

The Interplay of Institutional Logics in IT Public–Private Partnerships

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Abstract

Public–private partnerships (PPPs) offer a popular means by which the public sector can obtain information technology (IT) innovations and management know-how from private firms. However, these IT PPPs are extremely difficult to realize, especially considering the divergent interests of public- and private-side stakeholders. Our case study of an IT PPP reveals public- and private-side differences that initially impeded the establishment of a partnership; using institutional logics theory as meta-theoretical lens, we propose a model that explains how public and private parties managed to negotiate their mode of collaboration by balancing their competing institutional norms and practices which ultimately resulted in the convergence of the two divergent logics. Our paper contributes to theory and practice by (1) elucidating the theoretical foundations and role of institutional logics for IT project management that we found dominated by public and private norms and practices, (2) explaining why collaboration in IT PPPs is so difficult, and (3) how eventually an IT PPP can be established. We discuss theoretical and practical implications in the paper.

Keywords: Institutional Logics, IT Public–Private Partnerships, Interpretive Case Study Research.

ACM Categories: K.6.1, J.4.

Introduction

Information technology (IT) public-private partnerships (PPPs) are long-term co-operative engagements between public organizations and private IT companies to provide public services with higher quality at lower costs, while sharing resources, responsibilities, and objectives (Marschollek & Beck, 2012; Maskin & Tirole, 2008). Such partnerships—following the trend in the area of infrastructure construction—have established themselves in practice to transfer operational risks to the private partner and to gain access to latest IT and IT-related technical or managerial services (Kwak, et al., 2009). Despite these obvious benefits and the prevailing trend of IT PPPs, agents have to deal with significant technological complexity and uncertainty (Flyvbjerg & Budzier, 2011). From IT project management literature we know that dealing with these challenges is extremely difficult and projects fail on a frequent basis (Nelson, 2007). However, in public contexts, failure and project termination are not considered an option and long-term partnerships are needed that pose different challenges than managing temporary organizations. It is generally acknowledged that establishing a long-term IT partnership is extremely difficult. However,

public and private partners in an IT PPP are even more 'worlds apart' than other kinds of IT partnerships because they span multiple organizational and cultural boundaries. Thus, due to the unique challenges and high practical relevance, we argue that more research is needed that examines the nature of these challenges and how they can be overcome. In particular, while challenges and managerial approaches have been examined in many related fields, including IT project management, business-IT alignment, and IT outsourcing, there is a significant gap in our understanding about IT PPPs.

To address this, we conducted an interpretive exploratory case study of the German TollCollect IT PPP. TollCollect dealt with the development, implementation, and operation of a satellite-based system for collecting toll charges from heavy trucks that use the German highway system. Despite initial difficulties, the partnership eventually succeeded with the realization of the IT system. It has been in operation since January 1st, 2005 and generates more than 3 billion Euros in revenue annually for the Federal Republic of Germany.

In the analysis process after we collected the data and did the coding, we identified institutional logics theory (Thornton & Ocasio, 2008) as appropriate lens for the interpretation and analysis of our case data. The reasoning behind this theoretical framing was that the main theme emerging from our case data was closely associated with regulative (e.g., laws), normative (e.g., shared norms), and cultural-cognitive (e.g., shared beliefs, logics of action) phenomena, which are part of the institutional environment of an organization (Scott, 2001). Social interactions within these organizations are guided by institutional logics, which provide the formal and informal rules for collaboration (Friedland & Alford, 1991).

Prior research on institutional logics has focused on the interplay of competing institutional logics in organizational settings. While this competition can generate alternative outcomes such as a weak or strong dominance of one logic over the other, there are also situations reported in which both logics continue to coexist or in which both logics were replaced by a third one. However, based on what emerges from our data analysis, we are able to develop theoretical insights about the convergence process in which competing institutional logics are replaced by a new one.

In the next sections, we introduce the theoretical background literature and explain our applied research methodology. After a brief introduction to the case, we present our findings about IT PPP management in our case, discuss the theoretical and practical contributions of those findings and provide directions for further research.

Theoretical Background: Institutional Logics

Since the 1960s, PPP arrangements between public and private organizations became increasingly popular to combine the strengths of public (e.g., know-how on coping with legal requirements) and private organizations (e.g., technological and business process know-how) instead of contracting out or even privatize the provisioning of public services (Hodge & Greve, 2007). In order to realize synergies in such a partnership, a PPP needs to be characterized by trust, openness, fairness, and mutual respect (Pongsiri, 2002), while pursuing the same goals (Scharle, 2002). While the technological challenges of public IT endeavors are very similar to the ones in other industries (Nelson, 2007), organizational challenges and tensions in public-private collaboration have been attributed to differences in institutional interests and practices (Reijnen, 1994). These institutional differences can cause ongoing misunderstandings and conflicts, which may prevent the establishment of a PPP (Jost, et al., 2005). Thus, prior PPP research underlines the necessity of investigating PPP goals and practices as important factors for successful cooperation between the partners (van Marrewijk, 2007; van Marrewijk, et al., 2008).

According to institutional logics theory, different organizational values, beliefs, and practices have been formed in response to legitimize the existence of different environments and processes (Scott, 2001). Based on these regulative, normative, and cultural-cognitive differences, institutional logics provide the formal and informal framework that guides organizations in the application of values, beliefs, and practices in their decision making (Thornton & Ocasio, 1999). Institutional logics theory provides an adequate lens to explore the embedded norms of public and private organizations, which each trigger different organizational practices and processes (Friedland & Alford, 1991; Scott, 1987).

