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Strategy Formation Across Organizational Boundaries: An Interorganizational Process Model

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Strategic decision-makers today face complex environments with meta-problems that cut across multiple industries. Single organizations cannot address these meta-problems. As a result, organizations collaborate with partners, among them also competitors, and commonly work together in multi-partner initiatives (MPIs). How these organizations jointly form an interorganizational strategy (IOS), however, is not well understood. In this paper, we extend the current strategy process conceptualizations from an intraorganizational focus of a single firm to an interorganizational process of multiple strategy-making entities working together. We selected the eMobility sector as our research context to develop such an IOS process model. We first developed 25 cases on MPIs in the German-speaking area based on interviews and desk research, before we focused on the eMobility ecology in the southern part of Germany. We identified 291 MPIs, conducted interviews with 19 central actors, held several workshops and informal gatherings, and complemented these data with an analysis of publicly accessible documents. Using an inductive research design, we developed a process model that unfolds in three phases: initiation, negotiation and execution. We reveal specific process dynamics in MPIs to be critical in the formation and manifestation of IOS.

Introduction

Strategic decision-makers face complex environments with meta-problems that cut across multiple industries. Single organizations, therefore, face an increasingly overwhelming environment with a constrained capacity for appropriate response. As a result, organizations collaborate with partners, or even competitors, like Daimler and BMW in mobility services (DaimlerAG, 2014). Such simultaneous cooperation and competition between firms is common practice not only in the automotive industry (Ritala, 2012), and often involves more than two organizations, both public and private, from various industries that work together in

multi-partner initiatives (MPIs) (e.g. Deken *et al.*, 2018).

Prior literature emphasizes that interorganizational strategy (IOS) allows for tackling complex meta-problems (Huxham and MacDonald, 1992), including social and ecological issues (Clarke and MacDonald, 2016), by drawing on a greater variety of perspectives (Seidl and Werle, 2017) and sensemaking capacity (Hautz, Seidl and Whittington, 2017), setting standards (Leiponen, 2008), realizing creative initiatives (Windeler and Sydow, 2001) and innovative solutions (Powell, Koput and Smith-Doerr, 1996) and reaping interorganizational advantages (e.g. Gulati, Nohria and Zaheer, 2000) single firms cannot achieve.

The relevance of IOS is undisputed. The process by which multiple partnering organizations jointly

A free video abstract to accompany this article can be found online at: <https://youtu.be/sY12r9LRueo>

form an IOS is, however, not sufficiently well understood. Strategy process models (e.g. Hart, 1992) predominantly take an intrafirm perspective, that is the emergence and evolution of one organization's strategy within its organizational boundaries (e.g. Burgelman, 1983, 1991, 2002; Mintzberg and Waters, 1985; Mirabeau and Maguire, 2014; Quinn, 1978). Building on the premise that structural and strategic contexts external to a firm become more important (Bower and Gilbert, 2005), the recent trend of open strategy processes increased the transparency to – and inclusion of – internal and external actors, but continues to focus on the development of a single firm's strategy (Appleyard and Chesbrough, 2017; Hautz, Seidl and Whittington, 2017; Whittington, Cailluet and Yakis-Douglas, 2011).

We want to explore how strategy emerges and transcends across organizational boundaries (see Burgelman *et al.*, 2018). Seminal contributions on IOS include the study by Doz, who took an evolutionary perspective to describe 'alliances as interactive and iterative cycles of learning, reevaluation and readjustment' (Doz, 1996: 59) and Ring and Van de Ven's (1992, 1994) three-phase model of IOS – negotiation, commitment and execution. Their work explored overarching process patterns as interrelated stages, but at the expense of a granular view on specific activities and dynamics. We answer the question of how activities, processes and dynamics unfold in IOS among multiple partners in MPIs.

After reviewing existing intra- and interorganizational strategy process research, we outline our method and then present and discuss the findings we derive from a qualitative study of MPIs in the broader German-speaking eMobility sector. We contribute to strategy process research by capturing the dynamics and activities that emerge across multiple entities, thus providing a finer-grained empirical account and narrative explaining the mechanisms and temporal sequences that help explain process flows (Cloutier and Langley, 2020; Cornelissen, 2017; Langley, 2007). We identify separable subprocesses and the transitions between them. Our developed IOS process model complements intrafirm and high-level interfirm process models. We also contribute to research on multiple partner alliances (MPAs), which pose idiosyncratic challenges deviating from dynamics as observed in dyadic alliances (Lavie, Lechner and Singh, 2007; Thorgren, Wincent and Eriksson,

2011) – in terms of additional information, coordination and monitoring requirements (García-Canal, Valdés-Llaneza and Ariño, 2003) and the critical role of intermediaries and third parties (Heidl, Steensma and Phelps, 2014; Lazzarini, 2015). We also contribute to the resource and especially the capability-based view (Schilke, Hu and Helfat, 2018), as an IOS capability might enable organizations (MPAs) to outperform other organizations (MPAs) that are less process-capable (Hart and Banbury, 1994). Lastly, by uncovering activities and practices in the process of IOS emergence and embedding them temporally across organizations, our paper helps bridge the dialogue between the strategy process and the strategy-as-practice stream (Burgelman *et al.*, 2018; MacKay, Chia and Nair, 2020; Mirabeau, Maguire and Hardy, 2018) and the micro-practices stream (Felin, Foss and Ployhart, 2015).

Background on strategy process research

The majority of strategy process research focused on intraorganizational processes, that is means whereby a single organization develops its strategy. Mintzberg departed from the classic strategy conceptualization as a purposefully developed and delineated plan (e.g. Ansoff, 1965) and defined strategy as a 'pattern in a stream of decisions and actions' (Mintzberg, 1978: 934), thereby stressing the importance of unplanned strategies and the existence of intended but unrealized strategies. Bower (1970) highlighted the relevance of actual resource allocation in his three-stage model of definition, impetus and structural context. Burgelman (1983) added the selection mechanisms, induced and autonomous behaviour and strategic context.

Also referred to as the 'Bower–Burgelman (B–B) process model of strategy making' (Noda and Bower, 1996: 160), it combines the two bottom-up subprocesses of definition and impetus with the two corporate-level processes of determining structural and strategic context. Their thinking is built on 'an intraorganisational ecological perspective, following the variation–selection–retention framework of cultural evolutionary theory' (Noda and Bower, 1996: 160). Mirabeau and Maguire (2014) propose a process model that outlines how emergent strategy either becomes part of realized strategy through mobilizing wider

support for impetus, manipulating the strategic context and altering the structural context, or becomes ephemeral.

Reviews on strategy process in general (Hutzschenreuter and Kleindienst, 2006) and strategy-making modes in particular (Hart, 1992; Hart and Banbury, 1994) show that research has predominantly focused on intraorganizational strategizing. Recent studies call for research that looks beyond organizational boundaries (Burgelman *et al.*, 2018). Existing IOS studies mainly built on Doz's (1996) evolutionary model of learning, re-evaluation and readjustment, or Ring and Van de Ven's (1992, 1994) sequence of negotiation, commitment and execution, each assessed in terms of efficiency and equity. Other lifecycle approaches differentiated four stages: initiation, negotiation, formation and operation (Das and Teng, 2002; Schilke and Cook, 2013).

Beyond these comprehensive IOS models, few studies focused on one particular phase and topic; Deken *et al.* (2018) studied the initiation phase and developed a process model of prospective resourcing. Dirks, Lewicki and Zaheer (2009) put their attention on the execution phase and the processes for relationship repair.

Overall, research offers insights into the highest-level IOS stages or particular activities. Our understanding of the underlying processes and dynamics of IOS in MPIs is, however, still fragmented. We need nuanced insights into the activities, subprocesses and dynamics that form a stage model from initiation to execution. The elucidation of these process dynamics is the intended contribution of our paper.

Methods

Research context

The emerging electric mobility (eMobility) sector provides us with a revealing setting. The automobile industry faces an unprecedented transformation that has been introduced by regulatory pressure to reduce carbon dioxide, new developments in drivetrain technology and new market players entering the arena. Incumbent car manufacturers move from producing and selling vehicles to creating intermodal and complex mobility solutions. This demands a larger variety of technologies, products and business models, and led to

cross-industry MPIs with different thematic priorities (Kley, Lerch and Dallinger, 2011).

Data sources

To better understand the field and the activities and dynamics in such MPIs, we developed case studies of 25 eMobility MPIs. We sampled the MPIs based on data access, while attempting to reach an insightful breadth on the location (broader German-speaking area), stage (recently launched and mature), scope of partnerships and goal diversity. We included large-scale and local MPIs. A number of MPIs focused on winning partners, others on implementing or scaling solutions. We varied cases in terms of scope – Tesla and only a few others included > 50 partners. We built on public sources and conducted interviews in 22 of these MPIs with at least one responsible manager or industry expert to improve our understanding of these initiatives, their members, roles and activities, and the ongoing IOS-making (Table 1). Three cases were developed through desk research.

Next, we focused on the MPI ecology in southern Germany, a region well known for its leading brands and dense network in the automobile space with BMW, Bosch, Daimler and Siemens. Within this ecology, we identified a total of 291 eMobility MPIs from 2007 to 2015, with the majority launched in 2011 and 2012. Building on internal and publicly available documents, press and media releases and informal talks with industry experts, we recorded each initiative's details (Table 2). Most initiatives focused on car electrification and battery technology (35%), followed by demonstration-of-user-acceptance projects (15%) and charging infrastructure and grid integration (13%). Others targeted mobility concepts, recycling, education or regional integration (all less than 5%). The average initiative comprised five to six organizations including a publicly owned, research-oriented organization. Players from formerly unrelated sectors were involved, mainly from the chemical, energy supply and ICT industry.

Building on the resulting in-depth understanding of the German eMobility MPI ecology, we conducted a second round of in-depth interviews with 19 key informants between September 2012 and October 2013 (Table 3). All interviewees were active in multiple MPIs and could build on a rich experience in IOS development in the eMobility sector. In these interviews, which lasted on

Table 1. 25 MPI short case studies

Initiative (launch – location)	Process stage (main activities)	Major objectives	Initiative partner	Informant	Method (interview date)
Alpiq E-Mobility AG (2011 – Switzerland)	<p>Negotiation</p> <ul style="list-style-type: none"> - Trust-building measures ongoing - Problem analysis and identification of common ground - Activity distribution - Building visibility - Meta-goal defined 	Alpiq E-Mobility AG was set up to develop, plan and install infrastructure solutions for electromobility	Chevrolet; Fisker Automotive; m-way (Migros Group, Mitsubishi Motors); Protoscar; Toyota; Emil Frey Gruppe; Porsche AG; PSG Group (Citroen, Peugeot); Touring Club Switzerland (TCS); Mobility academy; Postal Service; Swisscom AG; Swiss eMobility Association; Federal Roads Office (ASTRA); Swiss Federal Office of Energy (BFE)	(1) CEO of Alpiq E-Mobility AG (2) Head of Infrastructure at Toyota	Phone, transcribed and desk research (1: 28.05.2013) (2: 30.05.2013)
BeMobility 1.0 (2009 – Switzerland) (BeMobility 1.0 preceded the BeMobility 2.0 initiative)	<p>Initiation</p> <ul style="list-style-type: none"> - Triggered by government to tackle mobility challenges of urbanized areas 	The integration of the electric car-sharing system e-Flinkster and its linkage with Berlin's public transport system. Testing customer acceptance	DB FuhrparkService GmbH; InnoZ GmbH; Technische Universität Berlin; HaCon Ingenieurgesellschaft mbH; Robert Bosch Car Multimedia GmbH; Contipark Parkgaragen-gesellschaft mbH; CHOICE GmbH; Happold Ingenieurbüro GmbH; Daimler AG		Desk research
BeMobility 2.0 (Berlinelektro/Mobil) (2011 – Germany)	<p>Execution</p> <ul style="list-style-type: none"> - Co-specialization and distribution of tasks according to core competencies - Developing structures (i.e. controlling and reporting) to track progress - Redefining overarching goals, 'goal alignment' 	Developing a systemic integration of electric mobility (i.e. flexible, one-way car sharing with electric cars and a multimodal mobility card)	DB FuhrparkService GmbH; InnoZ GmbH; Technische Universität Berlin; HaCon Ingenieurgesellschaft mbH; Robert Bosch Car Multimedia GmbH; Contipark; Parkgaragen-gesellschaft mbH; CHOICE GmbH; Verkehrsverbund Berlin-Brandenburg; Happold Ingenieurbüro GmbH; Daimler AG; RWE AG; Vattenfall AG; Citroën Multicity; Technologiestiftung Berlin (TSB); Schneider Elektrik; Forschungszentrum Jülich	Project Head	Phone, transcribed and desk research (31.05.2013)
Citroën Multicity Car-Sharing (2012 – Germany)	<p>Negotiation/Execution</p> <ul style="list-style-type: none"> - Scaling through customer acceptance (e.g., mobile App) and increasing reach (e.g., implementation Call-a-bike) - Task distribution and autonomous execution 	Developing and testing of the first commercial car-sharing offers in Germany as well as in Europe powered by electric vehicles	DB Rent; RWE AG; Mitsubishi; Berlin Mobility Services (BVG); Tourism-Insider; Radio FluxFM		Desk research

Table 1. (Continued)

Initiative (launch – location)	Process stage (main activities)	Major objectives	Initiative partner	Informant	Method (interview date)
Elektromobilitätsprojekt CROME (cross-border mobility for electric vehicles) (2011 – Germany)	<ul style="list-style-type: none"> - Co-aligning strategic goals and managing interdependence between vehicles (Citroën) and charging stations (RWE AG) <p>Initiation/Negotiation</p> <ul style="list-style-type: none"> - Increasing visibility of the initiative and developing meta-goal - Adding capacity for problem solution - Task separation by competency (i.e., Charging plugs, charging cables, charging communication, access systems, services, and user behavior) - Bridging differences through standardisation 	<p>Build a cross-border, secure, user-friendly and reliable electric mobility solution between France and Germany, including authentication, billing, roaming, reservation, etc.</p>	<p>Bosch AG; Daimler AG; ENBW GmbH; Siemens AG; Porsche AG; Karlsruhe Institute of Technology (KIT); Verband der Automobilindustrie (VDA); Municipal utilities Karlsruhe, Mittelbaden and Baden-Baden; EDF; IFSSTAR; Renault Nissan; Schneider Electric; PSA Group; Toyota; Region Alsace; Departement Moselle; Municipality Strasbourg</p>	<p>Project Head at KIT</p>	<p>Phone, transcribed and desk research (06.06.2013)</p>
eGap (2010 – Germany)	<p>Negotiation</p> <ul style="list-style-type: none"> - Developing a 'democratic' decision process - Providing a neutral space for the development of strategy - Searching for monetization mechanisms 	<p>As a particularly fragile ecosystem, the Alpine region needs environmentally and climate-friendly traffic solutions. The initiative aims to develop such options</p>	<p>Kompetenzzentrum Sport Gesundheit Technologie GmbH; B.A.U.M Consult GmbH; SP Group; General Electric; Audi AG; BMW Group; Deutsche Bahn AG; Municipality Garmisch-Partenkirchen; Micma; FG.de; Forsys; Swarco Traffic Systems; Innoz GmbH; Leber System Technik; Continental AG; R&R Rental; Hotels – Four Seasons, Staudacherhof, Riesensee; e-Laterne e-Auto Infrastruktur GmbH; IRT Institut für Rundfunktechnik; University of Passau; Technical University of Munich</p>	<p>Head of Initiative</p>	<p>Phone, transcribed and desk research (10.06.2013)</p>

Table 1. (Continued)

