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Transfer to Replication as a Social Practice**

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Replication of Routines and Capabilities: From Knowledge Transfer to Replication as a Social Practice

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Abstract: Replication of routines and capabilities has been largely neglected in recent research. In this paper we present the current state of research on replication and suggest conceptualizing replication as a social practice. Replication as a social practice goes beyond knowledge transfer between a replicator and a replicatee and involves how routines and capabilities as well as the process of replication itself are constructed and shaped by multiple actors in the organization. Moreover, this perspective acknowledges the role of artefacts in the process of replication. Based on recent literature on routines and organizational rules we differentiate replication into three interrelated sub-practices: rule (re-) creation, rule translation and rule performance. The theoretical framework suggested in this paper has several significant theoretical implications for research on replication. In addition, we point out important research design implications for future empirical research.

Keywords: Replication, routines, capabilities, practice, artefacts

Introduction

The capability based view of the firm argues that long term competitive advantage rests on a firm's ability to leverage and exploit the existing position of capabilities (Amit and Schoemaker 1993, Makadok 2001) while simultaneously adapting to changing market trends and industry dynamics (March 1991). Fully exploiting the potential of routines and capabilities requires the possibility to replicate them in different contexts, for example across different business units or markets. Thus replication is a deliberate strategic activity of organizations to create value (Helfat and Peteraf 2003, Winter and Szulanski 2001). The franchise literature provides us with several prominent examples where replication seems to work on a large scale, if we take franchise organizations like McDonalds or Subway as examples. However, while research also indicates that this is not a straight-forward task (Cox and Mason 2007, Kaufmann and Eroglu 1999), not least due to the ambiguity involved in identifying routines and capabilities (Dierickx and Cool 1989, King and Zeithaml 2001, Lippmann and Rumelt 1982, Powell et al. 2006), replication also remains an under-researched topic in management research apart from the seminal studies of Winter, Szulanski and Jensen (e.g. Jensen and Szulanski 2004, Szulanski 1996, Winter and Szulanski 2001).

The purpose of this paper is to synthesize and extend the existing body of research on replication by developing a theory of replication as a social practice based on recent theorizing on routines, capabilities and rules. We are following Reckwitz (2002) to conceptualize a social practice as interrelated activities and behaviors, knowledge systems and artefacts used. We suggest that actors' activities used in replication are socially constructed in the organization and are shaped and transformed in daily practice. More specifically, this addresses two significant gaps in extant research on replication.

First, the focus in extant research is on replication as knowledge transfer, especially between the replicator and the replicatee (Szulanski 1996, Szulanski 2000, Winter and

Szulanski 2001) and the performance implications of varying degrees of replication in the local unit (Szulanski and Jensen 2008). Current theorizing on replication argues that routines and capabilities are based on the exploitation of a 'proven' idea that is manifest in a business template and that is partly codified in documents, handbooks and operating procedures. However the actual practice of replication in organizations, i.e. how actors actually go about replicating is neglected. Second, while research started to acknowledge the 'political' dimension of replication (e.g. persuasion) (Jensen and Szulanski 2007) as well as the social dimension of replicator-replicatee interaction (Maritan and Brush 2003, Szulanski et al. 2004), we still do not know very much about the complex social dynamics of replication, i.e. how rules for replication are created, negotiated and embedded in local contexts.

The recent advances in the routines and capabilities literature are an opportunity to enhance our understanding of replication. Building upon practice theory (Bourdieu 1977), actor network theory (Latour 1997) and findings of science and technology studies (Callon 1998) recent research on routines provides new impetus to the discussion on the replication of routines and capabilities. This literature stresses the importance of human agency and (material) artefacts in the performance of routines and capabilities (D'Adderio 2008, Feldman 2000, Feldman and Pentland 2003, Pentland and Feldman 2005). This implies that routines and capabilities are not monolithic entities but are dynamic and subject to change due to the everyday organizing activities of organization members (Feldman and Pentland 2003, Orlikowski 2002, Regnér 2008, Salvato 2009). Consequently, a conduit metaphor of replication which predominantly focuses on knowledge transfer and rule following, can no longer be maintained (Preda 2000, Reynod 2005). The conceptual framework suggested in this paper has both theoretical and methodological contributions for further research on replication. We differentiate replication into three interrelated sub practices: replication as the (re-) creation of rules, replication as the translation of rules and replication as the

performance of rules. For each category we develop trajectories for further empirical research.