In the context of competing institutional logics, both management and organizational science research has investigated possible outcomes of the competition between institutional logics (compare Table 1). Reay and Hinings (2005), as well as Swan et al. (2010), argue that in the competition of two existing logics, inevitably one will always dominate the other. However, van Gestel and Hillebrand (2011) observe the coexistence of competing logics, even if one weakly dominates the other. Other studies indicate that competing logics may even coexist in the long term, without one logic replacing or undermining the other (Battilana & Dorado, 2010; Dunn & Jones, 2010; Lounsbury, 2007; Purdy & Gray, 2009; Reay & Hinings, 2009). Finally, two competing logics could

also be replaced by a new dominant logic (Currie & Guah, 2007; Randall & Munro, 2010; Sahay, et al.,

2010). Table 1 summarizes these different possible outcomes of competing logics.

Table 1. Classification of possible outcomes of competing institutional logics

Process of competing logics	Outcome conceptualization	Process description	Reference examples
	strong dominance	Interplay between competing institutional logics and dominance of one of the competing logics	Reay & Hinings (2005); Swan et al. (2010)
	weak dominance	Coexistence of competing institutional logics after settling of a dominant logic	van Gestel & Hillebrand (2011)
	coexistence	Coexistence of competing institutional logics	Lounsbury (2007); Purdy & Gray (2009); Reay & Hinings (2009); Battilana & Dorado (2010); Dunn & Jones (2010)
	replacement	Interplay between competing institutional logics and replacement by a new dominant institutional logic	Currie & Guah (2007); Randall & Munro (2010); Sahay et al. (2010)

Prior information systems (IS) research adopted institutional logics theory to examine in an intra-organizational setting how competing institutional logics accelerate or inhibit the adoption and diffusion of a national IT program (Currie & Guah, 2007), or analyzed the interplay of competing logics, as well as their deinstitutionalization for IS implementation projects in the health care system (Sahay, et al., 2010). In summary, while prior research has focused on examining the antecedents (i.e., competition) and outcomes (i.e., strong dominance, weak dominance, etc.) of multiple institutional logics at play, in this study we are able to provide first empirical insights into the link between antecedents and outcomes, i.e., the dynamic process of how the transition from competition to convergence unfolds over time (thereby confirming and extending literature on replacement of institutional logics (Table 1)). In contrast to prior literature on inter-organizational logics (Currie & Guah, 2007; Reay & Hinings, 2005; Reay & Hinings, 2009), our case study provides new explanations on the interplay of competing institutional logics and the process of establishing IT PPPs.

Research Methodology

We conducted an interpretive research study based on 12 expert interviews we have done between May 2006 and June 2007. Each interview lasted between 52 minutes and 3 hours and 45 minutes, using a semi-structured interview guideline with open-ended questions about partnership history, partnership development, and partnership management. All interviews were recorded and transcribed, resulting in 1,003 audio minutes and 246 pages of transcriptions. We used the software Atlas.ti (Muhr, 2008) to organize our data in a central database and for coding purposes. Interviewing and data collection in general took the form of an iterative process of going back and forth between analyzing collected data and selecting/collecting further data sources, a methodological technique frequently recommended for case study research (Pan & Tan, 2011). To gain insights from different perspectives on the IT PPP, we not only selected the interviewees according to their role in the partnership, but also according to their position in the hierarchy and their affiliation with the participating parties. Sampling took the form of snow-ball sampling (Pan & Tan, 2011) in which each respondent is asked for other experts to interview. The affiliations and the corresponding interviews are detailed in Table 2.

Table 2. Affiliation of interviewees and number of interviews

Organizational Affiliation	Hierarchy Level & Affiliation	Number of Interviews
Public side Federal Ministry of Transport (2), Federal Parliament (1), and independent system auditor for the public side (1)	<ul style="list-style-type: none"> • Member of parliament • Federal ministry • Federal agency • System auditor 	1 1 1 1
Private side DaimlerChrysler AG (1), Deutsche Telekom AG (2), TollCollect GmbH (5)	<ul style="list-style-type: none"> • Top management • Middle management • Project management 	3 3 2

Following the interpretive research principles of Klein and Myers (1999) in our intertwined data collection and analysis process (referred to as principle #1 to #7 in the following), we iterated between the different phenomena that emerged in our TollCollect analysis and the interdependent meanings and relations of these phenomena, as illustrated in Table 3. For example, we identified different public and private goals the stakeholders were aiming at as well as how these different goals unfolded in the steering of the TollCollect project as a whole. In Table 4 we provide a coding example and illustrate the hermeneutic circle for the identified codes or phenomena, their meaning and how they are related towards an aggregate, more abstract category of institutional logic (principle #1). Building upon the identified phenomena, we paid attention to the sequence of events to delineate phases of partnership development (Langley, 1999; Mohr, 1982; van de Ven, 2007). As a basis for that we first created a detailed description of the relevant events and mapped them against a timeline by reading the interview notes and transcripts multiple times which also helped us to provide a contextualized narrative of the TollCollect case as illustrated in the following section (principle #2).

In addition to sampling and triangulation of our primary data (i.e., comparing different interviewee and interviewer perceptions), we collected extensive secondary material, such as meeting minutes and public media articles, for further triangulation. In so doing, we were able to critically reflect what we learned from the interaction with the interviewees in the light media coverage of the case to calibrate our own preconceptions (principle #3). The collected 2,422 press articles helped us enhance our understanding of the IT PPP and its environment, as well as compare the insights on the partnership's course of action from our

secondary data with findings from the primary data (see appendix).

In our analysis of the case, a core principle that we followed was the emergence and abstraction of findings from the empirical data, while developing and considering multiple possible explanations (principles #4 and #5). For example, before we identified institutional logics as suitable lens to explain the relational rules underlying the IT PPP case, we also considered psychological contract theory (Koh, et al., 2004) and boundary spanning theory (Levina & Vaast, 2005) as alternative lenses. The latter ones conceptualize norms and rules enacted on individual level which is the reason why we were looking for a theoretical lens that takes the organizational context and setting into account.

