as well as its consequences, we contribute to research on governing platform ecosystems in the specific context of enterprise software (Sarker et al. 2012, Wareham et al. 2014). Specifically, our findings fruitfully extend recent work that has examined ecosystem-wide rules (Wareham et al. 2014). This work has established self-selection as one of the key mechanisms through which ecosystem-wide rules address tensions—i.e., complementors self-select the partner level and with it the rules they consider appropriate for the local needs of their business (Wareham et al. 2014). Our findings suggest that what appears to be pure self-selection is in fact a sequence of complex interactions between liaisons and partnership managers. In some

situations, partnership managers are proactively guiding complementors through the rules of the partner program by calling attention to untapped resources or actively promoting complementors to higher partner levels. In other situations, partnership managers are willing to grant access to resources beyond what is stipulated in the rules. They only do so after liaisons have called attention to the insufficiency of ecosystem resources, and if they consider the cocreation potential as substantial. Importantly, across all partnerships we studied, substantial value was only cocreated if partnership managers did go beyond the rules of the partner program. Hence, to fully explain how partnerships successfully respond to local needs, it is insightful to go beyond pure self-selection and to acknowledge the relationships and dynamics elaborated in our process model.

Prior work acknowledged that in situations in which self-selecting rules reaches its limits, individual actors may depart from ecosystem-wide standards (Wareham et al. 2014). However, the consequences of such practice variations were not clear—Wareham et al. (2014) surmised that deviating from standards may help maintain the health of the ecosystem, but that too much behavioral variety may also contribute to the ecosystem’s demise. Our study contributes empirically grounded knowledge on the processes and consequences of deviating from standards. The different practices of deviating from standards on the dyadic route are associated with higher cocreated value but also with higher governance costs than the practices of closely following standards on the arm’s length route. Thus, practices of deviating from rules always had positive effects on cocreated value but negative effects on

governance costs. Hence, their effects on the “health” versus “demise” of the ecosystem were equivocal. However, our process model provides a clear answer to the question of *how* partnership managers should deviate from standards to reduce negative effects and to counteract the danger of ecosystem demise. Specifically, the practice of amending ecosystem-wide rules by formulating dyadic contracts disassociates partnerships from the rules that regulate the ecosystem and leads to additional governance costs that run counter to efficiently orchestrating an ecosystem of complementors. By contrast, partnership managers can respond to dyadic needs at lower governance costs and in the governance regime of the ecosystem by stretching ecosystem-wide rules while favoring values. Importantly, our findings also show that governance practices cannot be freely selected. Instead, the feasibility of more desirable practices is endogenously driven by past governance practices. Value-sensitive practices in the past enable value-sensitive (and thus more desirable) ways of going beyond the rules in the future. If partnership managers were not sensitive to values in their past practices, they are only able to respond to local needs in less desirable ways. In sum, these findings contribute novel insights into the local processes that underlie the aggregated, ecosystem-level effects of governance studied by prior work (Wareham et al. 2014).

Our work also contributes to prior research on dyadic governance in enterprise software ecosystems (Sarker et al. 2012). Sarker et al. (2012) unearthed that self-reinforcing governance based on trust is a key differentiator between modes of substantial and lower cocreated value. By broadening the scope from dyadic governance alone to a wider perspective that also incorporates ecosystem-wide governance, our findings extend this work in four ways. First, trusted relationships are not only important for modes of substantial cocreated value but also have desirable consequences in modes of lower cocreated value: practices sensitive to ecosystem-wide values and the associated virtuous cycle directly reduce governance costs, thus helping to better address the dyadic governance tension in lower cocreation modes. Second, Sarker et al. (2012) pointed to the role of benevolence—i.e., the goodwill of the platform owner toward complementors—as a driver for the development of trust in the platform owner. We extend this finding by pointing to the complex interplay between benevolence and integrity, i.e., the adherence to ecosystem-wide values (Mayer et al. 1995). Benevolent practices, such as providing exclusive access to resources, may not have positive effects for trust development if they are not sensitive to values. This is because practices not sensitive to values negatively affect the integrity dimension of trust, which can