This paper is structured as follows. In a first step we provide an overview of the state of research on routine and capability replication, in particular on the role of replication for value creation and the mechanisms and influencing factors of replication. Based on that, we identify theoretical challenges in extant research and suggest conceptualizing replication as a social practice. In the subsequent sections we thoroughly develop a framework of replication as a social practice drawing on the recent literature on organizational routines. Based on that, we carve out implications for theory on replication and highlight critical aspects for further empirical research especially in regards to research methodologies. The paper closes with a summary of the main arguments.

Replication in organizations – State of research

In this section we briefly summarise the state of research on replication. Based on theory on the resource, capability and knowledge based view of the firm we argue that replication is a fundamental aspect of value creation in organizations. Based on that, we summarize findings regarding the influencing factors of replication and the tension of standardization and adaption in the processes of replication. This is followed by a more detailed discussion on several shortcomings of recent theorising and how incorporating recent theory on organizational routines helps to overcome these shortcomings.

Why replication is important: Replication as a strategy and form of value creation

The resource (Penrose 1959, Wernerfelt 1984), capabilities (Amit and Schoemaker 1993) and knowledge based literature (Kogut and Zander 1992) of strategy is based on the fundamental argument that the long term success of organizations is based on companies' heterogeneous

endowment with rare, valuable, hard to imitate and substitute resources (Barney 1991, Peteraf 1993), that an organization's valuable knowledge is embedded in routines and capabilities (Nelson and Winter 1982, Prahalad and Hamel 1990, Zollo and Winter 2002) and that these capabilities are semi-permanently tied to the firm (Wernerfelt 1984). This perspective on strategy has major implications for our understanding of value creation in organizations. On the one hand, value creation is concerned with identifying, acquiring and developing those resources and capabilities that provide the potential for competitive advantage (Dierickx and Cool 1989, Makadok 2001, March 1991) and avoiding inferior resources (Makadok 2001). For example, prior research stresses organizations' absorptive capacity (Cohen and Levinthal 1990, Easterby-Smith et al. 2008, Zahra and George 2002), i.e. the ability to locate and integrate knowledge in existing processes, as well as the role of managerial cognition that shapes selection processes and how routines and capabilities are developed (Gavetti 2005, Laamanen and Wallin 2009, Tripsas and Gavetti 2000). On the other hand strategy is also concerned with leveraging existing routines and capabilities and deploying these across different contexts in order to maximize their 'rent creating' potential (Helfat and Peteraf 2003, March 1991). In these cases value creation depends on companies ability to change its routines and capabilities (Ambrosini and Bowman 2009, Eisenhardt and Martin 2000, Teece et al. 1997) and to (re-) combine and (re-) deploy (Lockett et al. 2009) resources in order to adjust to new markets, geographic locations or customer groups (Helfat and Peteraf 2003). This makes replication an important strategy for value creation.

Winter and Szulanski (2001) provide several examples of how replication creates value for organizations. They argue that replication supports the discovery and refinement of business models through learning processes in regards to the components (i.e. routines and capabilities) necessary to make this business model work. In addition, by replicating, organizations develop capabilities to transfer knowledge across (intra-) organizational

boundaries which may be a source of advantage in itself. This is confirmed by Knott (2003) who, in the franchise context, found that routines were valuable resources which were linked to higher returns. When compared against independent entrepreneurs, the value of the franchisor's routines turned out to be higher through the embedding of best practice and prior learning and through the enforcement of those routines. However, the implications of replication for company performance depends on the degree to which a company is able to replicate before competitors can imitate these routines and capabilities (Szulanski and Jensen 2004, Winter 1995) and on the overall degree of industry complexity (Rivkin 2001).