Initiative (launch – location)	Process stage (main activities)	Major objectives	Initiative partner	Informant	Method (interview date)
RWE e-Mobility (2008 – Germany)	<p>Execution</p> <ul style="list-style-type: none"> - Rollout and testing of infrastructure of 500 charging stations and 100 smart electric vehicles - Building consensus and bridging across different positions - Defining agenda beyond current initiative 	The objective of this initiative was to test the market for e-mobility and to convince future users in the Berlin area of the concept	RWE AG; Daimler AG; ADAC (car breakdown service); Sixt (car rental); Apoca (parking service); Renault Nissan; Siemens AG; University of Berlin; E.ON AG; Vattenfall GmbH; TOTAL; TÜV Rheinland; VW AG (associate partner); ABB AG (associate partner)	Head of Initiative	Phone, transcribed and desk research (05.06.2013)
EASYBAT (2011 – Germany/EU)	<p>Initiation</p> <ul style="list-style-type: none"> - Rallying partners and resources - Broadening the partner base to bring new standard to market and build network effects - Increasing momentum for change 	EASYBAT's main mission is to address these integration challenges by defining new concepts for the smart insertion of batteries and by developing in particular generic interfaces for electric vehicles. This research aims to enable smooth battery integration and swapping	Better Place; Renault Nissan; Continental AG; Ernst & Young; TÜV Rheinland; KEMA Nederland; RWTH Aachen; Fraunhofer-Institute; Technical University Munich; Danish Technology Institute; University of Haifa	Project Manager	Phone, transcribed and desk research (09.06.2013)
Econnect eE-Tour Allgäu (2011 – Germany) (preceding initiative: eE-Tour Allgäu from 2009 to 2011)	<p>Negotiation</p> <ul style="list-style-type: none"> - Coordinating interests and degree of autonomy of partners - Interdependencies across distributed partner tasks - Aligning individual partner interests towards overarching goals 	Holistic, affordable business models and solutions for electric mobility through (1) development of an economical and innovative ICT system; (2) acceptance and further development of e-mobility in rural areas	Allgäuer Überlandwerk GmbH; Hochschule Kempten; MSR Solutions GmbH; Soloplan GmbH; John Deere	Head of Initiative	Phone, transcribed and desk research (05.06.2013)
Car2Go (2008 – Germany)	<p>Execution</p> <ul style="list-style-type: none"> - Integration of additional partners and complementarities - Balancing influence and interests among the two biggest partners: Daimler AG und Europcar 	Expand business outside the traditional core and explore and drive forward new, potentially attractive business areas to address rising customer need for flexible, urban transport	Daimler AG; Europcar; Berliner Verkehrsbetriebe; Shopping City Süd	(1) Business Innovation Manager (Daimler AG); (2) Professor at Stuttgart Media University	Phone, transcribed and desk research (16.05.2013)

Table 1. (Continued)

Initiative (launch – location)	Process stage (main activities)	Major objectives	Initiative partner	Informant	Method (interview date)
eMO ‘Combined Charging System (CCS)’ (2012 – Germany)	<p>Initiation</p> <ul style="list-style-type: none"> - Making sense of markets - Finding common ground across loosely coupled partners - Opportunity framing to win participants and create favourable regulatory framework 	<p>Identification of fields of action and ‘unique selling points’ of the region regarding electric mobility (e.g. fast charging stations)</p>	eMO Agentur für Elektromobilität; Berlin Partner GmbH; TSB Innovationsagentur Berlin GmbH; RWE AG; Vattenfall GmbH; EON AG; Daimler AG; TOTAL; TÜV Rheinland; Technical University Berlin	Head of Initiative	Phone, transcribed and desk research (13.05.2013)
Hubject GmbH (2011 – Germany)	<p>Negotiation</p> <ul style="list-style-type: none"> - Developing a customer value proposition - Coordinating and adjusting partner activities - Defining standard protocols for interaction 	<p>Activities focused on managing and operating the charging infrastructure of electric vehicles ranging from customer relationship management solutions to coordination of charging stations or billing of charging volumes</p>	BOSCH Software Innovations; Hubject GmbH (BMW Group, Daimler AG, EnBW AG, RWE AG und Siemens AG); Mennekes Elektrotechnik GmbH & Co. KG; Ebee Smart Technologies GmbH		Desk research (01.05.2013)
‘Hamburg - Wirtschaft am Strom’ (2011 – Germany)	<p>Initiation/negotiation</p> <ul style="list-style-type: none"> - Identifying potential point of collaboration - Negotiating the role of the coordinating unit; hySOLUTIONS GmbH 	<p>Research and development in battery electric vehicles and user-oriented demonstrations. Facilitating knowledge integration into higher-level platforms and local network development from relevant industries, science and public authorities</p>	Finanzbehörde der Freien und Hansestadt Hamburg; Handelskammer Hamburg; HSBA Hamburg School of Business Administration; Technische Universität Hamburg-Harburg; Vattenfall Europe Innovation GmbH; Mercedes-Benz Bank; Renault; Crédit International Banque; DB Fuhrpark-Service GmbH; GE Auto Service Leasing GmbH	Head of Initiative at hySOLUTIONS GmbH	Phone, transcribed and desk research (05.06.2013)
Harz.EE-Mobility (2009 – Germany)	<p>Negotiation</p> <ul style="list-style-type: none"> - Harmonizing collective and individual goals - Balancing the application of different technologies (e.g. German e-cars and Audi A2) - Reintegrating project findings 	<p>The Harz.EE-Mobility project strengthens the technological and economic position of the partners in the key areas of smart grid (intelligent power grid) and electromobility</p>	Fraunhofer Institut; Hochschule Harz; DB Rent GmbH; E.ON Avacon AG; Siemens AG; Vodafone Group; in-power GmbH; Krebs&Aulich GmbH; German-e-Cars; RegenerativKraftwerk Harz GmbH & Co. KG	Project Head	Phone, transcribed and desk research (01.05.2013)

Table 1. (Continued)

Initiative (launch – location)	Process stage (main activities)	Major objectives	Initiative partner	Informant	Method (interview date)
eMobility Mercedes Benz Schweiz AG (2010 – Switzerland)	Execution <ul style="list-style-type: none"> - Securing constant information flows - Managing stakeholders and joint public communication - Managing cooperation and competition in the light of overlapping interests (i.e. ewz/ekz) 	Developing an ecosystem to increase the total value added and create a showcase in the market of electromobility	Mercedes-Benz Switzerland; Elektrizitätswerk der Stadt Zürich (ewz); Elektrizitätswerke des Kantons Zürich (ekz); Stadt Zürich; Mobility AG; electrostuisse; Migros (MGB)	Head of eMobility	On-site interview, transcribed and desk research (21.03.2013)
Mobility Car-Sharing Schweiz (2011 – Switzerland)	Negotiation/execution <ul style="list-style-type: none"> - Expanding the value proposition - Separating and balancing initiative and firm-specific activities 	Make electric mobility affordable and easily accessible for everyone	m-way AG; Siemens AG; SBB (Swiss Federal Railways) AG; Mobility AG	Head of Products & Strategy at Siemens Switzerland	Phone, transcribed and desk research (06.06.2013)
Die Modellregion Grossraum Graz (2010 – Austria)	Initiation/negotiation <ul style="list-style-type: none"> - Acquiring specific resources and partners to realize initiative - Enabling knowledge sharing across the initiative's participants - Iterating between proprietary and open system 	Increasing attractiveness of electric mobility and efficient integration into a holistically optimized transport system. Organizational goals include intensified knowledge exchange and collective learning	e-mobility Graz GmbH; Holding Graz (carrier of the city's public transport); Energie Graz; Energie Steiermark; Technical University Graz; Klima und Energiefonds; Lebensministerium; e-connected	Head of Initiative at e-mobility Graz GmbH	On-site interview, transcribed and desk research (28.06.2013)
Multicity Car-Sharing Berlin (2011 – Germany/EU)	Negotiation/execution <ul style="list-style-type: none"> - Integrating complementary services - Initial product tests 	Build solution that includes all available means of transport and direct booking	Citroën; Deutsche Bahn; DB Rent GmbH; Flinkster Call a Bike; RWE AG; Berliner Verkehrsbetriebe (BVG)	Head of Coordination Mobility Projects at Citroen Germany GmbH	Phone, transcribed and desk research (06.06.2013)
Projekt eShare (2011 – Germany)	Execution <ul style="list-style-type: none"> - Decomposing tasks across partners - Joint communication to gain publicity - Expanding geographic presence 	On user side, promote environmentally friendly electromobility solutions. For the participants of the initiative, testing electric mobility under realistic conditions, as empirical knowledge within the Swiss market is still immature	Mobility Solutions AG; Elektrizitätswerke des Kantons Zürich; IWB – Industrielle Werke Basel; BK W Energie AG; Municipality of Geroldswil, Itringen, Riehe and canton of Basel; Association Inergie	Head of Initiative at Mobility Solutions AG	Phone, transcribed and desk research (07.06.2013)

Table 1. (Continued)

Initiative (launch – location)	Process stage (main activities)	Major objectives	Initiative partner	Informant	Method (interview date)
Swiss Road Map (2011 – Switzerland)	<p>Initiation</p> <ul style="list-style-type: none"> - Building agenda beyond initiative - Project identification - Enabling strategic dialogue 	Addressing challenges for the energy and transport sectors and developing an enabling infrastructure on a national level to accelerate the adoption of e-vehicles	Forum for Electric Mobility; Mobility Clubs TCS and VCS; ABB AG; Alpiq AG; Postal Services; Opel AG; Renault Nissan; ewz; Siemens AG; economisesuisse	Head of Initiative at Forum for Electric Mobility	Phone, transcribed and desk research (01.06.2013)
VIBRATE – Vienna BRATISLAVA e-mobility (2010 – Austria)	<p>Initiation/negotiation</p> <ul style="list-style-type: none"> - Distribution of tasks (work packages) - Spanning boundaries within and outside the initiative - Integrating and managing participants ‘at the periphery’ 	Establishing an environmentally friendly transport option between Vienna and Bratislava	Business Agency Vienna; emporA; Vienna Energy; EVN AG (Energy Supply Lower Austria; Západoslovenská Energetika (ZSE); Energetické Centrum Bratislava (ECB); IBM; Crossing Borders; EFRE (European Regional Development Fund); Federal Ministry of Economy, Family and Youth (BMWFJ); State of Lower Austria; Magistrat City Bratislava and Vienna ilwerke vkw; Raiffeisenbank; Transport Association Vorarlberg; Energy Institute Vorarlberg; DAMTC (Austrian automobile, motorcycle and touring club); Technical University Vienna; VLV Vorarlberg Insurance V.a.G.; PSA Group; Renault Nissan	(1) Head of Initiative at VIBRATE (2) Head of Communications at VIBRATE	Phone, transcribed and desk research (09.06.2013)
VLOTTE (2008 – Austria)	<p>Execution</p> <ul style="list-style-type: none"> - Increasing market acceptance and visibility - Monitoring partner contributions - Adapting model towards customer preference - Onboarding new complementors (i.e. car dealerships) 	Minimize CO ₂ emissions in Austrian transport by means of the rapid and sustainable introduction of e-mobility. Provide potential market participants with information on e-mobility and facilitate the exchange of experience	illwerke vkw; Raiffeisenbank; Transport Association Vorarlberg; Energy Institute Vorarlberg; DAMTC (Austrian automobile, motorcycle and touring club); Technical University Vienna; VLV Vorarlberg Insurance V.a.G.; PSA Group; Renault Nissan	Head of Model Region VLOTTE	Phone, transcribed and desk research (28.05.2013)
EKZ E-Mobility Ecosystem (initial project executed from 1997 to 2012) (2012 – Switzerland)	<p>Initiation/execution</p> <ul style="list-style-type: none"> - Managing diversity of partners and fluctuation - Managing complexity of decision-making and the formation of coalitions - Enabling strategic dialogue and developing a joint platform 	The main focus is on grid integration and the possible transfer of the projects to the EKZ business model	EKZ and more than 50 associated partners (car manufacturers, software and IT companies, energy supplier, parking and payment providers)	(1) Project Lead (2) Project Manager (3) Head of Initiative	(1) Phone; (2) phone; (3) on-site (04.06.2013)

Table 1. (Continued)

Initiative (launch – location)	Process stage (main activities)	Major objectives	Initiative partner	Informant	Method (interview date)
MOVE (2011 – Switzerland)	<p>Initiation</p> <ul style="list-style-type: none"> - Aligning individual interest towards common goal (e.g. increasing information flow) - Mobilizing local car dealerships through ‘opportunity’ selling - Building a joint business model 	<p>The goal is to establish a public charging network for electric vehicles. MOVE aims to offer a ‘new range of products and services to cover all areas of electric mobility’</p>	<p>Groupe E; RWE AG; Renault-Nissan; Bundesamt Energie Schweiz; EVITE Initiative; Swiss eMobility; Swiss Forum on electric Mobility; network of car dealers</p>	<p>Business Development Manager Groupe E e-Mobility</p>	<p>On-site interview, transcribed and desk research (28.06.2013)</p>
Tesla Switzerland (2009 – Switzerland)	<p>Execution</p> <ul style="list-style-type: none"> - Rollout of Tesla operations - Developing a profit model for complementors - Negotiating resource contributions 	<p>Market entry of Tesla aiming to build an ecosystem of partners to support initial market launch</p>	<p>Euromaster (Suisse) SA; Alpiq E-Mobility AG; Groupe E</p>		<p>Desk research</p>

Table 2. MPIs in the automobility ecology of southern Germany (2007–2015)

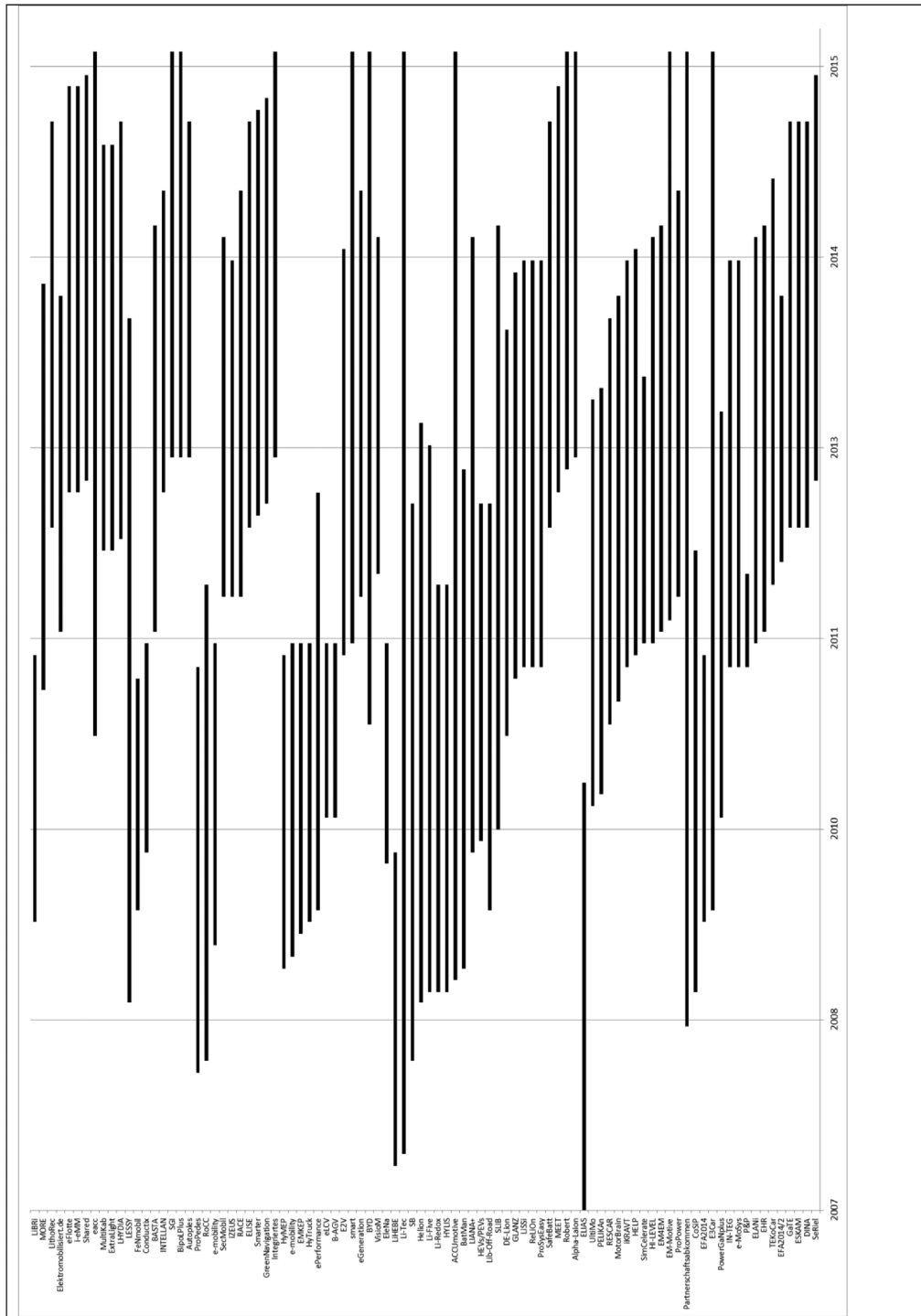


Table 2. (Continued)