This highly iterative process of 'retroduction,' (Peirce, 1958) involved multiple iterations of data interpretation and going forth and back between data and related literature, ultimately enabling the dialogical reasoning and empirical corroboration of our findings. To ensure the close connection of our emergent explanations with our data and empirical reality, we paid careful attention to the line-by-line coding of our data and the subsequent abstraction from that coding to identify structural entities, i.e., private and public logics, relationships between them, e.g., the competition between logics and related changes to referring entities over time, i.e., the co-evolution of private and public logics and process of convergence, thereby always taking into account the case study context, differences in the interpretations, and potential rival explanations in an iterative process of interpretations (principle #6) until we derived a consistent and plausible story.

Table 3. Principles of interpretive field research (Klein & Myers 1999)

Principle	(Klein & Myers 1999)	How we Addressed the Principle
#1 Hermeneutic circle	Suggests that all human rationalization is done by reflecting iteratively on the relational, interdependent meaning of single categories and the overall context of the different categories identified.	We identified and abstracted from the underlying case categories and conceptualized their relations, e.g., by identifying phases and events, which has an impact on the transformation of sub-categories of the identified institutional logics and their interdependencies.
#2 Contextualization	Critical reflection of the socio-technical environmental and historical background of the research to allow readers to understand how the issues under investigation emerged.	We identified three phases of different settings of institutional logics and were able to explicate the different dimensions of the identified logics as well as the relationships between them. We also analyzed the history and decision making process which predated the TollCollect project to consider certain potential path dependencies which might be critical to understand the case.
#3 Interaction between researchers and subjects	Self-critical assessment of own biases having an influence on the collection and construction of the gathered empirical data.	We applied an open, exploratory research case since at the time we entered the case, so many different socio-technical issues existed that we decided to let the topics emerge from the data we collected. To make sure that we get as many perspectives as possible we interviewed participants from different hierarchy levels and stakeholder groups. In addition, we collected all public media feeds about TollCollect as complement source for data triangulation to protect our findings as good as possible from our biases and preconceptions.
#4 Abstraction and generalization	Mapping of the research case specific empirical data through the application of principles #1 and #2 to more abstract, theoretical concepts.	In several discussions and iterations of different labels for the identified dimensions and institutional logics, as well as going back into the field gathering more interviews and additional data such as public media feeds, we went back and forth between the empirical data and the emerging constructs and their relations on the one hand and literature that might be suitable to explain the phenomena we observed on the other hand.
#5 Dialogical reasoning	Applying a critical sense making process when comparing empirical findings with theoretical preconceptions which guided the research and subsequently the findings.	While the data at hand provides also alternative avenues for interpretation, such as discussing only phase 2 from an escalation of commitment point of view where the new management team is sent in as firefighters to rescue the IT PPP or to discuss the dynamics over time only from an individual level, in the analysis process the data told us that the strongest and potentially most important contribution can be made by explaining the identified changes in institutional logics at the organizational level. Thus, after intense discussions, we decided to elaborate and explain the balancing of logics as an intermediary step between coexistence and convergence of institutional logics as core contribution of our research.
#6 Multiple interpretations	Critical reflection of the different perceptions and interpretations of the interviewees of the events under study.	In the analysis process of the case data we identified public side institutional norms and rules which we found to have an explanatory power to explain other behaviors and statements observed. However, before we identified institutional logics as lens to explain the relational rules underlying the IT PPP case, we also considered psychological contract theory and boundary spanning theory as alternative lenses. However, we settled on institutional logics theory as reference theory which allowed us to align the theorized linkages between the identified logics and trigger events.
#7 Suspicion	Being aware of potential biases and inconsistent views and interpretations from the interviewees.	While we predominantly relied on line-by-line coding and theoretical abstraction using ATLAS.ti software to analyze the interviews, we also conducted a content analysis of the newspaper coverage of TollCollect. Together with the meeting minutes, project documentations, and presentations we received from TollCollect we were able to critically triangulate different opinions, views and archival material to develop our insights. We were also able to discuss intermediate findings with TollCollect employees to substantiate our findings even further. The data analysis, the interviews and the theorizing was done always in a team of at least two investigators, while altogether three researchers worked on this research project who provided their views and causal analyses.

An example of our coding is presented in Table 4. Over time, we identified institutional logics theory as the most appropriate theoretical lens that provided us with a 'sensitizing device' to aid the conceptualization and abstraction of our emerging findings. We identified the theme of competing institutional logics and their co-evolution over time, eventually leading to convergence, as offering the best available explanation of our research phenomenon. While analyzing the gathered primary and secondary data, we continuously discussed our findings and the potential biases due to the different roles of the interviewees. Naturally, the German ministry had an interest in justifying

their position while the private industry partners also had their point of view. Applying the principle of suspicion can be seen as sort of starting point where we embarked into the literature of institutional logics, since the differences in the perceptions and expectations in the beginning of TollCollect and the subsequent disappearance of these differences in the explanations of the interviewees guided us towards institutional logics and their changes (principle #7). Finally, we developed a model to illustrate how public and private parties established a partnership by negotiating a mode of collaboration.