Mechanisms of replication in organizations

The extant literature conceptualizes replication predominantly as knowledge transfer of broad scope (Winter and Szulanski 2001) between a replicator (e.g. headquarters or a franchisor) and a recipient unit, the replicatee (e.g. a business unit, subsidiary organization or franchisee): "Knowledge transfer of broad scope characterizes replication strategy because such a strategy relies on the creation of outlets that are themselves capable of locally producing their product or service" (Winter and Szulanski 2001, 732). While replication is about exploiting a proven business idea, it starts with exploration, i.e. with the identification and codification of those aspects, components and mechanisms of a routine or capability that need to be replicated in order to make it work in a new context and achieve similar results.

Central to this conceptualization of replication are the concepts 'arrow core' and 'template' (Winter and Szulanski 2001). The 'arrow core' refers to the "ideal informational endowment for the replicator of a particular business model" (p. 733). This means the arrow core is the body of knowledge that explains all value drivers of the business, how they link to performance, how they are implemented and which environmental conditions are positively or negatively related to successful implementation. In this respect the arrow core comprises

both codified knowledge like handbooks and documentation as well as employees' tacit and experiential knowledge. Companies therefore rely on 'templates', or 'guiding examples' (Winter and Szulanski 2001). These can be existing organizational outlets or branches which serve as exemplars for what other outlets should look like and that help the replicator to delineate the crucial aspects of a routine.

According to Winter and Szulanski (2001) one of the major value drivers of replication is the adaption of routines and capabilities to different contexts. This gives rise to an important debate in research on replication: the benefit of organization wide standardization vs. the need of adaption to the specific local context. Standardization brings benefits of cost savings due to economies of scale and learning. However, in a franchise context, Cox and Mason (2007) show that differences in the local markets make standardization difficult. The adaption to the local market is crucial in order to be able to compete. Recent research also provides evidence of challenges associated with local adaption. Rivkin (2001) argues by formal analysis that in complex environments already small attempts to deviate might spoil the whole attempt to replicate. Empirically, Cox and Mason (2007) show for the franchise context that local adaption tends to be stopped by the replicator if it distorts the core building blocks of a capability. Also, despite the benefit of adaption for the local unit, Jensen and Szulanski's (2004) study in the context of multi-national enterprises reveals that local adaption increases the difficulties to set transfer practices across borders due to the increasing incomparability with the 'original' routine or capability.

Influencing factors of replication

Based on this basic notion of replication existing research identified five major influencing factors on replication: template mediated replication, causal ambiguity, local absorptive capacity, the relationship of replicator and replicatee and time. Templates, i.e. organizational

units in which a routine or capability already ‘works’ play an important role in research on replication (Winter and Szulanski 2001). In this respect Jensen and Szulanski (2007) reveal that templates act as referents and persuaders that help to overcome resistances to adopt a new routine or capability. Also, Szulanski and Jensen (2008) show that mastering the template and company policies that enforce exact copying of knowledge increase sub-unit performance. However, they also show that this effect is salient immediately after the actual local implementation and deteriorates over time. The template outlet also has irreducible causal ambiguity. Causal ambiguity refers to a decision maker’s propensity to delineate the components of a routine or capability (King 2007, Reed and DeFellipi 1990) and the linkage to specific performance outcomes (Lippmann and Rumelt 1982, Simonin 1999). Parts of routines and capabilities might be codified in handbooks and manuals, but generally routines still largely reside in the tacit knowledge of the individual manager / employee, making an explanation of its success challenging (Szulanski 1996, Szulanski 2000, Winter and Szulanski 2001). Thus, while this protects valuable routines and capabilities from competitor imitation it also hinders internal replication (King and Zeithaml 2001).