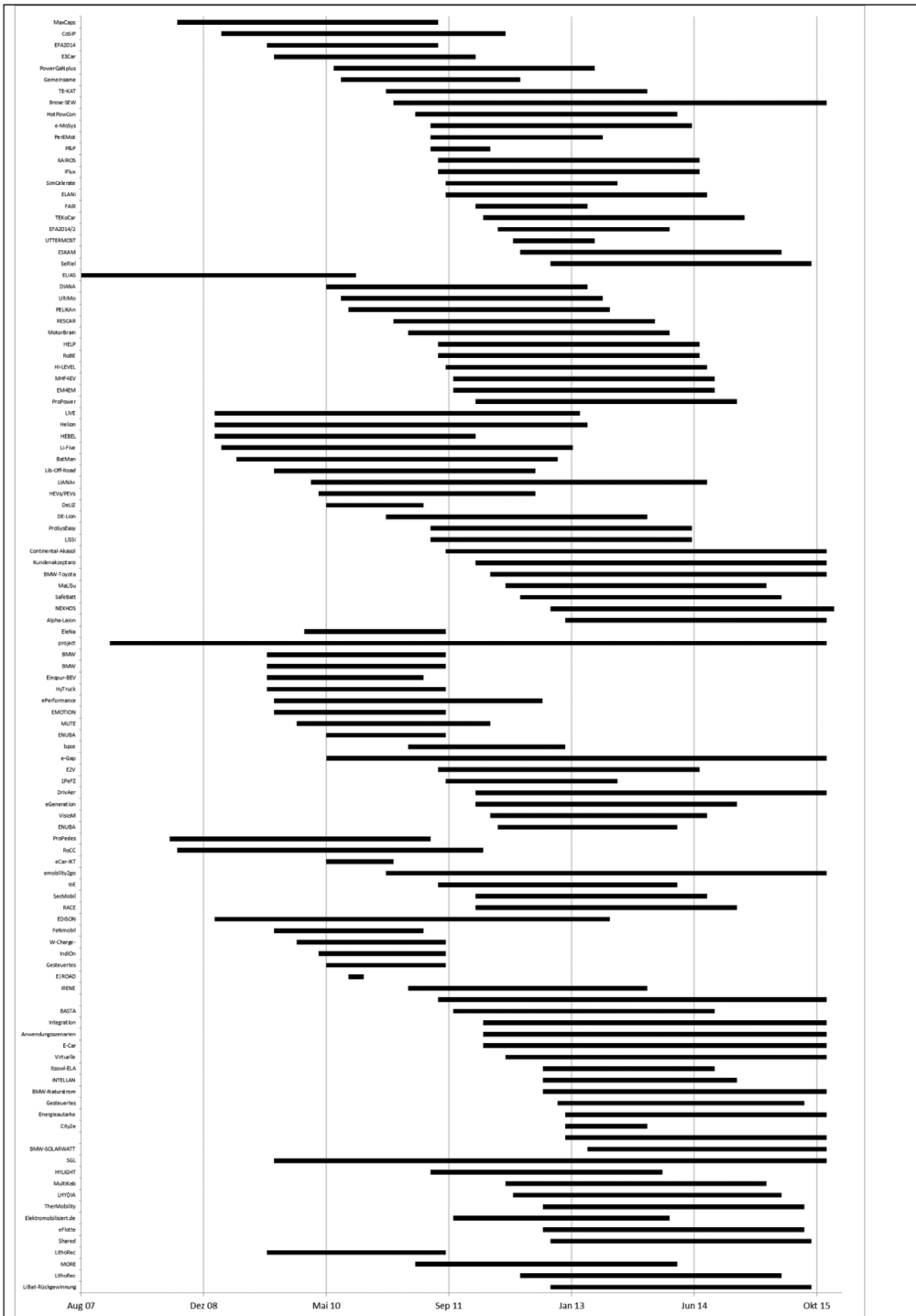


Table 3. Overview of interviews and background on key informants

Interview date/duration	Informant	Background	Role and key activities	Exemplary initiatives
01.03.2013 115 min	Director of initiatives	Public institution coordinating eMobility initiatives as a central point of contact for all matters relating to new mobility solutions and automotive in the Federal State of Baden-Wuerttemberg	Triggering, funding, and enhancing visibility of initiatives to develop alternative drive concepts, expansion of infrastructure, and demonstration projects. "Initiatives Program I" funded projects in the amount of 28.5 million Euro (2010-2014). "Initiatives Program II" accompanied projects worth 50 million Euro (2012-2015). Establishing consensus and co-aligning goals towards coherent direction. The institute has been a major partner in a comprehensive number of eMobility MPIs	AUTOPLES: automated parking and charging of electric vehicle systems (2013-2015); Shared e-Fleet: intelligent operation of shared electric vehicle fleets (2013-2016); Living Lab BWE: tackling challenges of car sharing (2013-2015); iZEUS: development and practical demonstration of a multimodal smart traffic concept (2012-2014) Undisclosed: involved in 20 eMobility initiatives (2013-2014)
21.03.2013 55 min	Institute Director	Institute offering a dialogue platform for networking and executing multi-partner initiatives by facilitating synchronization of perspectives and structures and accelerating decisions		
10.04.2013 65 min	Strategy, Senior manager	Infrastructure and utilities company operating in and around Munich. Aims to establish new businesses in the broader field of eMobility	Creating visibility, contributing to the eMobility infrastructure (e.g., parking, paying, charging). Jointly with the municipality of Munich, this actor set up an "Integrated Action Programme for the Promotion of Electric Mobility in Munich" (IHfEM) worth 60 million Euro.	Shared e-Fleet: intelligent operation of shared electric vehicle fleets (2012-2015); VisioM: visionary vehicle concept for urban electric mobility (2012-2014); Energieautark: smart micro-grid from a single family house to an intelligent parking garage (2013-2015)
17.04.2013 65 min	National project office, Director	Public institution coordinating eMobility initiatives strategically to develop the sector on a national level	Creating visibility and establishing a beneficial regulatory framework for initiatives. Co-financing private-sector partnership programme with public authorities. Mobilizing business-to-business partnerships	Elena: development of electric drive retrofit kits (2010-2011); Elektromobilisiert.de: development of a service for eMobility fleets (2011-2014)
02.05.2013 80 min	Strategic partnerships, Head	Information and communication technology company and major car supplier providing technological and infrastructural solutions	Contributing infrastructure and software development to multiple initiatives. Leveraging its network to connect an extensive supplier base	DINA: diagnosis and repair for electric vehicles (2012-2015); EFA2014/2: energy-efficient driving, second project phase (2012-2014); CoSiP: development of compact, highly miniaturized and energy-efficient systems (2009-2012); EM4EM: electromagnetic reliability and electronic systems for eMobility applications (2011-2014); HELP: reliable and cost-effective high-temperature electronics for electromobility based on circuit boards made of high-temperature-resistant resin systems (2011-2014)

Table 3. (Continued)

Interview date/duration	Informant	Background	Role and key activities	Exemplary initiatives
15.05.2013 45 min	eMobility industry expert, Senior consultant	Analyst with deep industry expertise and advisor for several initiatives in the field of eMobility	Spanning various initiatives and specialists involved in the eMobility space. Advisory on how to overcome resource and capability gaps	Undisclosed: advisory and/or workshops to more than 35 eMobility initiatives in Germany (2012–2015)
16.05.2013 50 min	Mobility concepts and initiatives, Head	Subunit of an automobile OEM with one of the most prominent MPIs in the field of eMobility	Funding, developing visibility and marketability of the solution. Orchestrating and integrating partner contributions	ELIAS: end-of-life analysis for eMobility systems (2007–2012); VisioM: visionary vehicle concept for urban electric mobility (2012–2014); smart forvision: eMobility concept covering topics of energy efficiency, lightweight construction and temperature management (2011–2015)
05.06.2013 45 min	Urban development, Director	Regional mobility concept developer – an umbrella for several initiatives launched in southern Germany (Allgaeu region)	Mobilizing and coordinating regional partners within various initiatives. Co-aligning interests as ‘a neutral unit’ and providing an integrative platform for solutions	IRENE: integration of renewable energies and eMobility (2011–2013); eE-Tour Allgäu: setup, operation and monitoring of the operability of a diverse electric vehicle fleet with approx. 50 electric vehicles (incl. cars, scooters and Segways) (2009–2011); econect: implementation, acceptance and further development of e-mobility in rural areas (2012–2015)
10.06.2013 45 min	Urban development, Director	Regional hub for projects on eMobility with most encompassing initiatives (Upper Bavaria region)	Triggering initiatives within the eMobility model community and coordinating regional partners within joint projects. Framing a desirable future and understand the major problems to be solved. Mobilizing key resources and providing an integrative platform for solutions.	e-Gap: holistic mobility concept that provides a model solution covering initiatives around mobility (e-GAP intermodal), fleets (sum2car), vehicles (MINI E), charging infrastructure (intelligent charging/PLUS) and grid (intelligent smart grid) (2013)
13.06.2013 120 min	Director of initiatives	Public institution coordinating eMobility initiatives as a central point of contact for all matters relating to new mobility solutions and automotive in the Federal State of Bavaria	Triggering, funding, and enhancing visibility of initiatives to develop alternative drive concepts, expansion of infrastructure, and demonstration projects. The institution coordinates and contributes to more than 100 partners working across 40 projects and a total volume of 130 million Euro (2012–2016).	LiBat: recovery/processing of production waste and complete Li-ion battery cells to recover and recycle the active material (2012–2015); Kundenakzeptanz Elektromobilität: solutions for higher customer acceptance through reach and accessibility (2012–2015); E-Plan: optimal spatial distribution of the charging infrastructure (2013–2016)
13.06.2013 115 min	Director of regional initiatives, Project leader	Public unit coordinating initiatives on eMobility in the wider district of Regensburg	Mobilizing regional partners towards joint interests and supporting kickoff projects. In a later stage, this institution acted as a place of common ground to realize showcase projects	iLEM: intelligent charging network technology for eMobility (2012–2015); E-Car-Sharing EARL: testing a mixed car fleet in urban areas

Table 3. (Continued)

Interview date/duration	Informant	Background	Role and key activities	Exemplary initiatives
14.06.2013 90 min	Research institute, Scientific partner	Well-established research institution in the field of applied eMobility solutions involved an encompassing set of initiatives on a national and European level	Helping to conceptualize problems and frame potential solutions. Developed significant contributions and took on major coordination effort throughout the execution phase	MORE: recycling of components and strategic metals from electric traction drives and motor (2011–2014); eFlotte: electric fleet operation and technology (2012–2015); LHYDIA: lightweight hydraulics in electric vehicles (2012–2015); MultiKab: multi-material systems for weight and cost-optimized commercial vehicle cabins (2012–2015)
18.06.2013 65 min	Supplier, Head of Projects	Major global supplier in the field of information and communication technology with critical contributions to the eMobility infrastructure	Provided standardized technological solutions to a comprehensive set of eMobility initiatives in the field of information and communication technology	EDISON: electric vehicles in a distributed and integrated market using sustainable energy and open networks (2009–2013); RACE: robust and reliant automotive computing environment for future eCars (2012–2014); INTELLAN: intelligent charging infrastructure with grid integration (2012–2014)
15.07.2013 75 min	Automotive, Head of Strategy	One of four major automobile OEMs in Germany heading strategic initiatives related to eMobility. Key partner to several MPIs	Triggering initiatives and closing competency gaps with partners in joint initiatives. Integrating, coordinating and marketing solutions	HyMEP: hybridization of Mercedes-Benz trucks in development and production (2009–2011); SecMobil: development/implementation as well as the legal consideration of IT security in the context of electric mobility (2012–2014); RoCC: security by radar on chip for cars (2008–2012)
15.07.2013 75 min	Head of Regulatory Strategy, Project manager	One of four major automobile OEMs in Germany heading strategic initiatives related to eMobility. Key partner to several MPIs	Triggering initiatives and closing competency gaps with partners in joint initiatives. Integrating, coordinating and marketing solutions	ExtraLight: extremely lightweight construction with plastic-metal hybrids (2012–2015); LiBRi: development of a feasible recycling concept for the high-performance batteries of future electric vehicles (2009–2011); GaTE: holistic thermal management in electric vehicles (2012–2015); ProPedes: predictive pedestrian protection at night (2008–2011)
17.07.2013 75 min	Corporate research, Project leader	Technology unit of a major car supplier contributing technological and infrastructural solutions to several MPIs	Significant technological contributions throughout the execution phase. Leveraging partnerships with specialized knowledge as complements to own solutions	ELANi: electrical drive low voltage (2011–2014); PowerGaNPlus: development of transistors on gallium nitride basis for voltage conductors (2010–2013); E3Car: nanoelectronic-based system components for e ³ CAR applications (2009–2015);

Table 3. (Continued)

Interview date/duration	Informant	Background	Role and key activities	Exemplary initiatives
17.08.2013 65 min	Urban development, Director and Project lead	Public unit coordinating initiatives on eMobility in the wider metropolitan region of Stuttgart – a key automobile technology cluster	Mobilizing regional partners with joint objectives and supporting kickoff projects. Providing an arena for regular meetings and a platform for showcase projects	EFA2014: energy-efficient driving systems (2009–2011); ProPower: compact electronic modules with high performance for electric mobility, drive and lighting technology (2012–2014) Ludwigsburg intermodal: intermodal networking of transport modes and integration of eMobility into a sustainable, intermodal transport concept (2013–2016); Elektromobilität vernetzt nachhallig: awareness raising and integration of electric vehicles into the urban vehicle fleet (2010–2011)
11.09.2013 90 min	Mobility concepts, CEO	Engineering service company that develops and contributes to eMobility concepts on a national and international level	Providing deep engineering expertise on technological challenges and building marketable solutions (i.e. prototype to market)	Undisclosed; participated in more than 35 eMobility initiatives (since 2011). Listed partner of competency network at eMobil BW
08.10.2013 120 min	Chief strategy officer, Strategic partnerships	One of four major automobile OEMs in Germany heading strategic initiatives related to eMobility. Key partner to several MPPIs	Building a network of 'capable' partners and initiating joint activity. Integrating, coordinating and marketing solutions	HeP-E: highly flexible production systems for efficiency-enhanced e-traction drives (2012–2015); EFA2014: concepts for reducing the energy consumption of electric vehicles – first project phase (2009–2011); Alpha-Laiou: development of lithium-ion cells (2013–2015); Gesteuertes Laden 2.0/3.0: finding a technical and economic/ecological optimum for charging mobile energy storage devices through intelligent energy management; VisioM: visionary vehicle concept for urban eMobility (2012–2014)

average 75 minutes (total 24 hours; recorded and transcribed verbatim), we focused on the collaboration and strategy process in MPIs (Table 4: interview guideline). Our research was accompanied by three workshops, each involving five to six partners, with the purpose of reviewing and re-evaluating interim results, and informal exchanges with partners and industry experts at trade shows and demonstration projects. We also incorporated an extensive study of publicly accessible documents like annual reports, partner agreements, press releases, articles and official website communications. After 5 years, we conducted a follow-up member check with the originally interviewed MPI heads. We asked for their retrospective evaluation of the MPI and a validation of the developed IOS model. Ten responded (45%), and with two we had additional extended telephonic discussions (Table 5).