Table 4. Hermeneutics and coding example for public side institutional logic

Selected open codes	Selected quotes	Meta-theoretical lens	Category dimensions	Resulting category
<ul style="list-style-type: none"> - Politically motivated goals - Legal restrictions - Pressure of media and general public 	<ul style="list-style-type: none"> - "For a public client it is crucial to realize a technological solution which guarantees equal treatment for every user and accuracy." - "Concerning the construction of the enforcement bridges it was necessary not only to negotiate these issues with the public client, but also with the authorities of the separate states." 	<ul style="list-style-type: none"> - Organizational values and practices are legitimized based on the regulative, normative and cultural-cognitive elements of an institutional environment (Scott, 2001) - Institutional logics provide the formal and informal rules that guide organizations during specifying their pursued values and practices (Thornton & Ocasio, 1999) 	<p>Political goals</p>	<p>Public-side institutional logic</p>
<ul style="list-style-type: none"> - IS planning with fixed delivery date - IS development without leeway for compromises - Continuous adaptation of IS requirements 	<ul style="list-style-type: none"> - "The public client illustrated clearly that he was not willing to make compromises on initial requirements since this could lead to distortion of competition concerning the competitors from the tendering procedure." - "A standard economic practice is to develop systems with 90% accuracy, which is not viable in political environments since this makes the procedure vulnerable for lawsuits." 		<p>Law-based practices</p>	

Case Description

After the German federal government signaled its interest in a toll collection system for heavy trucks in November 1998, public authorities announced the start of the tendering procedure in December 1999. In January 2001, eight commercial consortia in addition to TollCollect (consisting of Deutsche Telekom, DaimlerChrysler Financial Services, and Cofiroute) had noted interest and submitted proposals. Finally, in September 2002, the TollCollect consortium was assigned the project. Its aim was to develop and implement the first satellite-based, country-wide toll collecting system in the world (Doan 2010), using the global system for mobile communications (GSM) standard and satellite-based global positioning systems (GPS) (for more information, see www.tollcollect.de). The project was carried out in cooperation between public and private partners, who succeeded with project realization on January 1st, 2005. The goal of the system was the detection of the use of toll roads by heavy trucks in Germany and the automatic charge, according to their emission class, weight, and number of axles. For trucks not using the automatic, satellite-based system, a manual, terminal-based booking system was installed in 3,500 gas stations. The former solution should use an on-board unit (OBU) in each truck to collect traffic records and send mileage data to the central TollCollect accounting system, via GSM. The OBUs thus had to be built into trucks from Germany and other European countries, to allow a free flow of traffic even from trucks

only transiting Germany. More than 600,000 OBUs were installed into European trucks with software that could be updated via GSM. Furthermore, 300 enforcement bridges had to be built and connected to a central control facility, equipped with cameras and scales embedded into the highway, to monitor the passing traffic visually, by weight, and in terms of the number of axles per truck. Any truck not logged into the TollCollect system prompted an automatic check against the German license plate registry (or other European registries) to identify the owner and send a ticket (for more information, see Rehring, 2006).

Interplay, Balancing, and Convergence of Institutional Logics

TollCollect went through several IT partnership phases before the system was completed, as illustrated in Figure 1: (1) coexistence of divergent institutional logics, (2) balancing of divergent institutional logics, and (3) converging of public- and private-side institutional logic into a new, joint logic. In the following sections we will discuss the phases illustrated in Figure 1 and explain why the establishment of an IT PPP is so challenging and how it can be achieved by converging the partly incompatible logics into a new one. By re-analyzing the public media coverage (see appendix), we were also able to identify the three phases where the quantity but even more important the content of the news coverage also support our theorized model illustrated in Figure 1.

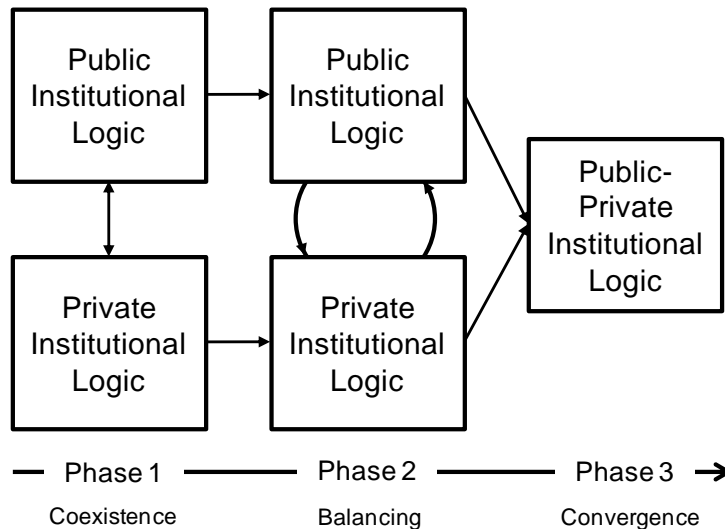


Figure 1. Convergence of public and private logic into a new dominant public-private logic in IT PPP

Phase 1: Coexistence of Divergent Institutional Logics

In this section we will illustrate how the two institutional logics coexisted in the first phase of the cooperation. We especially will accentuate how the logics coexisted and how this prevented a serviceable partnership which eventually triggered the end of this phase. While providing examples where the two logics existed in parallel being incompatible to each other, we also abstract from the data and provide specific categories for the coexisting logics in the IT PPP, summarized in Table 5. The industry partners within the TollCollect consortium regarded the project as a possibility for entering the public sector and generating new business opportunities. These economic goals constitute the essential norm of a private organization and accordingly influence their corresponding behavior, because they are driven by the need to increase revenues and the value of their company for shareholders. A leading manager of the executing consortium described the initial attitude of the TollCollect management during the first project phase:

The private-side management team was only focusing on the realization of new business opportunities instead of concentrating on the technical realization of this complex IT system, since they estimated the project as a standard IT development project.