Another influencing factor on replication and closely related to the notion of causal ambiguity is the absorptive capacity of the recipient unit’s management. Absorptive capacity refers to organization unit’s ability to embed new knowledge (Cohen and Levinthal, 1990). In this respect Szulanski (1996) shows that a lack of absorptive capacity negatively affects the transfer of knowledge between the replicator and the replicatee. Also, Maritan and Brush (2003) reveal that managers’ willingness and ability to pursue change influences the replication process. Research also indicates that the relationship of the replicator and the replicatee is an important antecedent of successful replication. In this respect Szulanski et al. (2004) investigate the effect of perceived trustworthiness. Their findings reveal that the effect of trustworthiness on knowledge transfer in replication depends on the type of knowledge. On

the one hand trustworthiness increases absorptive capacity on the other it decreases vigilance. Thus, their findings indicate that in situations of high causal ambiguity trustworthiness of the replicator is counter-productive. Also Szulanski (1996) indicates that a difficult replicator-replicatee relationship may inhibit replication.

Finally, Winter and Szulanski hypothesise that successful replication requires a lengthy process of learning, or exploration, through which the replicator understands more about the 'arrow core' and the cause and effect relationships associated with routines and capabilities. In this respect, Salomon and Martin's (2008) study in a technology context shows that the time needed to replicate a technology increases with technology complexity. Thus, time plays a significant role in replication, such that too rapid large scale replication may sustainably inhibit successful replication (Winter and Szulanski 2001).

Challenges of existing research on replication

Research on replication rests upon the resource and capability based view of the firm as well as the notion of routines as conceptualized in Nelson and Winter's (1982) evolutionary theory. Theorizing on replication is thus also influenced by conceptual weaknesses and the theoretical debates of these underlying theories. In this section we highlight several challenges of the existing understanding of replication based on the latest advances in the routines and capabilities literature.

First, while extant research acknowledges the difficulties in 'deciphering' capabilities and routines (Szulanski 1996, Winter and Szulanski 2001), it still implicitly assumes that routines and capabilities are separate entities, independent of individual level activities (Abell et al. 2008, Felin and Foss 2009). However, this neglects the individual level dynamics of how routines and capabilities come about (Jarzabkowski and Spee 2009, Johnson et al. 2003, Orlikowski 2002) and tends to reduce research to a conduit metaphor of replication

(‘replication as knowledge transfer’) where routines are transferred from a sending to a receiving organization positively supported by templates in order to overcome causal ambiguity.

Second, existing research highlights the importance of templates for replication (Nelson and Winter 1982, Winter and Szulanski 2001). Although Jensen and Szulanski (2007) argue that the template might not easily be accessible, due to the stickiness of knowledge, errors, unwillingness or incapability of actors involved, this line of reasoning still treats template routines as ‘objects’, waiting to be discovered, interpreted, codified and implemented (Szulanski 1996). However, recent empirical research increasingly suggests that routines and capabilities are not objectively given but are constantly accomplished, i.e. are always about to be realized (differently) in a specific situation (Howard-Grenville 2005, Orlikowski 2002, Regnér 2008). This includes significant discretion in how actors perform activities in specific realizations of a routine (Bruns 2009, Salvato 2009). Thus, the notion of template becomes problematic, as descriptions and observations of existing routines are not stable.

Third, the role of artefacts has so far not been fully developed in existing research on replication. Winter and Szulanski (2001) argue that knowledge regarding routines and capabilities is partly codified in handbooks, documentations and standard operating procedures. Additionally, the actual performance of a routine might require machinery or specific software. In sociological terms, the reproduction of a rule might be distributed among human and non-human actors (Preda 2000). Research on routines has only recently started to acknowledge the role of material artefacts for our understanding of routines (D’Adderio 2008, Pentland and Feldman 2005). This has important implications on further theorizing on replication as it provides deeper insights into how standard operating procedures and codified rules influence and guide individual actions.