Data analysis

We used a grounded theory approach (Glaser and Strauss, 1963; Pettigrew, 1992; Ring and Van de Ven, 1992) – not in its purist interpretation, but informed by prior research to have theoretical sensitivity and become aware of possible preconceptions (Dunne, 2011). We started to structure the data and events into successive, adjacent periods that indicated a certain recurrence in the activities within each period. These periods, however, did not necessarily presume any progressive developmental logic (Langley, 1999). Beyond its mere structuring utility, the bracketing approach facilitated developing units of analysis. We subsequently connected the distinct periods and collected further empirical evidence by replicating the emerging model in other cases. Any discrepancies were reviewed and evaluated against the respective context.

By inductive thematic analysis, we identified and reported the patterns/themes (Braun and Clarke, 2006). The two authors first coded independently, then compared their codings and clarified any deviations. Using Atlas.ti, we first coded ('close to data') all statements related to the strategy process (810 quotes). We developed a comprehensive list of phase-specific semantic and latent themes (Table 8). This step allowed us to build linkages and develop more abstract and aggregated categories across the concepts, following an axial coding strategy (Strauss and Corbin, 1998). We

then traced patterns and explanations in the initial codes. We collapsed and reorganized the codes towards higher-order themes, which allowed first-order and second-order themes to emerge. The latter, more abstract coding step aimed at verbally capturing the essence of the strategic dynamics. We ultimately undertook selective coding by seeking for contradictory and confirmatory evidence in data (Table 6); 357 quotes and 108 codes remained, supporting the underlying IOS framework (Table 7, 8).

IOS process model development

Our data analysis revealed that the IOS process can best be displayed in three phases, within which we identified several subprocesses in our data: (1) initiation – a stimulus to start the IOS process by triggering it on the meta- or firm level, followed by mobilization activities to assemble critical actors and resources; (2) negotiation – bridging activity to overcome the strategic diversity and matching process to co-align the goals for coherent activity; (3) execution – recurrent, cyclical interaction involving the decoupling and recoupling of tasks, stabilization and the perpetuation of results and relationships. Building on the temporal bracketing strategy outlined earlier, we present the case insights along the three phases (Figure 1).

Initiation.

Internal triggering. From a firm-internal perspective, IOS initiation can be tracked back to a *sense of opportunity/urgency*. New players, previously unrelated or only loosely connected to the automobile industry, sensed opportunities to become involved in the emergent eMobility sector. An industry consultant remembered that the 'technology was [as] yet immature, but everybody was eager to be part of it somehow'. Long before the media coverage sparked hype and public awareness increased at the beginning of the 2010s, many firms, some of them employing futurists (Brown and Eisenhardt, 1997), suspected that a radical technological change lay ahead.

In several cases, visionaries provided the major impetus that allowed the eMobility topic to be included in organizational agendas and technological roadmaps. At BMW, Ulrich Kranz initiated 'Project we', which eventually led to the first zero-emission, mass-produced vehicle in 2013. Kranz's efforts 'to reinvent the car' date back to 2007, when

Table 4. Interview guideline

No.	Question*/Ø = prompt	Latent construct/note
A	Introduction	
A.1	Introduction interview partner and research project. Addressing confidentiality issues	Confidentiality agreement
B	Description of activities/collaboration	
B.1	Please describe X activities in the field of electric mobility	Main activities
B.2	How did activities relating to electric mobility emerge in your organization?	Initiation
B.3	What are your major goals in regard to electric mobility?	Reflection on objectives
B.4	In which areas do you collaborate with partners? Ø According to which criteria did you choose your partners? Ø What significance do these partners have for your electric mobility activities? Ø How are partners chosen? With which partners do you work most intensively? Why?	Scope of collaboration
B.5	Why did you choose to collaborate with partners in the field of electric mobility?	Interdependence
B.6	Which actors are most crucial for the development of the initiative? Ø Does one/several partners play a dominant part?	Power distribution
B.7	What is your role in the initiative/partnership? How do you contribute? Ø Do goals among initiative partners vary? How? Ø Are there diverging interests (among the involved actors)? How do you cope with that? Ø What added value do you see in collaborating with diverse partners in the initiative?	Reflection on roles and centrality Managing IOS diversity Motivation for collaboration
B.8	What role/significance do public entities, such as project offices, associations, public authorities on national/federal level have (e.g. NOW GmbH, federal innovation agencies)?	Role of public intermediaries
B.9	What challenges do you face with regard to the involvement in the initiative?	Probing for challenges
B.10	How are your activities relating to electric mobility organized internally?	Internal management
C	Strategy process	
C.1	Who initiates electric mobility projects/activities in your organization?	Impetus
C.2	Who is the driving force behind electric mobility activities in your organization?	Championing
C.3	Did any external impulses change the trajectory of your strategy?	External impetus
C.4	How important is (early) success of electric mobility activities for your firm?	
C.5	How important is commitment of partners for your own activities and decisions?	Role of partner commitment
C.6	Do you have a formalized strategy for electric mobility initiatives?	Formalization of IOS
C.7	Did a formalized strategy (strategic guideline) emerge among your other initiative partners? How? Ø Where does strategic interaction happen (e.g. meetings, committees, informal get togethers)	Structural context: top-down inducement vs. bottom-up initiative
C.7	How do you achieve consensus on interests/strategies that exist among involved organizations? Ø Can you give an example of a goal conflict and how initiative members dealt with it?	IOS consensus finding
C.8	How does the process of planning and coordination among initiative partners happen? Ø Do you have regular meetings or working groups? Ø How does information and resource exchange happen (e.g. IT platforms)?	Structural context: formation and evolvement of IOS
C.8	How does task allocation happen?	Execution of IOS
C.9	Ø How specific were the tasks and goals outlined?	

Table 4. (Continued)

No.	Question*/Ø = prompt	Latent construct/note
C.10	How do you implement and translate strategic plans outlined in the initiative? Ø How do operative and management levels collaborate?	Implementation of IOS
C.10	Does a monitoring process exist?	Implementation of IOS
C.11	Who decides about the allocation of resources towards electric mobility initiatives in your organization? Ø Investment or divestment of financial or human resources?	Reflection on IOS as resource allocation
C.11	The intense collaboration among diverse organizations leads to strong interdependencies among the same. Do you see a strategic interdependence or mutual influence in strategic terms? Example?	Strategic interdependence
C.12	Did members negotiate about objectives and activities of the initiative? Example?	Reflection on IOS as negotiation
C.13	How are initiative activities reported back to your organization?	Strategic context: implementation
C.14	In general, which strategic impact do you have on the strategies of other initiative members?	Strategic interdependence
D	Collaboration	
D.1	Do you have principles of collaboration?	Reflection on rules and principles
D.2	How did the way you collaborate change over time?	IOS evolution
D.3	How would you generally evaluate and describe collaboration within the initiative?	Evaluation
D.4	How important are partnerships or a network for you to develop your goals in this field?	Reflection on interdependence
D.5	Do you consider initiative partnerships as long-term?	Reflection on interdependence
D.6	How do you assess the emerging dependencies among the involved members in an initiative?	Reflection on interdependence
D.7	Do common resources accessible to all members of the initiative exist?	IOS outcomes
D.8	Are there any activities performed in your organization exclusively, which you would not consider collaborating with your partners?	Depth of strategic interaction
E	Others (explorative)	
E.1	Is there any difference relating to the collaboration within the field of electric mobility?	Idiosyncrasies
E.2	Is there anything else that we did not touch upon, which is important in regard to collaborative strategy within the initiative?	

* Selected list of core questions. Questions were adapted to fit the context and type of organization.

he started recruiting an interdisciplinary team and partnering firms. Internal triggering activity is not, however, restricted to focal organizations, but appears to touch upon strategic issues that span firms and industries. An automobile technology supplier's divisional CEO stated:

I first suggested [in our firm] in 2004 that we needed to take care of our ecosystem and manage it deliberately and strategically. Thus, [managing] strategy not only in-house, but also within a group of firms focused on a similar market.

The repeatedly mentioned perceived urgency, which arose from the fear of being left behind, was the major driving force behind the internal triggering of eMobility projects. This corresponds to the insights that strategies are largely problem-driven;

hence, they come into being because a problem needs strategic attention (Miller and Friesen, 1983; Porter, 1996). In light of the looming technological change towards eMobility, some incumbent market players became increasingly aware that the established value chain activities might soon be up for redistribution. However, the projects and products within the eMobility field entailed a complexity that overwhelmed their internal capacities; tremendous challenges emerged for firms that had hitherto operated largely independently within their respective fields.

This shows in the data, as most actors acknowledged that they needed more than one partner to create a working system. A regional project office's director, with prior automobile leadership experience, summarized:

Table 5. Empirical material

	Type of material	Purpose and use in analysis
Preliminary study	<ul style="list-style-type: none"> · Exchanges with industry experts (4) 2012 · Visits and exchange with public eMobility agencies (4) 2013–2015 · Initial interviews and development of short cases (25) 2012–2013 · Other workshops and exchange with partners (3) 2013, 2020 	<ul style="list-style-type: none"> · Preparatory work for an informed industry understanding · Negotiating of access to events, informants and material · Early capturing of activities and patterns of strategy process dynamics · Reviewing and re-evaluating interim results
In-depth analysis	<ul style="list-style-type: none"> · In-depth interviews with heads of initiative or project leads (19) · Informal conversations with a number of organizational members, at trade shows or demonstration projects 	<ul style="list-style-type: none"> · In-depth analysis of activities and patterns of IOS process · Testing of the validity and a wider generalizability of recurrent activities and dynamics as uncovered in the IOS process
Member check	<ul style="list-style-type: none"> · Member check: heads of initiative or project leads (9) · Informal conversations with study partners and industry experts 	<ul style="list-style-type: none"> · Credibility check regarding major changes and initiative success · Capturing feedback and testing generalizability of the process model
Documents	<ul style="list-style-type: none"> · Agendas, minutes and documents used in workshops and exchanges 2012–2013 · Internal and public documents on eMobility initiatives with regard to goals and strategic plans 2007–2015 · Annual reports 2007–2015 · Press releases, communication on official website, and other material published on the initiatives 2013–2015, 2020 	<ul style="list-style-type: none"> · Reconstruction of the sequencing of key activities and development in the field · Recording and analysing of activities and patterns of the IOS process · Tracking activities performed with partners and in the absence of partners · Analysing partner agreements and statements regarding roles, content and objectives of the initiatives · Getting insights into official communication in the context of joint activities and strategizing
Media	<ul style="list-style-type: none"> · Newspaper articles (selection of relevant articles on eMobility initiatives) · Informal conversations with study partners and industry experts 	<ul style="list-style-type: none"> · Reconstruction of the sequencing of key activities · Analysis of the role of external triggers and regulatory dynamics · Track the evolution and success of the initiatives as perceived by the public

... all started with fear. With a major industry's fear that an indispensable technological change would be needed to deal with the future challenges of mobility's ecologization, which was inevitable. Thus, one can either fight against change, or face it. But we think it was the fear that [...] made people from diverging industries ask themselves how to approach this issue.

The actors were confronted with demands for integrated solutions that required coordinated efforts and inputs from various fields. Compatible solutions, which had neither been produced nor tested, were required for electric vehicles regarding their battery technology, software and electronic control systems. The appropriate infrastructure to power and accommodate electric vehicles had not yet been developed, but was critical for the functioning of eMobility solutions. There were no industry standards and regulations, employees' qualifications were underdeveloped and customer ac-

ceptance was insufficient to make a business case. The head of research on battery-powered vehicles at a major car producer described:

You simply cannot do it on your own. You neither have the technological capacity, nor the manpower. You may understand many things, but you cannot put them into practice. This is why we searched for partners.

A senior project manager at the energy supplier's strategy department reiterated:

Regarding these comprehensive challenges [of eMobility] – we as an individual firm were far from being able to solve them. Owing to the analysis concerning the [scope of the] charging infrastructure, sales and grids, grid fees, etc., that was all yet unclear. There were still many open questions.

While the IOS process can be traced back to intraorganizational sparks of initiative, the

Table 6. Coding strategy – four-step process

Step	Phase	Applied approach	Major intent	Process steps of analysis/coding	Coded data sources
1	Theoretical sensitivity	Literature and extant concepts	Study of extant literature and theory	<ul style="list-style-type: none"> - Review of existing concepts, dynamics, and activities - Systematic literature review based on keyword search in the Thomson Reuters Database (applying a “topics” search parameter, which scans abstracts, titles, and outlined keywords) - 891 articles identified, 70 relevant articles analysed in detail to extract the explicitly, or implicitly, described strategic dynamics - Document and abstract competing interpretations 	<p>Review: literature and concepts on intra- and interorganizational strategy processes</p>
2	Initial structuring	Phases, periods and recurrent activities	Developing units of analysis from data and events	<ul style="list-style-type: none"> - Collecting and organizing initial data - Structuring the data and events into successive, adjacent periods that indicated a certain recurrence in the activities within each period - Developing simple descriptive and category labels 	<p>Interviews: 41 transcribed interviews</p> <p>Documents: field notes; workshop documents; publicly accessible documents (e.g. annual reports); press releases</p>
3	Data exploration	Phase-specific semantic and latent themes	Tracing patterns and explanations across whole data	<ul style="list-style-type: none"> - Inductive thematic analysis of themes to trace patterns and explanations - Coding (re-visiting and re-coding) all statements related to the strategy process (810 codes) - Axial coding to build linkages and aggregated categories across concepts 	<p>Interviews: 41 transcribed interviews</p> <p>Documents: field notes; workshop documents; publicly accessible documents (e.g. annual reports); press releases</p>
4	Corroboration	Abstract and selective coding	Developing higher-order themes from aggregated codes	<ul style="list-style-type: none"> - Developing first- and second-order themes by collapsing and reorganizing codes - Verbal capturing of core strategic dynamics and activities - Within and cross-case analysis - Selective coding to analyse contradictory and confirmatory evidence in data 	<p>Interviews: 41 transcribed interviews</p> <p>Documents: field notes; workshop documents; publicly accessible documents (e.g. annual reports); press releases</p>

Table 7. Coding structure – aggregation of themes

Phase	Semantic and latent themes (aggregated)	First-order theme	Second-order theme
INITIATION	Experts understand the problem better	Complex meta-problem (problem-centred)	EXTERNAL TRIGGERING
	Problem is part of a more complex issue		
	Need for organized change	Insufficient momentum (organization-centred)	
	Beyond our scope		
	No business case here		
	Too much risk involved		
	Insufficient resources	Sense of opportunity	INTERNAL TRIGGERING
	Smallness/lack of legitimacy		
	Inertial forces inside (path-dependence)		
	Window of opportunity		
	Projecting future	Sense of urgency	
	Missing future business		
	Acknowledging interdependence		
	Fear of being left behind by technological change		
	Not our core competency	Filling gaps	MOBILIZING
	Developing joint platforms		
	If one participates the other also wants to (pull)		
	Talking across boundaries		
	Systematically scouting the market for partners	Enhancing visibility	
	Filling gaps of competency		
Boundary-spanners that connect across firms			
Signalling from the top			
Give the endeavour a face	Neutral clearing	STRATEGIC BRIDGING	
Multiplying publicity			
Top-level resolution necessary/paving way			
Moderating and speeding decisions			
Building trust	Consensus finding		
Spanning the bargaining leeway			
Providing neutral space for strategic dialogue			
Organizing/structuring change			
Meeting on interests not positions/meta-goals	Framing problems	MATCHING	
Pooling resources and needs			
Many eyeballs on one problem			
Finding consensus on non-competitive ground			
Building a sense of interdependence	Framing future		
Seeking strategic lockstep			
Co-alignment of interests			
Thinking outside industry box			
Developing joint business models	Decomposing subsystems	DECOUPLING RECOUPLING	
Developing future scenarios			
Need to reduce complexity to manageable units			
Reintegration of activity			
Impose familiar structures	Phasing Enforcing and scaling	STABILIZING	
Decomposition of tasks into phases			
Intensified relations			
Scaling of activities			
Intense communication			

issue's complex and interdependent nature demanded a collaborative pathway. This is where the process crossed firm boundaries so as to form an IOS.