Because this project aimed at developing a satellite-based toll collecting system which has never been done to cover a whole country, public and private parties had no prior experience with the technological project complexity (e.g., building an IT system with over 600,000 mobile clients that need to be connected and updated via GSM). Nevertheless, the public

side assumed that private companies, generally experienced with telematics, automobile know-how, and toll collection, would be capable of realizing this project without them being directly involved in daily business. However, the private consortium was not used to developing IT systems that had to meet legal norms (e.g., principle of equal treatment of the toll collection law), which influence the political goals and their corresponding common practices. These public-side goals and practices are oriented toward accurate compliance with legal norms and constitute the basis of a public-side institutional logic. Since private industry was not familiar with public-side goals and practices at least initially in the project, they regarded TollCollect as yet another software development project that could be managed with standard IT project management practices, such as presenting intermediate results in status meetings without consulting the public side to decide on development details jointly. By proceeding in a private project mode, driven by standard IT project management practices, and developing an IT system without involving the public side, the partners failed to recognize emerging problems on time and communicate them to private- or public-side top management. Instead, relying on project experiences from their own working environment, the parties believed that everything was on track as the fixed delivery deadline approached. A leading manager from Deutsche Telekom, responsible for technical project realization, summarized the situation:

It is not true that the risks of project realization were not seen, but they were estimated like normal IT risks. This is a psychological problem. Since both sides were not aware of project realization difficulties due to differences about project requirements, they were

not escalating the situation and believed that everything is on track.

While the private partners were pursuing their common private-side practices, underestimating the technological challenges of the IT PPP project, public agencies were engrossed with public-side practices. Since the public party focused on the realization of the requirements from toll collection law, public authorities had a specific optimization model in mind: To build a system that generated new revenues from toll payments (according to a balanced fiscal budget) and treat every transport company using toll roads equally. These political goals are the basis for the organizational behavior of a public agency.

At first, private and public goals seemed to be aligned, but the underlying cooperation challenges and underestimation of IT complexity prevented the IT PPP from dealing with the challenge of project realization adequately. For example, despite the approaching delivery deadline, public agencies kept modifying system requirements to comply with toll collection law, while insisting on an on-time project realization, pre-defined by the same law.

Changing project goals, in terms of additional project requirements, is not uncommon in any IT project. However, extending the delivery deadline and accepting an increase in development costs to meet the specified requirements was not a viable option for the public agency, because public managers are bound to law-based requirements, which make it nearly impossible to renegotiate or compromise on time and cost criteria already determined during the tendering procedure. That is, changing any project requirements or postponing its delivery would threaten this already enacted piece of legislation, namely the toll collection law. The divergences of the underlying public- and private-side norms initially impeded renegotiating or altering goals and practices, as explained by the independent system auditor:

Since the toll collection law was already enacted and start of operations was determined for the August 31st, 2003, initially there was no leeway for compromises for the public party. Therefore, private industry was forced to deliver on time.

In December 2002, despite the critical project status, the public partner insisted on a start of system operations by August 31st, 2003. The differences in goals and work practices between public and private partners led to a first phase characterized by ongoing collisions of divergent public- and private-side institutional logics, since the partners were initially not able to understand the ways of thinking and acting of each other. In addition to relational problems, issues in de-

veloping the OBU software and the construction of technically ambitious enforcement bridges made it nearly impossible to deliver the promised system on time. The private firms found themselves trapped in a dilemma: They had to accept any requirement changes and additional requests from public agencies, but they still needed to deliver a full-fledged system at the fixed delivery deadline. The resulting challenges for the private partners were not communicated clearly and early enough to the public side, since the private party still operated in their common private project mode. Therefore, operational readiness was publicly announced by the private consortium in May 2003 to comply with public expectations and norms influenced by the toll collection law.

Neither the public nor the private side initially realized the differences of their divergent logics and therefore did not adapt their different goals and practices. With the project being close to failure, since the private consortium was not able to deliver the IT solution on time, two options remained: Abandon the project, or develop a solution for project realization, which would require better mutual understanding and a mode of collaboration. Eventually, the recognition of project difficulties forced the partners to agree on a two-month delivery extension, to November 2nd, 2003. With this agreement, both sides acknowledged for the first time that the original timeline was too ambitious, as noted by an independent system auditor:

For the first time in summer 2003, the difficult condition of the project became clear to the management which they had disavowed before.

A system audit, checking for operational readiness by external auditors in July and August 2003, revealed that the system did not comply with all legal requirements of toll collection law. The audit triggered a perception change on the side of both parties, which now realized that they had to reconsider their IT PPP relation. Developing this awareness enabled the successful turnaround of the project, which triggered the transition to the second phase in our model:

Trigger 1: The collision of divergent public- and private-side logics, consisting of different goals and practices, and their consequences for successful IT PPP project realization triggered an awareness of public-private differences and need for collaboration change.

Further quotes as well as the relation between the quotes, the related institutional goals and practices, and the institutional logic (public or private) can be found in Table 5.

Table 5. Phase I: Coexistence and collision of divergent institutional logics

Logic	Dimension	Meaning	Example Quotes from the Case
- Public side institutional logic	Political goals	- Focusing on reelection, implementing regulatory policies to establish an image of being capable to "get things done"	- "Already in 2001, the minister of transport announced that the income of the toll will be used to start anti traffic holdup programs" - "We calculated with 3 billion Euros for the national budget from TollCollect for 2003"
	Law-based practices	- Adhering to administrative routines, acts and laws in all activities	- "Due to procedural reasons we were not able to adjust our requirements" - "Since the toll revenue was part of the budget act for 2003 a delay was not an option" - "We know that the public procurement law is creating abstruse situations but what can we do?"
- Private side institutional logic	Economic goals	- Focusing on resource efficiency and return on investment, cost-sensitive	- "Management was focused to meet the requirements of the contract... but was not considering the whole business processes"
	IT project management practices	- Adhering to professional routines, frameworks, standards and trainings commonly used in IT projects	- "There was a lack of monitoring and controlling routines" - "There was a lack of strategic project management" - "Testing concepts (were) missing" - "I often was wondering why the launch of TollCollect was not managed like the launch of a new car model"

Phase 2: Balancing of Divergent Institutional Logics

In this phase we will provide evidence for the changed cooperation mode in the partnership, which became evident by changing perceptions and acknowledgement of the practices and goals of the partner as well as a balancing where new collaboration practices emerged. Since both parties in the IT PPP regarded this as extremely helpful, they engaged in intense discussions to balance out their different perspectives and practices which triggered the institutionalization of the new logic in phase 3.