Finally, existing research already gives deep insights into the tension of standardization and adaption in replication. However, apart from very few studies (Maritan and Brush 2003, Szulanski 1996) the social dynamics involved are not considered. Recent research indicates that the particular organizational context in terms of structures, monitoring, leadership and cultural factors shape the way routines and capabilities are performed (Howard-Grenville 2005, Regnér 2008). Thus, replicating routines in one organizational unit might lead to inferior results when compared to another (Essén 2008) and this also implies significant adjustments to the local context. This opens the black box of routines and capabilities and shifts attention to the micro-level interactions, activities, sense-making activities, power struggles, etc. that significantly influence how routines and capabilities are performed in practice (Howard-Grenville 2005, Salvato 2003) and questions the notion of replication as simple rule following (Preda 2000). However, how replication is achieved has also not been considered in existing research.

From knowledge transfer to replication as a social practice

The challenges identified in extant literature on replication are partly due to a disconnect from recent theoretical and empirical advances in the routines and capabilities literature that more strongly emphasizes the role of individual agency, the dynamic nature of routines and capabilities and the role of artefacts. Based on these findings we suggest conceptualizing replication as a social practice in organizations. This does not only significantly broaden the scope of discussion on replication, but also changes the ‘rhetoric’ in terms of how replication of routines and capabilities is theorized and described.

Routines, rules and replication

Current research on replication predominantly focuses on the knowledge transfer aspect of replication. Recent theorizing on organizational routines provides the opportunity to develop a more fine-grained understanding of replication. In a first step we sketch recent theorizing on routines and capabilities and point out implications for a theory of replication. In a next step we provide the rationale for a theory of replication as a social practice.

The classic theory and empirical research on organizational routines defined routines as repetitive patterns of behaviour that form the memory of an organization in which operational knowledge is stored (Nelson and Winter 1982). Early theorizing considered organizational routines primarily as stable phenomena that are conducted rather mindlessly (Cohen and Bacdayan 1994) and that are associated with efficiency and reliability on the one hand and rigidity on the other (Leonard-Barton 1992). However, recent theoretical and empirical research develops a more dynamic concept of routines and capabilities by bringing agency back in (Feldman 2000, Feldman and Pentland 2003, Howard-Grenville 2005, Orlikowski 2002, Regnér 2008). This opens up a new perspective on routines and capabilities that help to further investigate their variation and change over time. Drawing on Giddens and Latour, Feldman (2000) and Feldman and Pentland (2003) propose a dualist perspective of routines. The ostensive aspect of the routine encompasses the idea of the routine, the abstract understanding of a routine as it is included in handbooks and procedures but also in organization members' mental models and individual and collective interpretations of a routine and its respective role in the organization. However, the ostensive aspect is different from the performance of a routine at a specific time in a specific situation. According to this perspective, the ostensive aspect fulfils three functions. First, it guides individuals' behaviours towards specific activities, second, it helps to account for and legitimate specific actions and third, the ostensive aspect provides individuals with a 'framework' to identify and

signify a routine, its various steps and the organizational members involved (Feldman and Pentland 2003). While the actual performance of a routine is shaped by the ostensive aspect, the performative aspect also feeds back on the ostensive. By performing a routine the ostensive aspect is created, maintained and modified. The latter happens if new realizations of a routine replace subsequent steps, or are officially regarded a possible alternative. Thus, this understanding shows that routines are not objectively given in organizations but are socially constructed in their performance. The specific activities that belong to a routine, the changes accepted or the individuals involved are often shaped and re-shaped as organization members' go about everyday activities (Orlikowski 2002).