External triggering. The respondents repeatedly stressed the eMobility sector's complex and highly interdependent nature, which spans several

industrial domains to form an integrated solution. Complexity tends to exceed the sensemaking capacities of individual organizations (Weick, 1979), calling for more comprehensive, interorganizational approaches to collectively understand, analyse and decide on action. The director of the project office managing one region emphasized this challenge:

Table 8. Exemplary quotes

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
INITIATION	Window of opportunity	Industry expert	* Technology was [as] yet immature, but everybody was eager to be part of it somehow.	Sense of opportunity	INTERNAL TRIGGERING
	Projecting future	CSO and Head of Strategic Partnerships	There were visionaries at [our firm]. Uli Kranz, as an example, who very early on [...] concerned with what the world would look like over the next few years [...] He [CEO] made it possible for Ulrich Kranz to do something completely new with a small team, to electrify the Mini. That means to tear everything out of a Mini and to electrify it. Incumbents are often stuck in myopic visions due to intense path dependencies. External impetus might be needed to organize technological change. We are not that far with the technology yet anyway, but somehow you want to be part of it. But they all [speaking of industry representatives] would like to be there [workshops] themselves, participate in the discussion and see what kind of environment that is, what can be my role. And then we realized very quickly that we should do one or the other thing ourselves, but also need stable partners, which we never had (considered) before [name of initiative developing lightweight carbon composites]. [...] there are jobs behind it – in the Bavarian automotive and supplier industry. There is, I'd say, a lot of activity in there. I firmly believe it [eMobility] really needs an overarching business model. And we managed to get them all in the same room at some point, then they looked into each other's eyes and said we can really make a contribution that no one can do alone. I'm in.		
	Missing future business	Director responsible for the eMobility cluster B Head of project at a technology supplier Regional project office's director			
	Acknowledging interdependence	CEO at engineering company Head of Strategy at car manufacturer Head of Regulatory Strategy at car manufacturer			

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
	Fear of being left behind by technological change	Regional project office's director	<p>* ... all started with fear. With a major industry's fear that an indispensable technological change would be needed to deal with the future challenges of mobility's ecologization, which was inevitable. Thus, one can either fight against change, or face it. But we think it was the fear that there would be change and that there was no way, as yet, of meeting it, which then made people from diverging industries meet to ask themselves how to approach this issue.</p> <p>To my personal surprise, however, this [start of initiative] has developed incredibly positively. That spurred us all on a bit. Normally, we had a conversation at the beginning with a young gentleman, name and origin not named, who comes from the start-up software space. Since it is also a software topic. He first read us the Levites back then and said, so what do you actually think who you are? Six age-old German companies with six age-old German legal departments, until you have a contract the topic is already through. Somebody else did that. We actually put this whole thing on the street in just nine months.</p> <p>You can't do everything yourself. And you don't have the technological capacity or the manpower to do it. These are a lot of things you may understand, but you might not be able to implement them and that's why you look for partners.</p> <p>That is why it is always part of the very first activities, or let's say in the first third of this cooperation. Also, part of this contract run-up is always a meaningful division of labour based on existing resources and skills. Who can do what? There is always a very constructive or very fruitful competition between the engineers for the best idea.</p>		
	Not our core competency	Head of project at a technology supplier			
		Head of Strategy at an automobile firm's business unit			

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
	Experts understand the problem better	A car manufacturer's Head of Regulatory Strategy	... that [initiative] comes from the professional league. There are these working groups in the VDA which operate at level three (i.e. at the level of department heads). That's where contacts are made, and secondly, they see the problems best. So it all crashes into each other massively and actually everything has to be simultaneous and interactive at all times, at least for the complex topics and that's our daily business and the daily fight.	Complex meta-problem (problem-centred)	EXTERNAL TRIGGERING
	Problem is part of a more complex issue	CEO at engineering company Director regional development	Well, as an SME or especially a smaller company, if I have an idea and want to implement it, especially when it comes to electromobility, I need other players to do it [...] but I have never done that before, I need someone to support and that is the advantage that the company sees in a cluster or network organization.. So to do things that they cannot do alone.		
		Director of the project office	In other words, there are now many people who are affected by this fan strategy, and what we are getting into now is that, all in all, we are moving in the area of energy system transformation with our field.		
		Head of Regulatory Strategy at car manufacturer	I don't think you can handle it by yourself. After all, we don't have any know-how in battery technology in the narrower sense, starting with the cell and perhaps to a lesser extent the integration in the battery itself.		
	Need for organized change	Director of the project office	* ... We selected specific elements, where we said that 'we have the necessary clout here to make a change'. Nobody could manage the energy turnaround, or switch towards eMobility alone. We can only tackle this [change] case by case. Because the industry comes to us and tells us that more [initiatives] must happen.		
		Urban development, Director and Project lead			

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		CSO and Head of Strategic Partnerships	There are enough companies that have shown us that we have to do it ourselves, then it works. So, exactly negative examples, where you said: We rely on it and we were left alone.		
Beyond our scope	Senior project manager at an energy supplier strategy department	* Regarding these comprehensive challenges [of eMobility] – we as an individual firm were far from being able to solve them. Owing to the analysis concerning the [scope of the] charging infrastructure, sales and grids, grid fees, etc., that was all yet unclear. There were still many open questions. We can't solve it now as an individual company. Because the allocation of charging infrastructure, distribution or grids, for example, then consideration of network charges, etc., that is all still unclear. There are simply still a great many unanswered questions. Building intelligent and comprehensive charging infrastructure requires long-term and extensive strategic investments. Smaller municipal utilities may not be able to do this alone.		Insufficient momentum (organization-centred)	
No business case here	Head of Strategy at an automobile firm's business unit	The industry has not dared to do so because electric mobility and the sale and development of electric vehicles, including our experience with the fuel cell, has not turned into a business case in terms of volume without the number of units. But this is a supply-side – this is a supply-induced topic. We have to create supply first, before we create demand. The initiative is often left to the city.			
Too much risk involved	Head of Regulatory Strategy at car manufacturer Director regional development Project leader for corporate research at a technology supplier	We certainly spent half a year in the company discussing what the market looks like, how to position ourselves, what options do we have, what sideways paths must be kept open, what position should we take. There is no generic process for that. * You simply cannot do it on your own. You neither have the technological capacity, nor the manpower. You may understand many things, but you cannot put them into practice. This is why we searched for partners.			
Insufficient resources	Head of research on battery-powered vehicles at a major car producer				