Shortly after receiving the results from the external systems review, the Minister of Transport and the leading managers of TollCollect held a crisis summit on October 5th, 2003. The participants agreed on a second deadline extension, without a fixed delivery date. To prevent project failure and establish a more sustainable partnership, the private parties acknowledged public requirements and changed their former way of collaborating. The new partnership approach also included replacing the initial top management of TollCollect, which signaled the willingness of the private side to adapt its initial goals and practices and to develop a collaborative approach for project realization, as stated by a leading project manager from the public side:

Facing project failure, mutual trust in achieving project success was deteriorated. However, our industry partners showed us that they were seriously interested in changing

the current way of collaboration by replacing the management team as well as employees on the operative level to enable a restart for this partnership.

Although public and private parties started to reflect on the issues which emerged in the beginning of the cooperation and established a collaborative environment by the use of a fine-grained meeting system and continuous open communication (e.g., via private mobile phones in difficult situations, even overnight) to balance the different interests, the federal budget committee forced the Minister of Transport to issue an ultimatum for determining a mandatory schedule and solve disputed penalties (acting from a public-side norm of legal conformity). The chief executive officers of Deutsche Telekom and DaimlerChrysler negotiated directly with the German chancellor and finally presented an amended project realization plan on February 29th, 2004. The rescheduled launch date for the basic toll collect system was now January 1st, 2005, but the agreement noted that the system would not fulfill all the original requirements; remaining functionalities would be implemented in a second roll-out phase by January 1st, 2006.

Realizing that the project was about to fail, the partners started to acknowledge the trade-offs between economic interests and legal compliance. As a result, in this balancing phase, they started to balance their interests, expectations, as well as norms and practices and tried to learn how the other party is approaching the project. In jointly reflecting the situation they developed mutual understanding of their divergent

goals and engaged in establishing joint IT project management practices, which constituted the pre-conditions for balancing divergent institutional logics and the negotiation of a mode of collaboration. For example, the partners jointly developed the necessary project requirements, explicitly incorporating legal norms. The public side thus became more closely involved in daily project work from the private partner, which granted greater insights into project's status and its development. They also learned about private-side norms and practices in IT project management through open, intensive communication and detailed explanations of the reasons for private-side goals and practices, such as their aim of generating new business opportunities. On the other hand, the public party recognized that they had to communicate more actively with its private partners to explain which parts of the system were critical for meeting legal requirements, such as the deployment of more enforcement bridges to ensure the principle of equal treatment. These insights on public-side norms initiated the development of a more balanced, collaborative logic, as confirmed by a leading manager of a federal agency, responsible for managing the TollCollect project for the public partner:

We realized very late how important a system freeze was and that project realization was impossible without it. This helped us understand that we were forced to make compromises about our project requirements. We needed to explain that some system requirements however are mandatory according to the principle of equality.

Jointly developed collaboration practices and mutual understanding of public- and private-side goals and practices helped establish a sustainable PPP. Public and private partners used frequent meetings at all operational levels within the organization, but also with the public agencies in charge, to strengthen the beliefs of the different parties in project success and enable the partners to identify key challenges for solving this complex technical endeavor. This also improved transparency on project progress, as stated by a leading Deutsche Telekom manager for technical project realization:

Discussing the problems and developing solutions together in weekly meetings between the different parties encouraged all to communicate problems openly which resulted in transparent status reports and increasing belief in project success.

Such organizational structures and project transparency accelerated the balancing of expectations and establishment of a sustainable partnership. Managing the expectations and requirements of public agencies

adequately, e.g., through joint system testing procedures that included the partners and system auditors, helped ensure that the TollCollect system could be successfully designed and implemented. More details and quotes illustrating the balancing dynamics in phase 2 are provided in Table 6 where further examples are provided for the public and private logics at play but also how the balancing has led to a point where the emergence of a converging new logic was triggered, which will be discussed in more detail in phase 3.

Understanding the different norms and practices that had been in conflict and establishing balanced IT project management practices supported the negotiation of a mode of collaboration by balancing public- and private-side institutional logics. This finally enabled the turnaround of this failing IT project and triggered the transition to the third phase in our model:

Trigger 2: Understanding public-private differences and establishing joint IT project management practices enabled the negotiation of a mode of collaboration by balancing of public- and private-side institutional logics, as well as triggered IT PPP project turnaround.

Phase 3: Convergence of Public- and Private-Side Institutional Logics

While the balancing in phase 2 was important to develop new practices and routines in a process of constant discussions and alignment, the implementation and execution of the new practices triggered the institutionalization of the new joint PPP logic. In so doing, parts of the former disjunct logics converged and were organizationally set as the new *modus operandi* which led to the new joint institutional logic as base of the IT PPP.

The change in the TollCollect management initiated a major shift in the way of collaboration between the participating parties and supported the balancing of joint goals and practices, which fostered the development of a sustainable partnership. For example, developing partnership practices, such as new report structures, frequent meetings, and joint testing procedures, enhanced project transparency and hence facilitated partnership collaboration, according to a Deutsche Telekom manager, responsible for software development:

The new management team that was installed in March 2004 was essentially bringing new communication styles and reporting structure into the project. Before, everything had a temporary project-style character, not focusing on a long-term partnership.