D'Adderio (2008) develops this further and especially highlights the role of artefacts for how routines are performed. Using the example of the design freeze process in innovation, D'Adderio shows that de-contextualizing the process by codification and inscription into software "transformed the freeze process into something which is easier to describe, visualize, share, transfer and reproduce (at least in principle)...across heterogeneous communities and multiple organizational locations" (p. 782). Several sociological theories, like practice theory or actor network theory, stress the importance of artefacts for rule following and the reproduction of rules (Preda 2000).

If we accept the notion put forward above, that routines and capabilities are not monolithic entities but are evolving and changing by the everyday interactions of people in organizations and mediated by artefacts (D'Adderio 2001, D'Adderio 2008), a conduit metaphor of replication can no longer be maintained. Also, primarily conceptualizing replication by the relationship of replicator and replicatee falls short of the complex dynamics in organizations and the multiple relations employees are embedded in and draw upon. This is illustrated by Birkeland (2002) whose examples highlight the importance of franchisor-franchisee social interactions in making changes within the organization.

Therefore, we suggest conceptualizing replication as a social practice in organizations. We are drawing on Reckwitz (2002) in order to define a practice as “routinized type of behaviour which consist of several elements, interconnected to one other...” (p. 249) and “whose existence necessarily depends on the existence and specific interconnectedness of these elements (p. 249). In this paper we argue that replication comes about and is shaped by the distributed actions and interactions of multiple parties both inside and external to the organization and that both precedes and goes beyond the actual ‘implementation’ of a routine in a local organization. It involves activities of replication by which actors construct the rules how individuals in the organization ‘perform’ replication and how a specific routine or capability is supposed to be performed. These rules may also partly be inscribed in artefacts that have the objective to support replication. An example would be the operating manuals in franchising organizations that are developed by the franchisor in order to ensure consistency in local processes. We follow Reynod (2005) and use the term ‘rule’ to denote norms, regulations and arrangements that are about to be performed in situation specific accomplishments of replication. We therefore differentiate replication as a social practice into four interrelated aspects: Replication as the (re-)creation of rules, the translation of rules, the performance of rules in the context of the replicatee and the role of artefacts in the process of replication. For each perspective we suggest trajectories for future research. Table 1 provides a summary of major characteristics and research questions.

Insert Table 1 about here

Replication as rule (re-)creation

Winter and Szulanski (2001) already acknowledge that replication requires exploration of how routines and capabilities are performed in practice. In other words, it requires the creation of rules how a specific routine is to be performed. However, replication also requires activities in an organization by which rules are created and communicated etc. (March et al. 2000). Thus, replication as rule (re-) creation has a double meaning. On the one hand, it refers to how actors socially construct what replication means in their context (the process of replication) and on the other, it describes the social construction of the rules how to perform specific routines or capabilities (the content).

Routines scholars agree that the rule, i.e. the ostensive aspect of a routine, must not be mistaken with the actual performance at a specific situation (D'Adderio 2008, Feldman 2000, Feldman and Pentland 2003). However, in order to replicate a routine or a capability in another organizational unit or a new franchise etc. the replicator (headquarters, the franchisor, etc.) has to develop a description of the routine, e.g. how it is performed in an existing unit (or template outlet). Thus the replicator (maybe in interaction with other units) might try to develop a consistent set of rules, in the form of “do X in order to get Y in situation Z” (Preda 2000, 272). This set of rules is fed by existing knowledge on how the routines should be performed (the ostensive aspect) and the observation of specific performances of a routine (in existing organizational units). Winter and Szulanski (2001) coined the term ‘arrow core’ for this set of knowledge. This might also lead to attempts to codify the knowledge generated in these descriptions (Zollo and Winter 2002) which might eventually result in the creation of artefacts (e.g. a handbook) as representations of the routine.

However, this is not an accomplishment of the replicator alone. Rule (re-)creation is a complex social process that might involve various stakeholders both internal and external to the organization (e.g. consultants, public authorities, standard setting bodies). Also, the

influence of these stakeholders is likely to vary. This is nicely expressed by March et al. (2000, 8). They argue that rules in organizations are “trophies of bargaining, recording the outcomes of conflicts...”