outweigh the trust-fostering effect of benevolent behaviors. Notably, for the development of trust in the complementor, neither benevolence nor integrity (nor their interplay) appeared to be instrumental. Instead, the development of trust in the complementor was mainly driven by positive perceptions of its competence. Third, we show that cocreation modes are not independent from each other: value-sensitive governance practices and the associated virtuous cycle contribute to an organic transition from modes of lower cocreated value to modes of substantial cocreated value by feeding into the necessary conditions for transitioning from the arm’s length route (with moderate cocreated value) to the dyadic route (with substantial cocreated value). Fourth, by taking into consideration that governance not only enables cocreated value but also drives governance costs, we add a critical dimension for assessing the desirability of cocreation modes (Sarker et al. 2012). Similar to those of Sarker et al. (2012), our findings show that some partnerships are more value generating than others (dyadic versus arm’s length route). However, the different routes are associated with striking differences in governance costs, and on each route, partnership managers can economize on governance costs if their practices nurture and maintain positive self-reinforcing dynamics. These findings complement those of Sarker et al. (2012, p. 334), who advocated the notion of a “hierarchy of co-creation modes with respect to how desirable and value-generating they are,” but called for “more research to validate our provisional findings regarding such a hierarchy.” Specifically, we show that if gains in cocreated value are weighed against increases in governance costs, the desirability of different cocreation modes can be better assessed.

Practical Implications

Our findings have important implications for practice. First, although defining values is a key aspect of designing ecosystem governance, this task should not be separated from how platform owners intend to actually follow values. This is because values can backfire: Values shape whether the actions of the platform owner’s own personnel are perceived as legitimate or not. If they are not, vicious cycles may unfold and undermine the partnership managers’ present and future ability to successfully address the dyadic governance tension. This suggests that platform owners must be cautious when promoting values and should not promise more than they can deliver. Second, once platform owners have made deliberate promises, platform owners need to train partnership managers to adequately put values into practice. The learning objective of such trainings should be that partnership managers use their room to maneuver to practice rules in ways that are sensitive to values. Thus, partnership

managers should be encouraged to flexibly repurpose the existing rules of the partner program (e.g., through stretching) rather than to permanently detach partnerships from these rules (e.g., through amending).

Future Research

Future research can extend our findings in at least two promising directions. First, future research should further explore the factors that drive practice variations. Our process theory showed that two causal forces (necessary conditions and self-reinforcing processes) drive changes in practices. However, among our cases, practices differed from the very beginning. Hence, it is likely that forces outside the scope of this study, such as differences in macro factors (e.g., platform strategy and competitive position of platform owners; Baldwin and Clark 2000, p. 93; Tiwana et al. 2010) or micro factors (e.g., role autonomy and educational background of partnership managers; Perrone et al. 2003), influence the initial choice of practices. To disentangle the influence of macro and micro determinants of governance practices, future research should investigate partnerships from ecosystems that are more diverse than those selected for this study. The theoretical value of such a study would be the provision of novel insights into the important question of fit between macro factors, micro factors, and governance practices. Such insights have thus far mostly been absent in information systems research and its reference disciplines (Tiwana et al. 2010).

Second, future research should further explore whether and how the dyadic-level dynamics unveiled through this study spill over to other partner dyads, resulting in ecosystem-level effects (Dougherty and Dunne 2011). For example, other complementors of the same ecosystem will likely note if one complementor receives preferential treatment. How will such breaks with the prevailing principle of equality affect the activities of these other complementors? Will they lower their investments into the platform because they have been treated unfairly? Will they intensify their investments in the hope of receiving preferential treatment for themselves? Will different ways of preferential treatment (e.g., stretching versus amending) have different spillover effects? How will potentially different spillover effects ripple through the ecosystem and affect its health? Answering these questions would produce further insights into the factors driving the evolutionary trajectory of ecosystems.

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Endnote

¹For reasons of simplicity, we refer to partnership managers as “he” and to liaisons as “she.”