Table 6. Phase II: Balancing of divergent institutional logics

Logic	Dimension	Meaning	Example Quotes from the Case
- Public side institutional logic	Economic-political practices	- Acknowledging necessary trade-offs between political and economic interests	<ul style="list-style-type: none"> - "The business process view was something colleagues on the public side were looking for" - "We started prioritizing requests along the line of hard facts delivered from the private side within joint meetings " - "In the beginning, my people woke up in the night dreaming about parallelization of tests, clustering of tasks and so on and we understood rather late what it means to "freeze" a project, but now we understand"
- Public-Private institutional logic	Collaboration practices	- Establishing joint IT management routines thereby facilitating cooperation	<ul style="list-style-type: none"> - "The new management possessed profound management and communication skills" - "A joint end-to-end thinking was installed which was not apparent before" - "We met on operational level with no higher management representatives and worked together how the test concepts should look like"
- Private side institutional logic	Political-economic practices	- Acknowledging the value of public norms and private IT management practices	<ul style="list-style-type: none"> - "While we focused on saving the project we later realized that for the public side it was the fight for political survival" - "Delivering the revenue as stated in the national budget act was decisive for the outcome for the public side". - "We realized that in areas where law was prohibiting making any compromises that we had to trust our partners from the public side that they would find a solution." - "We had to adhere to the Federal Fiscal Code and we had no idea what that really meant for our project. Our partners from the federal office of transport guided us"

After agreeing on a two-stage implementation plan, public and private partners started the convergence process between economic interests and legal compliance. The private side abandoned its plans to implement value-added services and concentrated on technical system realization; public agencies made concessions about how toll collection should be enforced, not insisting on a solution that controls all highways twenty-four hours on seven days a week. Decision makers on the public side took the risk that they might be responsible if the enforcement solution did not work properly and accidentally violates the principle of equal treatment. However, in contrast to the public norm-guided behavior in previous phases, the public side acted along the new, converged logic where also private-side norms and practices were integrated. Since taking risk on the public side was somewhat unprecedented, the new norms and practices were not completely undisputed; it particularly required defending public-side behavior during federal committee meetings, as explained by a leading federal agency manager:

I was asked during some committee meeting, why we were not controlling one hundred per cent of the traffic using the enforcement bridges twenty-four hours seven days a week, because then our amount of toll payments

would be even higher. To disprove this estimation we needed to calculate the amount of additional revenues in relation to increasing costs for controlling together with our industry partners. Afterwards, it was clear that these additional expenses were not reasonable.

The partners continued to converge public law-based practices with private IT project management practices by defining acceptable practices and norms which both parties could agree upon. For example, the public partner dealt actively with the problem of integrating federal police squads responsible for enforcing the highway tolls into the privately operated TollCollect system. Further-more, the parties were able to improve their collaboration environment because several employees of TollCollect were specifically assigned to stay in close contact with the Federal Ministry of Transport, which further increased the transparency on project status. Moreover, TollCollect realized that open communication and consideration of all stakeholder groups (e.g., transport associations, public media), as well as further development of the partnership relation to a long-term, sustainable partnership based on mutuality and close cooperation, would be vital for successful project realization. The shift toward more openness and transparency ena-

bled changes in daily activities as well, according to a leading vendor manager of DaimlerChrysler:

At that point, the stakeholders [from the public side] were deeply involved in our daily meetings as well as project realization, which was a big advantage. During that phase, we intensively discussed apparent project risks for establishing project transparency. These changes increased the identification with the project and mutual trust between the partners.

Once the public and private partners realized that they needed a collaborative approach based on close cooperation, they started to emphasize joint problem-solving practices. While in the previous balancing phase expectations and norms from both sides were reflected and aligned; now a de facto realization of the balancing took place by implementing new routines and practices as confirmation of the converged logic. These joint practices further enhanced their partnership and helped establish the PPP. Finally, the involved managers became committed to the partnership, generating a feeling of responsibility and pride for their joint achievements, which also encouraged project realization. The feeling of responsibility and identification supported the establishment of a long-term partnership, which is a basic norm of a public working context rather than a private project-oriented one and therefore reveals the active converging of public- and private-side norms in this partnership approach. An independent system auditor detected this change in behavior:

Even at night upcoming problems were immediately reported to the public side, which prevented the public side from being first informed of project difficulties by the media next morning. Before, the private partner had avoided to inform the public side in detail about upcoming project difficulties.

Converging public- and private-side institutional logics meant that the partners were jointly able to address the technical project complexity. After multiple user tests and reviews by system auditors, on April 21st, 2004, the first functional system tests succeeded. Test runs between June and August 2004 eliminated remaining doubts about the feasibility of the system. Although the test runs were still producing system failures, the public partner was finally used to private-side practices (e.g., short-term workarounds, patches to fix software problems) and had developed trust into the private partner. Therefore, upcoming problems did not directly lead to project status escalation, which was regarded as a positive sign of the successful establishment of a sustainable partnership based on mutual trust and understanding, as noted by one of the system auditors:

Communicating test results to all stakeholders on a regular base initiated a joint understanding of the problems and encouraged belief in a successful project turnaround. Though in that situation the reporting system sometimes made upcoming problems transparent, the public side did not immediately escalate the situation. This supported the establishment and maintenance of a positive atmosphere within the partnership.

On December 29th, 2004, the toll collecting system began operating without any technical issues. Successful system implementation made prior resentments fade away while a positive atmosphere of cooperation took over. Mutual understanding and compromises on joint goals and practices were ultimately apparent in January 2005, according to a vendor manager of DaimlerChrysler, which finally underlined the successful establishment of the IT PPP:

Shared understanding between the parties was driven by open communication and a joint motivation concerning project realization. Finally, political constraints concerning technical requirements were not carved in stone anymore. Both parties had realized that only mutual compromises would lead to successful project realization.

On January 19th, 2005, after two weeks of operation, the system was declared a success by the German chancellor. This positive view was repeated by various political stakeholders and the media through April 2005. In the aftermath, other countries signaled interest in introducing a similar system. By all accounts and in spite of the enormous difficulties the project was confronted with in the beginning, the TollCollect system was finally considered an overall success.