We might further assume that actors in organizations develop interpretations how to go about replication in practice. This results in specific expectations in regards to which activities are most appropriate in order to replicate a routine. E.g. in some organizations there might be a practice of replicating (with an accepted set of activities) that involves activities like interviewing people, writing handbooks, organizing seminars, best practice sharing events, regular calls etc. March et al. (2000, 163) refer to this set of activities as the “rule regime” of an organization. This is also similar to D’Adderio’s (2001) translation procedures that allow inter-functional collaborations. Thus, rule creating does not only relate to the routines or capability which should be replicated but it also involves the practice of replicating itself, i.e. the activities that are acceptable in the organization in order to replicate routines.

This opens several important questions for empirical research on replication. Particularly, it shifts salience to how rules for replication are constructed in organizations and also encompasses the political dimension of organizations. Prior research clearly indicates that some agents are more influential than others in inscribing their worldviews in artefacts (Bijker 1997, D’Adderio 2008). For example, within franchise organizations the franchisor is assumed to play the key role in codifying the ‘business template’ which is developed and improved over time (Winter and Szulanski 2001). This template is assumed to be captured within the artefacts of the organization, for example, operations manual and training courses. Franchisees follow these routines, but at the same time adapt them to their own local market conditions. This raises questions not only about the role of artefacts in the creation of routines within the franchise organization, such as what becomes codified and what remains un-

documented, but it also questions how franchisees shape and adapt routines, both formally – through feedback mechanisms - and informally – through the development of their own routines - within the organization. Moreover, in the long run, how are these changes and adaptations reflected in the artefacts of the organization? How do different groups of actors in an organization (e.g. replicator, replicatees) differ in their conceptualization of replication and how do these diverging conceptualizations affect the practice of replication in organizations?

Replication as rule translation

Rule translation refers to the outcome of interactions of the replicator, the replicatee and possible third parties that have the objective to replicate a specific routine or capability. In other words, rule translation is concerned with how the replicatees (e.g. a new franchisee, the head of a business unit) come to know what the ‘rule’ is. As summarized above, the extant literature on replication argues that this takes the form of knowledge transfer (Winter and Szulanski 2001) through which the replicatee acquires the necessary skills, know-how etc, in order to perform the routine in the local context (Feldman and Pentland 2003). However, rule translation goes beyond knowledge transfer. It constitutes a complex learning process in which replicatees engage with the ‘ostensive’ aspect of the routine based and their own context (company situation, customers, employees, etc.), prior experience, professional background or thought world as Carlile (2004) puts it. This has several implications for our understanding of replication.

First, rule translation is shaped by replicatees’ sensemaking of the characteristics and demands of their context, resource restrictions as well as actors’ prior experience (Reynold 2005). Replicatees assess the applicability and fit of a rule based on their context and build assumptions about how to amend a rule (Bruns 2009). Thus studying rule translation does not start with the rule that should be replicated but with replicatees’ perspective on their local

situation. Second, rule translation is shaped by existing organizational practices, like the activities involved in replication (Antonacopoulou 2006). For example, the way meetings are run or the way documentation is written, etc. might enable or inhibit replicatees' reflection on their own context and the engagement with a new routine. Third, rule translation might also involve artefacts, for example a handbook containing standard operating procedures, maps, blue prints, or software tools (web learning) which are designed to assist replicatees in acquiring new knowledge (D'Adderio 2008). Prior research has shown that artefacts might play a role in bridging contextual differences and help actor the replicator and the replicatee to find common ground (MacPherson and Jones 2008).

This leads to several research questions for empirical research on replication: How do replicatees make sense of their own context in order to link abstract rules to their own (idiosyncratic) situation? What channels does the replicator use for communicating routines and capabilities and how conducive are they to replicating the business template? What role do artefacts play in mediating replication? How does the replicator-replicatee relationship affect the translation of routines?