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Director responsible for the eMobility cluster B	So the very simple positions, I believe, are no longer expressed on any side, and resolving this dilemma now requires a major joint effort.		
	Smallness/lack of legitimacy	Director responsible for the eMobility cluster B	* A really close collaboration and cooperation developed [through their triggering activity], and even partnerships, which substantially advanced the [eMobility] topic. Without this networking, everybody would have worked just for himself. But through the network, we create a continuous impetus. We see this as our task – to provide impetus.		
		CEO at engineering company	So we have a situation today that we as those who want to innovate, who want to break dominant patterns, we have an incredible fight against other organizations.		
		Director responsible for the eMobility cluster A	And the industry looked at synergies and networks, and these finally came together in a project consortium. [...] That was a relatively strongly industry-driven process.		
		CSO and Head of Strategic Partnerships	Then you actually have a really great thing [new initiatives], in fact, I think that in many cases it is used far too little, because the small one doesn't dare to be at eye level with the big one. So that's a barrier, that's a big hurdle.		
	Inertial forces inside (path-dependence)	Head of Strategy at an automobile firm's business unit	* You have an investment that you cannot simply quit and say: 'Now we close all of our production facilities for gearboxes and source it externally'. That means, we would have to 100 percent depreciate a huge cost block on our gearbox production. Then we have unions and employees. That means we have to take care of these people and cannot knock down production facilities overnight. This constrains your decision whether to cooperate and your make-or-buy decisions.		
		Head of Regulatory Strategy at car manufacturer	* ... the public agencies cannot protect these actors from the challenges forever. They [public agencies] can initiate, gather everybody around a table, and create framework conditions – however, the more specific the issues become, the less they can contribute.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Urban development, Director and Project lead	You always need a main driver. If no one takes care of it, it doesn't happen and no one initiates it out of the company, the people are in the operational business. They don't do it. Someone would have to be released and paid. And then you have to ask yourself the question, well, here comes electric mobility. What will happen when electromobility bypasses [our city]? That's not possible. And then you just started a kick-off. And the interest was so enormous that nobody expected it.		
		Director regional development			
	Developing joint platforms	Head of Strategy at automotive OEM	Because we are the only vehicle manufacturer, even then we are the only manufacturer, which is actually bad, we should have more. The group [initiative] would be all the stronger if there were two or three more in it who also plan products and combine them accordingly.	Filling gaps	MOBILIZING
		Director responsible for the eMobility cluster A	So if a topic is important, such as charging infrastructure or standardization, then we are the ones who cluster and bundle these topics and then organize workshops, for example, to bring companies together.		
		Head of Strategy at car manufacturer	So, there must be created platforms where this, so not only at the top but in between with several levels where you come together repeatedly. And say this is our current state of affairs, this is path A, this is path B, we propose this, we propose that and which path can we take together? Well, it has to be smooth, otherwise it can come to a complete blackout, just by letting two groups go at each other uncontrolled.		
	If one participates the other also wants to (pull)	Project leader for corporate research at a technology supplier	If just a few pioneers in the automotive industry know, yes, that's the way to do it in order to be successful then the whole industry is slowly being pulled along. That's where we are today.		
		Head of Regulatory Strategy at car manufacturer	Upcheck [subproject] was a key situation where we got together into a room at the airport in Stuttgart sometime quite in the early days. [Then happened] what we've seen in other areas, it's a snowball system: if one person comes, the other person comes, if the other person comes, the other person doesn't come.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
	Talking across boundaries	Divisional CEO of an automotive technology supplier	* I first suggested [in our firm] in 2004 that we needed to take care of our ecosystem and manage it deliberately and strategically. Thus, [managing] strategy not only in-house, but also within a group of firms focused on a similar market.		
		CSO and Head of Strategic Partnerships	That means we just have to improve this process and if there's anyone who can spin any rolls for a yarn so tightly [building electric motors], maybe he can spin the other one as well and that's how they really came together, that there were people talking to each other across the system, had great ideas. Even things that had remained in a drawer somewhere until then were pulled out, where people started talking to us via this platform. Utilities [...] it's a public servants' shop. They see the need and the opportunity, but they can't actually implement them.		
	Systematically scouting the market for partners	Head of Strategy at an automobile firm's business unit Head of research on battery-powered vehicles at a major car producer	* We developed our own training and qualification programmes, our own certificates for our employees, and our own standards. We have basically screened the whole market and then said: 'Okay, what do we need and how do we proceed'? ... If we did not find anybody, we would build our own electrically powered trains. I made the first suggestion [in our firm] in 2004 – I was in research by that time – that we urgently need to develop an ecosystem strategically. In other words, not just in-house strategy, but strategy within a network of companies operating in a similar market.		
	Filling gaps of competency	Supplier, Head of projects Director responsible for the eMobility cluster A	We do scientific scouting all the time. Worldwide we are looking for the best partners for our issues. * We contribute with ideas, where we, for instance, say, 'If the technological development in this region needs to advance, we need these elements.' And we point to the things we lack in order to recommend, for example, basic research projects to close these gaps ... In many cases we take on the role with small firms of searching or thinking about which partners fit the best here before realizing these projects.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Head of project at a technology supplier	There are simply aspects that are not part of our core competence and that is what it is all about. If possible, we try to draw the attention of partners to the topics that will be coming up for eMobility very soon.		
		CSO and Head of Strategic Partnerships	We have developed our own training programmes, defined our own courses of study, achieved our own certifications for employees. So we have basically rolled through the entire market and said: 'So, what do I need and what do I have to get elsewhere?'		
		CSO and Head of Strategic Partnerships	[...] then you look specifically for the partners who are really interested. That's what you have to find out. And then you work with them in smaller groups to develop the core of the proposal.		
	Boundary-spanners that connect across firms	Urban development, Director and Project lead	* There were people like me, who were able to establish an internal contact and introduce you to specialists [within their firms] ... everybody had their own interests and tried to push their projects ... the firms' representatives would go and search for the most competent employees for this topic [eMobility] inside their firms.	Enhancing visibility	
		Head of project at a technology supplier	I searched specifically and found someone and then said that I had someone who was interested and who had brought along [name] contact partner.		
		Director responsible for the eMobility cluster A	[...] in many cases we are also in the role to search or reflect, together with these small companies, which partners are the right ones to realize these projects.		
		CEO at engineering company	So most of the things that are new and good, they don't come through a strategy process, but there's a team somewhere, which ... or a character who can basically inspire people, who can get them excited, who has a vision and who regulates against resistance.		
	Signalling from the top	Head of Regulatory Strategy at car manufacturer	[...] and then, of course, a chairman of this whole construct was found, in with the required seniority and the calmness and the ability to not only balance out really conflicting interests, but also to get to the point.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Head of Strategy at car manufacturer	Well, that [team composition] was really really high ranked. And that shows actually also that this is meant seriously. But above all it has a sense of communication.		
		Head of Strategy at car manufacturer	When the CEOs, or at least a divisional board, takes a personal stand behind the topic, it works. If this personal commitment is not there, then there is actually no good business base and business development either.		
		Director, national project office eMobility initiatives	If you reach board-level commitment, then you have a process that runs much, much smoother because everyone has the feeling that 'I was not only listened to, but I actually made a contribution'.		
	Give the endeavour a face	Head of project at a technology supplier	* In an introverted firm [as ours] there are only few extroverts. I would not call myself an extrovert, but in our firm I am. That is, I am the outward channel on public events, in speeches, in YouTube videos, and social media. For us, this is an experiment: developing strategy, but combining it with a communication role.		
		Urban development, Director and project lead	We want to be known [in case] we are looking for someone with a specific expertise. Then they should know there's a cluster in Regensburg, so I can give them a call.		
	Multiplying publicity	Director, national project office eMobility initiatives	Plus, this should not be underestimated, the visibility of the topic to the outside world in terms of communication is perhaps even a bit higher than it would be if everyone in the privacy of their own did things for themselves.		
		CSO and Head of Strategic Partnerships	Let's do it together [create visibility], so that not everyone runs up to us and says, 'Go for it'. [...] And I said at that time that we needed a shining figure.		
		Senior strategy manager at utilities company	And we then made these vehicles visible with political support.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
NEGOTIATION	Top-level resolution necessary/paving way	Supplier, Head of projects	* The cooperation contract was blocked ... A larger firm had a small share of the project but claimed full rights of everything. Of course, the small firms did not want this, but only wanted to collaborate at the interfaces. Then [the disagreement] escalated and the top management became involved [in the disagreement's resolution] ... we were then able to settle [the issue].	Neutral clearing	STRATEGIC BRIDGING
		Director responsible for the eMobility cluster A	We know electronic architectures, we know patent applications, we know development centres, we pave the way for technology partners to get together. We pave the way from industrial partners to venture capitalists, donors and banks. We know business plans, but we always know them bilaterally.		
		CSO and Head of Strategic Partnerships	And when it really is about very important things, then you just go to the top levels, even up to the board, if it has to be [CEO].		
	Moderating and speeding decisions	Director responsible for the eMobility cluster A	* We certainly have a personal opinion, but we don't express it. We moderate a process so that we achieve an agreement between the partners ... It is, however, important that there is a moderator, who is neutral. By the way, it is highly interesting that current state institutions [like ours] take on this role to facilitate a difficult technological change process. We definitely do not conduct state economic policy here, but the industry demands a clearing point at a higher level.		
		Director, national project office eMobility initiatives	But this is exactly where we see our task as [company name] try to bring the players together along the entire value chain in order to increase understanding and also to neutralize to a certain extent – neutralize, in order to bring the entire scene into the main direction.		
	Building trust	Director, national project office eMobility initiatives	It is always important then to have this discussion outside the public sphere. Because then people will also talk about the real problems and findings. And only then can a consensus position be found.		
		Head of Strategy at an automobile firm's business unit	So in a sense you give an advance, then the other one has to follow up and then it builds up.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
	Spanning the bargaining leeway	Professor at technical research institute	However, it soon becomes apparent, especially in the confidential one-on-one meetings, that the interests behind the publicly expressed positions do overlap or can be reconciled. Even if the positions cannot be reconciled now, I will have them reconciled for interests. One then also tries to test options in such a series of conversations. That [terms of initiatives and goals] was all rather loosely framed. We develop results openly. In other words, we do not have a particular [goal], we do have some kind of result in mind, but we either want a recommendation or we want to sharpen the issue or we want to create a scope for action.	Consensus finding	
	Providing neutral space for strategic dialogue	Director responsible for the eMobility cluster B	* This is certainly formative for the advancement of the entire topic. We regard this as our mission, because [this agency] tries to assemble all actors along the whole value chain around a table in order to increase understanding. We describe co-aligning the whole scene towards the mainstream as neutralization.		
		Director of institute	When the discussion has been going on for a while, a results paper will be produced, summarizing the main points of view and areas of consensus. Depending on the topic or thesis, we then add an open event (i.e. a workshop or something like that). Online we have sharpened the topic, the controversies have become clear and now we pick out these controversies and work on them further in offline format.		
	Organizing/structuring change	Director responsible for the eMobility cluster B	In other words, you have to know relatively precisely who you are inviting, you have to give people the feeling that they can actually be open and do not have to hide behind the positions of their organization. One or the other partner may then either no longer be suitable to participate or simply no longer wants to participate under the general conditions. And then it has already been seen that new partners will be brought into the project consortium.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Director of institute	Because we have a different approach to structuring such a change together with those affected.		
		Head of Initiative at an automobile firm's business unit	And in the decision-making process it is important to find the right supporters and alliance partners. They then understand, right, we have to do that and then make sure that there is a positive discussion. So nitriify the opinion leaders, get them behind it.		
	Meeting on interests not positions/meta-goals	CSO and Head of Strategic Partnerships	[...] such a consortium of six big companies can somehow be capable of acting when they have such a meta goal. And then [the project] has really become possible. Ultimately, it's all about [...] that one creates a confidential atmosphere, that one considers interests and not just positions.		
		Head of Strategy at an automobile firm's business unit	When we enter into a cooperation for a project, the first phase is of course a synchronization of goals, including physical, weight, costs, investments.		
	Pooling resources and needs	Head of Strategy at an automobile firm's business unit	You can't do everything yourself. And you don't have the technological capacity or the manpower to do it. These are many things that you may understand, but you cannot put in to practice and that's why you look for partners.	You don't have Framing problems	MATCHING
		Professor at technical research institute	Sustainable mobility is a project that touches on various specialized areas, so clearly interdisciplinarity is required here.		
		CSO and Head of Strategic Partnerships	[...] we were tired that every Tom, Dick and Harry came to us and said that we have a charging point at the Nuremberg train station or I have a piece of a battery that I may contribute. We were tired of it and said: 'People come, let's do it together. Let's have a look, cross a line through Bavaria and say, what do we actually want to have? What would be useful for us?' And also in very simple terms, saying: 'We will test from here via Freising to Landshut, and back again. If you are in, then let's equip this project accordingly'.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
	Many eyeballs on one problem	Director of institute	That's why there is quite an elaborate preparation. Among other things, there are one-on-one meetings, definitely with all the people, each lasting one or one and a half hours, where a picture gradually crystallizes, in some cases systematic priorities are then determined, in other cases we prepare something like a final development. We then build the event concept for the workshop on this content. Sometimes a day, sometimes a day and a half. The goal is to do the pure exchange of information before the workshop and so that you can then directly enter the controversial or interesting pools in the workshop, get people directly involved in discussions and work.		
		A car manufacturer's Head of Regulatory Strategy	In the automotive industry, we always come up with insanely proprietary ... in other words, firm or automotive proprietary solutions. We always make legal constructions that are extremely bizarre. That are always protected. Always this factory fence [gesture of enclosed firm].		
	Finding consensus on non-competitive ground	Head of Strategy at an automobile firm's business unit Urban development, Director and Project lead	So in principle this always drives us to look at the market to see where there are people who have similar goals and interests. On the basis of this value chain, the companies can discuss well with each other and also set targets. The idea of competition is not in the spotlight here. It's different when you say that you're discussing projects in the powertrain sector or in the vehicle sector. Here the discussion is already more restrained.		
		Director institute	In such dialogues one invites individuals, not organizations. In other words, we structure it in such a way that people leave their organization at home for a while.		
	Building a sense of interdependence	CSO and Head of Strategic Partnerships	Every single component is in principle system relevant and we are dependent on it.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Director responsible for the eMobility cluster B	In other words, in a cluster is the core of all work, is to spend time to bring about congruence in the goal. [...] In the end, the congruence of goals is, if you like, again system-theoretical, is the network and the connection between the partners. That is at the end, is the creation of a common goal, is the core of the network.		
		Head of Strategy at an automobile firm's business unit	We haven't put all our eggs in one basket and are making a complete switch to electric vehicles, not because we think there is no future for them, but because we are aware of this complexity and if we had the cars now and needed the public utilities to put wall boxes [charging infrastructure] in them, we would be the ones sitting on hot coals. That is not always a one-to-one fit in terms of time, and it is not acceptable that, once the municipal utilities have released their budgets and the wall box is there, the vehicles should be there the next day.		
	Seeking strategic lockstep	Head of Strategy at an automobile firm's business unit	So the manager of the energy company never has a sales perspective, but always looks only at the communicative perspective and then comes to completely different conclusions and strategy priorities than the production manager or a component supplier.	Framing future	
		Head of Strategy at an automobile firm's business unit	We have a general agreement or a larger contract [with organization name] for so-called 'strategic dialogues'. A strategic dialogue is a format that we have developed, not a rigid format, things work a little differently for each topic, but in the end it is all about bringing actors from business, science and politics into a dialogue.		
		Head of project at a technology supplier	We're in lockstep there. All companies believe that the future of the energy industry lies in decentralized, ecological, self-sufficient energy.		
		Director responsible for the eMobility cluster B	With partners [in MPis] it is like with a box of magnets. When you shake it [box], they are all disoriented and when you put a magnet in the distance as a trigger for whatever is in a system, then unorthodox single magnets turn around. But at some point in these boxes are these individual		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		magnets that have noticed something that is happening and then more and more of them start to turn and when the first ten or fifteen percent turn, they all turn in one direction.			
	Co-alignment of interests	CSO and Head of Strategic Partnerships	You need participants and you need a partner who understands you or who supports what you are doing there.		
		Director responsible for the eMobility cluster A	And when you consider that normally the two of them [competitors] are relatively stringent in their marketing appearance and in order to maintain their CI, with distances, lighting, logos and branding, then the picture actually makes it quite clear that there are also areas where, of course, one's own interests are not completely thrown overboard, but where joint appearances are cultivated in the spirit of the common cause. And that's simply what OEMs do, in this case under the common guise of an electromobility showcase, which makes it easier to present a joint image at one point or another.		
		Director of institute	But the philosophy behind this is that one analyses and dissects complex questions on the one hand, and on the other hand does so in such a way that the decision resulting from it is already supported by the people involved in the process. This means that we involve the people in such a way that they are not only tapped as a source of information, like 'now tell me everything you know', but we also include interests and needs. This is also done in the same way: 'Tell us what your interests and needs are'. And from that we can knit things that are then much better suited for implementation afterwards. I think it's more the partner search, to find the right one who wants to go there. But not forcing someone who wants to go left to go right.		
		Head of Strategy at car manufacturer			
		Head of project at a technology supplier			

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
	Thinking outside industry box	CSO and Head of Strategic Partnerships	You [are] starting to discuss in a very sustained manner about standardization at one point or another. In other words, there is already a considerable need for change in many areas, especially when it comes to infrastructure. And also in the process. You are thinking about charging infrastructure. You are thinking about where I need the charger. What must the vehicle be capable of? What must the charging station be capable of, etc.?		
		Head of Strategy at car manufacturer	That's why they need good people to handle it. [Company name] understood this very early on, because now it's not about putting down the man who developed the Series X for five generations in a row or was responsible for it, but about putting down someone who breaks completely. Someone who is perhaps also intellectually different. Just to push through one or the other lateral thinker. If you give them a lot of freedom, then it works. The challenge in electromobility is to bring together the areas of hardware, software and business models into a well-rounded overall package in such a way that electromobility pays off in both technical and economic terms.		
	Developing joint business models	Head of project at a technology supplier			
		Head of Strategy at an automobile firm's business unit Senior strategy manager at utilities company	But we have to make sure that everyone can take part in the business case and that the business model is created in the first place, and then it will happen. So, to be honest, at the moment there is no money to be made with the charging infrastructure. For nobody in the industry, which of course makes it all the more complicated.		
	Developing future scenarios	Divisional CEO of an automotive technology supplier	* That is, because the firms that see it [the future], also want it and consequently shape it. One invents the outlined future in this way. And it doesn't just happen. If you have the imagination for innovation ... it is created by the actors in the market who want it to happen. Then it makes sense to identify partners by following these future projections – those who also want it to happen in order to conquer the world.		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Industry expert	<p>You have to distinguish between dialogue and the platform. We see it in such a way that the basic building block or basic approach is to conduct a dialogue with the relevant actors, which takes into account the needs of the actors and leads to the point that afterwards there is not only a decision but also a commitment.</p> <p>In the conversations, you realize that you see a similar future. And if the resonance exists, then you do something together. Whereas when we have conversations, as we have done with the large energy suppliers, we simply notice that, somehow they are planning for a future that is certainly there, but which we do not consider to be strategically relevant for our company.</p>		
		Head of project at a technology supplier			
EXECUTION	Need to reduce complexity to manageable units	Director responsible for the eMobility cluster B	<p>* When you manage to jointly develop a feeling, like a sense of 'we' – a team spirit in a way – if you manage that, our projects showed that you then do not talk [abstractly] about the electrified world, but about the electric drivetrain, or the battery. You can jointly work on these topics for ages.</p> <p>If we take that back to collaboration, it means that the collaboration has to bring together as many players as possible who somehow have the ability in common, or at least attack the issue, to make such a complex system work. And then, breaking it down into individual actions, who want to provide components in this system.</p> <p>But for change to occur at all, we have to pick out manageable, manageable elements, and we have, once again, and it actually goes a step deeper, we have picked out certain elements of electromobility where we have said that we have the power to change something.</p>	Decomposing subsystems	DECOUPLING RECOUPLING
		CSO and Head of Strategic Partnerships			
		Head of Initiative			
		Director responsible for the eMobility cluster B	<p>First of all [initiatives] have to bring together as many players as possible that somehow have the capability in common [...] to represent such a complex system by the players in the first place. And then, breaking down into individual actions to provide components in this system.</p>		

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Director responsible for the eMobility cluster A	This first step takes place in the group as a whole, as I said, and then subgroups are formed accordingly, which then work out a sticking point with a working group in order to work out a proposal, which then has to be agreed upon accordingly.		
		Head of Project at a technology supplier	In spite of this really very networked way of working, where everyone works with everyone else and in different constellations, projects and activities arise, so that the system has its subsystems, in which something is then done operationally with a manageable number of people.		
	Reintegration of activity	Municipal project leader	* Everything is interlinked. You have the automobile and the agile and fast-moving IT industry. You have to manage to bring those together. And then there is the most undynamic industry ever – the energy industry. That is a horror.		
		Divisional CEO of an automotive technology supplier	ICT creates the link between vehicles, charging stations, back-end services and mobile devices and thus plays an important role as an integrating element.		
	Impose familiar structures	Director responsible for the eMobility cluster B	* It was helpful for everybody that we did not depart from known, simple instruments [organizational structuring], because that would have been an additional level of complexity, which we preferred to eliminate.		
		Director responsible for the eMobility cluster B	* They have rebuilt the matrix, but if you really look at what is happening, it is actually an organic network, and yet we realize that it is necessary, for the people who work in the system and it is necessary for the external presentation, that it is not just presented as a purely wild and organic network, but that it still gives a familiar visual image.		
		Industry expert	The group has started to give itself an organizational form, has developed a strategy, a vision, a guiding principle, a strategy, a piece of structure using classical instruments.		
	Decomposition of tasks into phases	Head of project at a technology supplier	Spreadsheets will be written, which are to be filled out by the partners and sent to the project coordinator [company name] at regular intervals. Within the work package, we have also agreed on a		Phasing

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
	Intensified relations	Municipal level's project leader	monthly telephone conference with all partners in the work package, where each task leader reports his progress and points out issues, as well as the timeline for the work packages and tasks. But the tasks are again subgroups of the work packages. * At the beginning, you don't understand each other at all. But you get very close to each other through these projects and we have actually always experienced that one complements the other ... That stimulated the whole thing [process of collaboration]. That made it fast. Very fast. That's [traditional suppliers] a role where I say, we do ... they license our product, they buy our platforms. That's a supplier-customer relationship. With the other one [MPs], we would maintain a partnership relationship. Which actually also means a joint strategy, participation in the strategy process, and sometimes even participation in product development in our company. In the meantime, we also do a lot of idea management and are now on the threshold of separating people from the Group in teams and then working out start-ups in smaller sub-teams. ... And the most exciting things always happen where such hybrid knowledge is combined. And if there is enough interest, then after a certain period of time it usually establishes itself. Then the players are also prepared to pay contributions. I must say that the understanding that has grown ... in the meantime a solid core has established itself, who knows each other well and who even goes out for a beer after a meeting. So the partnerships, there are some that break up, but then there are others that are more long-term. And I actually see it as long-term, because we are creating something here that builds on each other. We have to use the topics that are most likely to find the fastest distribution. That's the only way to get into the industrialization mode. Not to protect our own standards as long as possible.	Enforcing and Scaling	STABILIZING
		CSO and Head of Strategic Partnerships			
		CEO at engineering company			
		Head of project at a technology supplier			
		Head of Initiative			
		Urban development, Director and Project lead			
	Scaling of activities	Head of Strategy at an automobile firm's business unit			

Table 8. (Continued)

Phase	Semantic and latent themes	Position	Exemplary quotes	First-order theme	Second-order theme
		Director responsible for the eMobility cluster A	These are self-contained project units that first have to and want to fulfil their mission. Nevertheless, we will of course look where it makes sense to continue [...].		
		CSO and Head of Strategic Partnerships	It means that we now have this project in Munich and we will see whether it works with these 15 AUDIs to build up the infrastructure in Schwabing and then we want to expand it with a larger master plan.		
	Intense communication	Divisional CEO of an automotive technology supplier	* [...] we live in continuous surprise ... We have to readjust frequently. The parameters sometimes change. Here a partner comes in, there something else. That means we look at the parameters again as new things come up. We think these partnerships require more interventions just because we are also dependent on others' decisions.		
		Municipal project leader	A project steering group across the board [was founded]. It meets every three or four months. With the aim of an intensified exchange of information. [...] And it's important to see what's going on in the group, are you perhaps doing the same thing? Or are there partners from another group missing somewhere that you don't know now? That's why we created this.		
		Director responsible for the eMobility cluster A	Above all, the development of a public infrastructure that is visible and perceptible to the citizen has a catalytic effect here [at this stage].		