Further insights into the convergence of public and private side institutional logics in phase 3 are provided in Table 7 where further examples for the development of joint practices are provided.

Discussion & Conclusion

The main contribution of this research is the confirmation of existing theories about the competition between different institutional logics where we were able to provide some explanations how two different logics with different organizational practices have been altered by balancing expectations, practices, and goals into a converged new logic to establish an IT PPP.

Table 7. Phase III: Convergence of public- and private-side institutional logics

Logic	Dimension	Meaning	Example Quotes from the Case
- Public-Private institutional logic	Institutionalization of joint practices	- Organizationally implementing and establishing norms, practices, and routines which converge legal compliances with economic interests as well as legal requirements with professional IT management practices in a new IT PPP logic	<ul style="list-style-type: none"> - "The relation between TollCollect and the federal Government of Germany improved significantly and was characterized by constant consultations in a trusted atmosphere on all levels of cooperation." - "On December 29th, the Federal Minister of Transport was the first person to draw a manual toll ticket from one of the terminals. He did not need to do so and would have been blamed if the system had not worked properly two days later but he was supporting it, which illustrated the willingness to get the system up and running jointly." - "If there weren't a few central people on the public side who were willing to take risk to overcome their comprehensive-cover-attitude of a civil servant, we would not have been successful to jointly tackle all the bureaucratic problems." - "Against all experts, and even against the advice of the German chancellor, the Federal Minister for Transport remained committed and was instrumental in developing a joint organizational culture." - "Until today we have civil servants which we have sent to permanently work with TollCollect to improve cooperation." - "Working together allowed us for the first time to derive similar risk evaluations which helped us to develop decisions jointly, which initially was not planned this way." - "While we jointly worked on solutions with intense communication and decision making, the project continued with patch windows and minor bug fixes which were decisively planned along tight schedules." - "Every night we were sitting together to discuss the challenges and to openly discuss the risks, every goddamn night, but it worked."

We thereby did not only answer why the management and enactment of IT PPP is so challenging and how it is done, we also were able to provide some explanatory insights to the literature on institutional logics. While prior literature on institutional logics already theorized that competing logics are rarely a stable situation where one logic dominates or replaces the other one, there is only some research in the area of competing logics that elaborates on the convergence of logics to form a new, third logic. Here, we were able to disclose the mechanism of balancing different practices and goals in the balancing phase where it is explained how cooperations such as IT PPPs can convert situations of coexisting institutional logics into situations with converged, aligned institutional logics. While in our case the balancing of logics in the second phase led to a convergence phase where a new logic was explicated and institutionalized, alternative subsequent phases of the balancing phase are imaginable, e.g., where one logic is dominating the other or where an ongoing coexistence occurs. However, with IT PPPs which have a duration of up to 10 years or even longer and with the necessity to exchange knowledge between the participants in order to succeed, convergence seems to be more plausible for this type of cooperation. In particular, we analyzed the IT PPP challenges which initially were created by public- and private-side norms and practices (e.g., conflicts between economic interests and legal compliance) which impeded public-private collaboration and the changes to overcome these chal-

lenges (e.g., by balancing IT management practices) to establish and maintain a sustainable partnership.

Thus, this study contributes to the theoretical domain of competing institutional logics. In particular, we find first evidence for a rather extensive balancing phase which precedes the phase where the emerging converging logic is institutionalized, thereby extending prior studies in this area (Currie & Guah, 2007; Randall & Munro, 2010; Sahay, et al., 2010). In contrast to these studies, we confirm and contribute to institutional logics theory by explaining how the convergence process unfolds in an inter-organizational setting. Figure 2 illustrates the intermediary step of balancing before the two competing institutional logics can converge to form a new logic.

In terms of abstraction and generalizability, we acknowledge that our results are specific to the IT PPP domain. Furthermore, because we retrospectively investigated the establishment of a sustainable IT PPP, we needed to make sure that we gained insights into these temporal aspects by interviewing participants of different hierarchy levels, affiliations, and partnership phases. Future research in this area might focus not only on the IT PPP itself but on the complete lifecycle from the very beginning of the cooperation even before the IT PPP is established. Several organizational and technical problems in the TollCollect case reflected decisions which have been made even before the partnership was launched, for example. To extend our findings, further research

should accompany an IT PPP over its complete course of action. In addition, it would be desirable to explore leadership behaviors and governance structures that best support IT PPP management. Finally,

a cross-case analysis of different IT PPP could compare differences and similarities due to different sizes and varying goals to substantiate our findings.

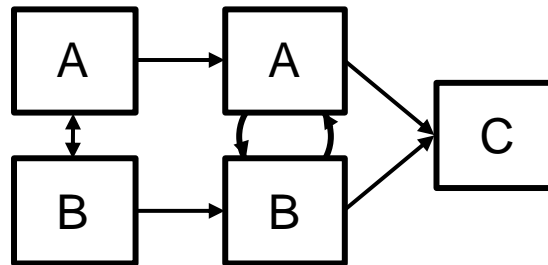


Figure 2. Convergence of public and private logic into a new dominant public-private logic

The interplay and competition between public- and private-side logics in the coexistence phase was characterized by a collision of these two that drove both organizations to enter the second phase where the different logics were balanced before a new convergent collaboration logic was institutionalized in the third phase. That balancing process in phase two meant more than developing just joint goals and practices for effective cooperation. In particular, public- and private-side organizations had to realize that they needed to acknowledge that both logics made sense from their point of view and that their norms and principles had to be adapted which required balancing and re-assessing some of their institutional logics. Both sides had to adapt to each other, which resulted in a convergence of public- and private-side institutional logics in phase 3 where the new merged public-private institutional logic was institutionalized and enforced which was key for the joint IT PPP.

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Appendix. Public media coverage of TollCollect, 2002–2007