References

- Baldwin CY, Clark KB (2000) *Design Rules: The Power of Modularity* (MIT Press, Cambridge, MA).
- Baldwin CY, Clark KB (2006) The architecture of participation: Does code architecture mitigate free riding in the open source development model? *Management Sci.* 52(7):1116–1127.
- Berente N, Lyytinen K, Yoo Y, King JL (2016) Routines as shock absorbers during organizational transformation: Integration, control, and NASA’s enterprise information system. *Organ. Sci.* 27(3):551–572.
- Boudreau K (2010) Open platform strategies and innovation: Granting access vs. devolving control. *Management Sci.* 56(10):1849–1872.
- Ceccagnoli M, Forman C, Huang P, Wu DJ (2012) Cocreation of value in a platform ecosystem: The case of enterprise software. *MIS Quart.* 36(1):263–290.
- Charmaz K (2006) *Constructing Grounded Theory: A Practical Guide Through Qualitative Research* (Sage, London).
- Corbin J, Strauss A (1990) Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociol.* 13(1):3–21.
- Dougherty D, Dunne D (2011) Organizing ecologies of complex innovation. *Organ. Sci.* 22(5):1214–1223.
- Ghazawneh A, Henfridsson O (2013) Balancing platform control and external contribution in third-party development: The boundary resources model. *Inform. Systems J.* 23(2):173–192.
- Gulati R, Puranam P, Tushman M (2012) Meta-organization design: Rethinking design in interorganizational and community contexts. *Strategic Management J.* 33(6):571–586.
- Huber TL, Fischer TA, Dibbern J, Hirschheim R (2013) A process model of complementarity and substitution of contractual and relational governance in IS outsourcing. *J. Management Inform. Systems* 30(3):81–114.
- IBM (2014) IBM PartnerWorld program guide. <http://www.ibm.com/partnerworld>.
- Jay J (2013) Navigating paradox as a mechanism of change and innovation in hybrid organizations. *Acad. Management J.* 56(1):137–159.
- Kale P, Singh H, Perlmutter H (2000) Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management J.* 21(3):217–237.
- Kude T, Dibbern J, Heinzl A (2012) Why do complementors participate? An analysis of partnership networks in the enterprise software industry. *IEEE Trans. Engng. Management* 59(2):250–265.
- Lawrence PR, Lorsch JW (1967) Differentiation and integration in complex organizations. *Admin. Sci. Quart.* 12(1):1–47.
- Levina N, Vaast E (2008) Innovating or doing as told? Status differences and overlapping boundaries in offshore collaboration. *MIS Quart.* 32(2):307–332.
- Markus ML, Robey D (1988) Information technology and organizational change: Causal structure in theory and research. *Management Sci.* 34(5):583–598.
- Mayer RC, Davis JH, Schoorman FD (1995) An integrative model of organizational trust. *Acad. Management Rev.* 20(3):709–734.
- Miles MB, Huberman AM (1994) *Qualitative Data Analysis: An Expanded Sourcebook* (Sage, London).
- Nahapiet J, Ghoshal S (1998) Social capital, intellectual capital, and the organizational advantage. *Acad. Management Rev.* 23(2):242–266.
- Ouchi WG (1980) Markets, bureaucracies, and clans. *Admin. Sci. Quart.* 25(1):129–141.
- Parker GG, Van Alstyne MW (2005) Two-sided network effects: A theory of information product design. *Management Sci.* 51(10):1494–1504.
- Perrone V, Zaheer A, McEvily B (2003) Free to be trusted? Organizational constraints on trust in boundary spanners. *Organ. Sci.* 14(4):422–439.

- Rolland KH, Monteiro E (2002) Balancing the local and the global in infrastructural information systems. *Inform. Soc.* 18(2):87–100.
- Sarker S, Sarker S, Sahaym A, Bjørn-Andersen N (2012) Exploring value cocreation in relationships between an ERP vendor and its partners: A revelatory case study. *MIS Quart.* 36(1):317–338.
- Tiwana A, Konsynski B, Bush AA (2010) Research commentary—Platform evolution: Coevolution of platform architecture, governance, and environmental dynamics. *Inform. Systems Res.* 21(4):675–687.
- Wareham J, Fox PB, Cano Giner JL (2014) Technology ecosystem governance. *Organ. Sci.* 25(4):1195–1215.
- Williamson O (1981) The economics of organization: The transaction cost approach. *Amer. J. Sociol.* 87(3):548–577.
- Yin R (2009) *Case Study Research: Design and Methods* (Sage, London).