*Quotations used in our manuscript.

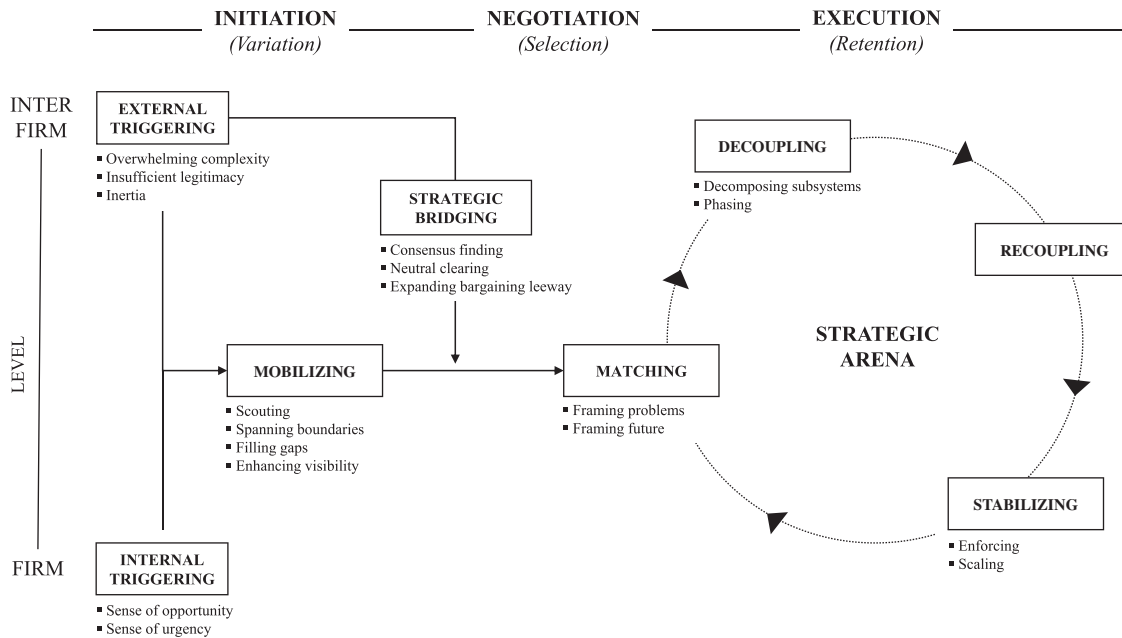


Figure 1. IOS process model

... We selected specific elements, where we have the necessary clout here to make a change. Nobody could manage the energy turnaround, or switch towards eMobility alone. We can only tackle this [change] case by case.

Similarly, insight from archival data underscored that many activities were triggered externally by expert rounds, national programmes, federal trade agencies, municipal development offices and established federal project offices for eMobility. These institutions organized informal meetings to allow for ‘more eyes on the problem’ through joint sensemaking and network formation allowing collaborative space. A municipal development office’s director responsible for the eMobility cluster stated:

A really close collaboration and cooperation developed [through their triggering activity], and even partnerships, which substantially advanced the [eMobility] topic. Without this networking, everybody would have worked just for himself. But through the network, we create a continuous impetus. We see this as our task – to provide impetus.

Two distinct sources that hampered the internal initiative appeared to determine the external triggering. Firstly, several firms faced the challenge of gaining sufficient commitment from criti-

cal actors within the field. In particular, small players lacked the necessary legitimacy (Stinchcombe, 1965) to take a lead position in eMobility initiatives. Although many of them understood the need and saw the opportunity to react to the forthcoming changes in eMobility, they were unable to respond. Significant resource investments were required with unpredictable outcomes.

Secondly, structural inertia challenged the incumbents (Hannan and Freeman, 1984). Initially, large players were reluctant to become involved, as they saw no need to be first-movers in an immature and unprofitable supply-side market. Some argued that they were unwilling to prepare the market for competitors, others referred to still respectable margins of their current technologies. An automobile firm’s business unit strategy head noted:

You have an investment that you cannot simply quit and say: ‘Now we close all of our production facilities for gearboxes and source it externally’. That means, we would have to 100% depreciate a huge cost block on our gearbox production. Then we have unions and employees. That means we have to take care of these people and cannot knock down production facilities overnight. This constrains your decision whether to cooperate and your make-or-buy decisions.

Throughout this phase, governmental funding, though relatively small in volume, helped trigger initiatives and mobilize and embed financially less well-off actors. In later phases, this funding was critical for the progress of the entire eMobility sector. In several metropolitan areas we studied (i.e. Rhein-Rhur, Vienna or Zurich), early phases were often substantially supported by municipalities. In Berlin, for example, some of the earliest eMobility initiatives like ‘BeMobility 1.0 and 2.0’ were triggered and tightly guided by public institutions – while private institutions took the lead with initiatives like ‘Multicity’ to test products and business models at a later stage.

Some industrial actors called on governmental institutions to broker the shared interest and structure the line of action. Governments feared the job losses eMobility could cause when replacing parts of the current fossil-fuel-powered automobile industry. In response, public agencies were established such as e-mobil BW, a regional project office, to initiate, partly fund and coordinate 40 projects involving over 100 interdisciplinary actors in Baden-Württemberg. These agencies were important in raising awareness among potential contributors and to facilitate the projects in a homogeneous single-industry-based market dominated by car manufacturers. However, as the collaborative relationships gained stability, the public agencies’ role increasingly faded. A car manufacturer’s head of regulatory strategy mentioned:

... the public agencies cannot protect these actors from the challenges forever. They [public agencies] can initiate, gather everybody around a table and create framework conditions – however, the more specific the issues become, the less they can contribute.

Mobilizing. Initially, identifying and attracting external resources critical for the development of integrative solutions was challenging. Resources were dispersed across diverse firms and institutions. Their location was often unknown and their value difficult to understand. Excessive search efforts resulted. Further activation efforts were high, in contrast to internal resources that the hierarchical authorities commanded and allocated, also because outcomes were uncertain and relationships rather weak.

Several respondents stressed the importance of surpassing a threshold that would trigger a *pull* or *snowballing effect* and reduce mobilization efforts. First-movers seemed to create a considerable pres-

sure for other industry players to follow. This effect was most salient when highly legitimate actors entered the field, as they signalled credibility and continuity of the imminent endeavour – and provoked the urgency of countering these allegedly competitive moves.

Mobilization efforts originated from the firm and interfirm levels. Larger firms employed partner *scouting* strategies: a major car producer assembled an internal team, staffed with technical, sales, procurement and quality expertise, to systematically identify, assess and select the most qualified partners. Based on this team’s recommendations, the management concluded that some input critical for building electric vehicles was not available or of insufficient quality – and decided to produce these in-house. The head of an automobile firm’s corporate research on electrically powered systems explained:

We developed our own training and qualification programmes, our own certificates for our employees, and our own standards. We have basically screened the whole market and then said: ‘Okay, what do we need and how do we proceed?’

Once the resources had been identified, firms frequently drew on specific mechanisms to establish links and recruit partners. One was to tap into available networks. The Agency for eMobility in Berlin, for example, was harnessed by partners within the ‘Combined Charging Systems (CSS)’ initiative to locate and attract complementary competencies. Moreover, single individuals played a main role in *spanning boundaries* by linking firms to more distant resources (Rosenkopf and Nerkar, 2001). Most of these individuals had extensive networking experience across different fields. By serving on various boards of organizations, associations, industry platforms, strategic circles and public committees, they had influential contacts with other representatives in similar functions. An employee involved in boundary-spanning activities reported:

There were people like me, who were able to establish an internal contact and introduce you to specialists [within their firms] ... everybody had their own interests and tried to push their projects ... the firms’ representatives would go and search for the most competent employees for this topic [eMobility] inside their firms.

On the interfirm level, various organizations, such as publicly organized project offices, cluster organizations and municipal initiatives, drew on their networks and local knowledge to identify and *fill the resource gaps* and embed critical actors in collaborative initiatives. They expanded the network and resource pool by exchanging information at fairs, conferences and workshops, and developed shared platforms. One project office reported on its systematic approach to mapping its members' resources and capabilities in a network competency matrix. This matrix created transparency for its network members and external actors seeking specific competencies. It also served as a reference point for the further development of then available competencies. A regional cluster's head explained:

We contribute with ideas, where we, for instance, say, 'If the technological development in this region needs to advance, we need these elements'. And we point to the things we lack in order to recommend, for example, basic research projects to close these gaps ... In many cases we take on the role with small firms of searching or thinking about which partners fit the best here before realizing these projects.

The interviews revealed strategic activity to *enhance visibility* and maximize the reach of the resource mobilization. Empirical data on interfirm behaviour indicated that the early exposure of ideas to attract sufficient resources is crucial for resource mobilization and the initiative's subsequent survival. Respondents emphasized the need to create transparency in their activities, to visibly experiment with their projects and to frequently communicate what they do to maximize the initiative's attractiveness for partners and customers alike. A technological firm's divisional CEO went as far as communicating its strategy to find suitable partners:

In an introverted firm [as ours] there are only few extroverts. I would not call myself an extrovert, but in our firm I am. That is, I am the outward channel on public events, in speeches, in YouTube videos, and social media. For us, this is an experiment.

Our fieldwork points towards the salient role that single individuals play in establishing external links and mobilizing partners. Some respondents described these distinct individuals as *shining figures* who moved and shook the whole field, thought in meta rather than single-firm categories,

and gave 'face and voice' to this yet immature field through frequent media exposure. They are well connected to other firms' representatives in comparable functions and take a main role in spanning boundaries by linking their firms to more distant resources (Rosenkopf and Nerkar, 2001). Drawing on an encompassing network adds considerable visibility to MPIs. The degree to which actors succeeded in identifying and mobilizing a broad resource pool seemed to have implications for the subsequent negotiation's success.

Negotiation.

Strategic bridging. Much effort was exerted to harmonize the diverse goals and strategic directions for joint action. A key challenge within the MPIs was to integrate organizations with distinct interests, cultures, industrial backgrounds and structural properties. Strategic bridging was essential to build horizontal linkages between organizations and to overcome strategically disparate directions (Brown, 1991; Westley and Vredenburg, 1991).

The role of third parties became salient throughout this phase. First, they formulated and promoted *overarching goals*, such as '220,000 electric vehicles by the year 2020', or much broader, took the lead in sustainable mobility, which allowed the accommodation of a diverse pool of interests and motivations. These high-level goals helped arbitrate the varying positions, which allowed MPIs to focus on the commonalities in a multiplicity of strategic directions, and to build linkages for mutual enforcement. A public eMobility agency's director explained its importance:

This is certainly formative for the advancement of the entire topic. We regard this as our mission, because [this agency] tries to assemble all actors along the whole value chain around a table in order to increase understanding. We describe co-aligning the whole scene towards the mainstream as neutralization.

Second, as *neutral clearing points*, bridging organizations were instrumental in paving the way for intense collaboration in the subsequent execution phase. All respondents in organizations who mentioned bridging activities (i.e. third parties) unanimously stressed the importance of being perceived as objective and trustworthy. Their activity was limited to moderating the collaborative processes and mediating between the involved parties

without interfering in the content of the strategizing process. The director of an organization concerned with bridging activities explained:

We certainly have a personal opinion, but we don't express it. We moderate a process so that we achieve an agreement between the partners ... It is, however, important that there is a moderator, who is neutral. By the way, it is highly interesting that current state institutions [like ours] take on this role to facilitate a difficult technological change process. We definitely do not conduct state economic policy here, but the industry demands a clearing point at a higher level.

Third, some bridging organizations arranged specific forums and platforms to allow for *strategic dialogues* and spur information exchange. To ensure that strategic issues rather than technical details were discussed, the bridging organization brought top decision-makers from interdisciplinary domains together. The preparation, including one-to-one conversations, was intense and the process highly structured (specialized workshops, continued online and offline dialogue) to ensure that the time-constrained executives created a trustworthy environment and achieved general consensus about the strategic direction. A detachment of individual positions in favour of broader interests and frequent physical meetings helped 'to leave their organizations at home for a while' and to facilitate the approximation of diverse strategic positions.

Matching. The following matching process was related to, and yet distinct from, the strategic bridging activity. While bridging was associated with an initial moderated confrontation between diverging strategic positions aimed at locating common ground, the matching involved the operationalization of a strategic direction towards executable activity. It helped overcome strategic gaps and reach *strategic lockstep*, a state with high congruence of goals and an overlapping view of the future that subsequently encouraged intensive commitment. The partnering organizations predominantly (but not exclusively) managed the matching process directly. We found the matching process to consist of two stages.

The first stage focused on *framing the problem*. MPI members exchanged operational and technical information on the issues at stake. They intended to reach consensus on what the actual problem was, which – given the targeted issues' com-

plexity – was not always obvious. Therefore, the initial debates concentrated on framing and building a common understanding of the problem. Information was gathered, synthesized and interpreted to create a shared understanding and develop a sense of direction. The matching activity did not necessarily lead to a precise definition of the actual problem, nor was a particular following action triggered. Rather, this activity developed a common denominator that the majority accepted as a preliminary step of collaborative approximation and commitment building that eventually initiated action. The lack of experience and the participation of interdisciplinary players in this newly emerging sector made framing a particularly important activity.

The second stage involved the *framing of the future* and was almost inseparable from the first. Our case data suggest that all MPIs involved some kind of future planning and projecting the exchange value into the future (making case calculations, developing scenarios, outlining detailed roadmaps). The process was particularly challenging, where partners with diverse backgrounds and priorities were present. A technology provider's divisional CEO stated:

That is, because the firms that see it [the future], also want it and consequently shape it. One invents the outlined future in this way. And it doesn't just happen. If you have the imagination for innovation ... it is created by the actors in the market who want it to happen. Then it makes sense to identify partners by following these future projections – those who also want it to happen in order to conquer the world.

Throughout the matching phase, the actors continuously struggled to promote and champion their positions and attract other partners' commitment for their issues. Matching activity seemed to enhance the involved partners' mutual (strategic and operational) understanding and led to a greater appreciation of the value that joint activity produced. In effect, this increased the willingness to initially commit and gradually pushed the partners towards an intensive collaboration. Some players went ahead and others followed. Over time, a collaborative spirit emerged and enabled discussions on operationalized tasks:

When you manage to jointly develop a feeling, like a sense of 'we' – a team spirit in a way – if you manage that, our projects showed that you then do not talk

[abstractly] about the electrified world, but about the electric drivetrain, or the battery.

Matching, however, did not occur in a structural void, decoupled from the involved firms' intraorganizational strategies. Rather, the firm representatives struggled to reconcile their firm's strategy with the emerging IOS. Discrepancies were often resolved through top-management intervention. In one case, the top executives arranged a workshop with the presence of executive board members to co-align and approve the results from prior matching activities. The project leader emphasized:

The cooperation contract was blocked ... A larger firm had a small share of the project but claimed full rights of everything. Of course, the small firms did not want this, but only wanted to collaborate at the interfaces. Then [the disagreement] escalated and the top management became involved [in the disagreement's resolution] ... we were then able to settle [the issue].

Execution. The initiation and negotiation phases triggered, mobilized and matched actors to harmonize varying strategic directions and build commitment. In the execution phase, human and financial resources are allocated to implement the defined objectives. The IOS spreads to the partnering firms' operative levels to develop working solutions in decoupled subsystems. We found IOS execution to progress cyclically in three stages.

Decoupling. The encompassing tasks and collaboration were decoupled in *subsystems*, such as workgroups, projects, innovation circles, segments or modules. The most willing, most competent, or simply most powerful organizations led these subsystems. The decoupling process followed a distinct pattern. First, initiatives to target a complex issue were outlined. Second, these complex issues were broken down into manageable chunks with work packages and specific objectives. Unlike in the prior phases, a minimum hierarchical structuring was required to allocate responsibility and manage the diverse input. Tasks, however, were allocated based on interest, fit and competency, not on traditional logics of authoritative distribution. The head of the largest eMobility initiative in Hamburg commented that it is this 'deconstruction of activities that grants a large degree for manoeuvring in a defined space to these entire diverse ecosystem partners'.

While the process pattern was similar across MPIs, the organizational setups varied. Some MPIs maintained an unstructured approach with ad-hoc meetings, an informal exchange of ideas, diluted hierarchies and a constantly changing leadership. Other MPIs were highly formalized and hierarchically structured. One project leader highlighted:

It was helpful for everybody that we did not depart from known, simple instruments [organizational structuring], because, that would have been an additional level of complexity, which we preferred to eliminate ... We again built matrix structures ... but it was important for the people who worked in this system and for external representation to not [organize] in a wild, organic way, but to give it a familiar image.

The automobile incumbents provided evidence that the decoupling process also occurred on the firm level. In one case, the top management decided early on to decouple the eMobility unit from the rest of the corporation to allow far-reaching 'space for experimentation'. Collaboration within differentiated and more focused subsystems not only created more manageable processing units, but also seemed to facilitate the process of strategic deviation from the boundaries of the intraorganizational strategies.

Decoupling appeared to be temporary, with initiative activity organized in phases and processed stepwise until reintegration occurred at a later stage. Several MPIs were organized into four steps from 2010 until 2020: individual projects (I), integrated systems within limited project regions (II), integration of project regions (III) and state-wide integration of all projects (IV).

Recoupling. At the end of the execution phase, autonomous initiatives need to be recoupled. To adjust and synchronize the activity across the subsystems and prevent them drifting from previously negotiated strategic directions, extensive collaboration effort was necessary. Differing ways of conducting business (i.e. processes, cultures, standards) and various paces of different industries posed challenges. A municipal level's project leader said:

Everything is interlinked. You have the automobile and the agile and fast-moving IT industry. You have to manage to bring those together. And then there

is the most undynamic industry ever – the energy industry. That is a horror.

IT-based platforms were helpful to reduce the temporal and spatial hurdles that often challenged interdisciplinary collaboration, to facilitate real-time exchange and to track and subsequently aggregate developments across the dispersed activities.

Stabilizing. Several initiative members pointed towards the fragility of IOS during the execution phase. After resources were invested in IOS implementation, risks of opportunism, unintended knowledge leakage and misappropriation by partners seemed to peak. The ongoing competition for strategic directions and other partners' entry or exit triggered renegotiations, which in turn required stabilization measures to support IOS continuity. A large technology supplier's divisional CEO highlighted:

... we live in continuous surprise ... We have to read-just frequently. The parameters sometimes change. Here a partner comes in, there something else. That means we look at the parameters again as new things come up. We think these partnerships require more interventions just because we are also dependent on others' decisions.

Two dynamics appeared to be of particular importance for IOS stability. Firstly, during the *scaling* of initiatives, as MPIs matured, the value of the joint approaches became increasingly visible. Less successful initiatives were terminated, others managed to attract even more resources, as their prospects grew and the risks diminished.¹ This process had strong similarities to what Burgelman (1983) defined as 'forcing' or 'building' on intrafirm strategy level. In some cases, as in the MPI aiming to create a nationwide charging infrastructure, the scope was expanded to reduce the time to the 'industrialization mode', or they were merged with other initiatives in adjacent fields to accelerate their growth. One initiative, focused on building and testing fast-charging infrastructure,

¹To explore the facets behind initiative failures, we identified and contacted those responsible for early-terminated MPIs. Most were not available or unwilling to disclose information. The information we received – also in our member check – indicates that the described concerns, loss of proprietary knowledge, lack of trust, diverging strategic positions and insufficient communication (transparency), caused their termination.

was started in Munich, then gradually increased in scope to expand to Berlin, and lastly connected with the eMobility initiatives in Slovakia and Austria. Many new partners joined along the scaling.

Secondly, IOS is likely to be reinforced by *intensified relationships*. All MPIs initially started off as a mobilized crowd of unrelated organizations, before developing into groups with overlapping perceptions and, finally, converged through recurrent interaction. Throughout this process, relationships developed by means of formal (e.g. regular meetings) and informal (e.g. 'going for a beer') interactions. Over time, this intensified exchange facilitated mutual learning, conflict management and the creation of norms to cope with diverse interests and, most importantly, to develop trust. With intensified interaction, some firms expanded and deepened their relationships to create more formal MPAs. An automobile manufacturer identified 'strategic partners' through these initiatives and upgraded some partners to top-tier suppliers. A car manufacturer's head of corporate research on eMobility described:

At the beginning, you don't understand each other at all. But you get very close to each other through these projects and we have actually always experienced that one complements the other ... That stimulated the whole thing [process of collaboration]. That made it fast. Very fast.

Traditional forms of organization have clear boundaries defined through asset ownership and employment contracts (Simon, 1953), specific goals (Stinchcombe, 1965) and routinized processes that stabilize the patterns of interaction (Nelson and Winter, 1982). Few of these properties were present when multiple organizations gathered to pursue MPIs.

This institutional void created unstructuredness during the initial collaboration phase (Phillips, Lawrence and Hardy, 2000), which demanded intense negotiation. To allow for such negotiation and accommodate strategic interaction, temporal arenas emerged on various levels. These arenas provided structure for a hitherto unstructured activity, and contexts that were found crucial for IOS to unfold. For instance, politics, industry and science established national and regional platforms to set the framework conditions (legal, regulatory, standards, government involvement) and 'structure the systemic transition'. Municipalities were seen as micro-cosmic arenas for experimentation,

the application of new technologies and as an important user interface. On an operative level, the actors installed online and offline arenas to mediate the interests (dialogue platforms, circles), build networks and execute projects.

Discussion

Theoretical implications

By shifting the focus from intraorganizational to interorganizational processes and from one focal firm's to a joint MPI's strategy formation, we extend prior strategy process (Burgelman *et al.*, 2018) and open strategy research (Whittington, Caillet and Yakis-Douglas, 2011). With the developed conceptual IOS process model, we make a process theory contribution (Cloutier and Langley, 2020). We refine existing models (e.g. Ring and Van de Ven, 1992) by highlighting the three evolutionary phases in MPIs – initiation (variation), negotiation (selection) and execution (retention) – and revealing the finer-grained activities, processes and dynamics. These range from triggering and pulling together the necessary actors and resources (initiation), finding a minimum consensus (negotiation), to executing and stabilizing the process in iterations of decoupling and recoupling of manageable chunks (execution). Specific subprocesses, particularly in the negotiation phase, extend across stages, tying strategic activity together throughout the whole IOS process. Mobilizing efforts, for example, extended into the execution phase to fill initially unforeseen capability or resource gaps. Or matching activities reached back to the initiation phase (e.g. in industry gatherings), engaging in the framing of problems and potential futures long before MPIs formed.

Our results indicate that the internal selection processes of autonomous and induced behaviour – considered the key drivers of initiative selection in evolutionary, intraorganizational models (e.g. Burgelman, 1983) – face restrictions when complex value propositions as in the eMobility industry are required. Internal selection processes matter for sensing threats and opportunities but need to be complemented by external triggers to overcome scarcity or inertia. We corroborate the important roles of external actors (e.g. Doz, Olk and Ring, 2000; Whittington, Caillet and Yakis-Douglas, 2011) and linking processes (Burgelman, 1983) spanning multiple or-

ganizations. Mobilizing a critical mass of members and attracting a broad resource base in MPIs require visibility and boundary-spanning activity. Intrafirm studies describe the initial resource allocation as barely noticeable (Bower and Gilbert, 2005), or consciously concealing championing behaviour (Burgelman, 1983). In IOS without top-down command, resources residing outside the organizational boundaries require search and activation costs (Williamson, 1981) and iterative cycles of prospective resourcing to create resource complementarity (Deken *et al.*, 2018).

Recent accounts of interfirm relationships indicate that intermediaries' compensatory role may be crucial (Lazzarini, 2015) to enhance trust (Mesquita, 2007), facilitate exchange (McEvily and Zaheer, 1999), resolve internal conflict and stabilize relationships (Heidl, Steensma and Phelps, 2014). In IOS processes, we find intermediaries' salient role in strategic bridging. The matching process is a major selection mechanism in IOS building. Formulating targeted futures, co-aligning objectives and developing joint business models facilitate the identification and selection of compatible partners – with selective dynamics when partners compete to influence the MPI's direction. All MPIs involved scenario planning and projecting the exchange value into the future, mirroring Zajac and Olsen (1993) and intrafirm findings on strategy as temporal work (Kaplan and Orlikowski, 2013). Importantly, these IOS framing processes occurred across firms in joint activities. In iterative framing, workshop-incompatible actors or positions were deselected (Westley and Vredenburg, 1997), thereby increasing the others' commitment.

Decomposing tasks into manageable units through differentiation and integration (Lawrence and Lorsch, 1967) or modularization (Baldwin and Clark, 2003) helps coping with complexity within organizations. Effective strategies tend to arise from strategic subsystems, each of which targets particular strategic issues (Quinn, 1978). Collaboration in subsystems facilitates the process of strategic deviation inside firms (Christensen and Bower, 1996; Leonard-Barton, 1992), thereby allowing multiple and even inconsistent strategies to be executed in one firm. Given the absence of structural and strategic contexts within a setup of multiple autonomous organizations, decomposing tasks adds complexity but can stimulate progress in the subsystems and prevent paralysis across an

entire system (Barnett and Burgelman, 1996). Not imposing IOS but instead allowing it to emerge from the interplay between the subsystems produces the best solutions locally and a robust IOS globally.

This requires, however, enormous efforts in subsequent recoupling. The e-GAP initiative, for example, builds on five autonomous operating subsystems (infrastructure, utilities, fleets, mobility and micromobility). Meta-goals provided basic guidance on the execution, with joint experimentation and intense communication across the workgroups preventing too much drift. IT platforms with sophisticated software supported this process.

Corroborating alliance research (e.g. Dyer and Singh, 1998), we find inherently fragile IOS needs to be reinforced by stabilization activities, particularly through intensified relationships and communication. Challenges correlate with the number of partners (e.g. García-Canal, Valdés-Llaneza and Ariño, 2003). We outlined how enhancing and scaling activities – retention mechanisms – are relevant for stabilizing IOS, similar to intrafirm studies focused on activities of strategic building and forcing initiatives (Burgelman, 1983), sheltering and developing structures (Bower, 1970), empowering and enabling personnel (Hart, 1992) and nourishing social capital (Lovas and Ghoshal, 2000).

We underline the importance of strategic arenas for IOS. MPIs frequently operated within an institutional void with high degrees of unstructuredness (Phillips, Lawrence and Hardy, 2000). Unclear organizational boundaries, a lack of asset ownership and employment contracts (Simon, 1953), as well as unspecific goals (Stinchcombe, 1965) and insufficiently routinized processes led to unstable interaction conditions (Nelson and Winter, 1982). To allow for negotiations and accommodate interaction, temporal arenas emerged on various levels (national, regional, operational), providing sufficient structure and context.

We further contribute to bridging the rift between the strategy process and strategy-as-practice streams (Burgelman *et al.*, 2018) by taking a granular perspective on what practitioners actually do and by aggregating these activities into broader categories, processes and phases. We also contribute to the micro-foundations stream by showing how the interactions of individuals from different organizations lead to IOS (Felin, Foss and Ployhart, 2015).

Lastly, our findings complement our knowledge on collaborative business models and ecosystems (Adner, 2017). In ecosystems, outcome uncertainty is high, as meaningful visions, joint value propositions and consumer-facing products are largely absent ex-ante. Our model and insights show how the IOS process helps collectively construct a joint strategy to navigate through an ‘unbounded range of potential value propositions’ (Dattée, Alexy and Autio, 2018: 466).

Practical implications

Our study provides three insights for managers. Firstly, understanding how an IOS is shaped allows intervention to influence its trajectory. The feedback loops we exhibited advise managers to prepare for recurrent negotiation. Secondly, managers are nudged to appreciate that strategic impetus may come from outside and IOS is less deliberate than previously portrayed. We provide advice on when external impetus may be necessary and suggest acknowledging the role of intermediaries. Thirdly, we show that IOS is not a masterstroke but a recurrent and dispersed activity in need of overarching goals, strategic bridging and matching activity, as well as constant stabilization. This reassures managers that they can find coherent strategic directions for a diverse set of organizations in recurrent interactions.

Limitations and future research

Our study has some limitations that offer opportunities for future research. Firstly, we focused on complex MPIs in a German eMobility-ecology with idiosyncrasies that limit our findings’ generalizability. Testing our model in other contexts would be useful. Scholars may explore the implications of MPIs’ different size (number of partners) and scope (breadth of topics/industries) and resulting complexity on the IOS dynamics (Majchrzak, Jarvenpaa and Bagherzadeh, 2015).

Secondly, we used a convenience sample for our initial 25 eMobility case studies to gain a first overview of the ecology. To account for potential bias in our interpretation, we exposed our initial insights to fellow researchers.

Thirdly, more research is needed to substantiate the intricate interplay between the outlined phases and processes, their reoccurrence and their integrative role throughout different stages. Furthermore,

phase models occasionally deviate from outlined paths or fall short of capturing all strategic activities evolving in parallel, instead of in sequence. Future research could illuminate under what conditions activity unfolds in parallel – as opposed to in phases.

Fourthly, studying activities that translate IOS back into single organizations is worthwhile. How does IOS internalization and reconciliation occur inside firms and how do intraorganizational strategy and IOS interact and possibly complement each other? Have some organizations a higher predisposition for participation in and internalization of IOS? In the realm of ecosystems, the connections between formal and informal activities in interorganizational collaboration and IOS could be explored. How does the IOS enable, hinder or prevent subsequent activities among partners in ecosystems? How can potential tensions between a firm identity and an ecosystem identity be balanced (Lindgren, Eriksson and Lyytinen, 2015)? What are the implications of unrealized and ephemeral strategies (Mirabeau, Maguire and Hardy, 2018) in IOS for subsequent IOS and joint activities?

Fifthly, future research could further develop the micro-practices stream and its link to strategy process and practice research: What makes for an effective manager in IOS processes? What capabilities does such a person need? How are strategic arenas established and organized for IOS to emerge and evolve? How do we know what type and extent of control to enact over different players in IOS phases?

Lastly, to take account of the complete IOS process as observed in the data, we traded granularity for comprehensiveness. Future studies may delve into single phases or specific mechanisms to add depth to our model.

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