Replication as rule performance

Replicating routines or capabilities in different organizational units can be described as the sociological problem of “how actors follow and reproduce rules over various contexts.” (Preda 2000, 271). While we might think of instances where a rule matches the actual practice (D'Adderio 2008), the performance of rules in a new context most probably requires adjustments to the rules thus giving discretion to agents how the rule is actually implemented or performed in a specific situation (Feldman and Pentland 2003, Reynod 2005). Sidnell (2003, 431) argues that “what a rule consists in is shaped by the circumstances in which the rule is used.”

In this respect D'Adderio's (2008) study has major implications on how to conceptualize replication as rule performance. First, drawing on Callon (1998) she uses the term 'overflowing' to describe the fact that the rule will never be complete and that actors need to acquire additional knowledge in order to adjust to the local context. In this respect replicates might draw on their network of relationships both inside and external to the organization. Callon (1998, 225) even argues that "without overflows it would not be possible to add value locally." This is also acknowledged by Szulanski and Jensen (2008, 1732) who argue that modifications are necessary "...to fit new environments if performance is to be maximally effective..." This leads to a violation of the 'official' rule (Desai 2010) and might even result in unique local routines and capabilities that are distinct from other organizational units. Second, D'Adderio also highlights the role of artefacts. Replication needs to take into account that rules are partly inscribed in artefacts like software (e.g. an order process, etc.). Research shows that in cases where rules are partly inscribed in artefacts routines tend to be more stable (D'Adderio 2008) and that replicates' activities to make sense of the rule in their local contexts is mediated by a different set of artefacts (e.g. local variations to the handbook or the software). However, these artefacts can only provide a partial view of the routine they lack completeness thus influencing agents activities towards acquiring additional information (Knorr-Cetina 2001).

This implies the following research question to better understand replication: How do replicates draw upon knowledge from networks and communities of practice both within and beyond the boundary of their organization and how is this knowledge incorporated? How do replicates make adjustments to fit routines to a local context? How does the organization deal with deviations from the rule? How does actual routine and capability replication feed back to how replication is conceptualized and carried out in the organization? What are the benefits or drawbacks of inter-unit standardization?

Replication as a social practice: Theoretical implications

In this paper we contribute to the extant research on replication. More specifically we suggest conceptualizing replication as a social practice in organizations which can be differentiated in the (re-)creation, translation and performance of rules and routines. This has several important implications for our understanding of how organizations leverage capabilities in different contexts and duplicate business models.

Existing research on replication places its focus on the notion of knowledge transfer (Jensen and Szulanski 2004, Winter and Szulanski 2001) and thus restricts the scope of phenomena related to replication in organizations. We try to develop a broader conceptualization by arguing that replication goes beyond ‘knowledge transfer’ between a replicator and a replicatee but takes the form of a complex social process that goes beyond knowledge transfer, that involves multiple actors and artefacts and also takes the political dimension of organizations into account. Thus, the practice of replication itself i.e. the activities used in order to replicate a specific routine, are socially constructed in the organization and are shaped and transformed in organization members daily practice. This provides the possibility to explore in greater detail why in practice replication tends to fail so often, which aspects are conducive to replication and how replicatees acquire the knowledge necessary to perform a routine in practice.

More specifically, we suggest conceptualizing replication as a social practice that comes about by three interrelated sub-practices that we term rule (re-) creation, translation and performance. While we analytically separate these sub-practices for the sake of conceptual clarity, we are aware that replication as a social practice in organizations comes about by the complex interplay of each sub-practice (Jarzabkowski et al. 2007). I.e. in specific situations (meetings, discussions, telephone calls) all three practices might be involved. Examples are the regular one-to-one meetings between a franchisor and a franchisee. These meetings and

the interactions of the franchisor and the franchisee create a context in which several of the sub-practices come to bear. These meetings might lead to a combination of rule creation (for individual franchisees – e.g. sales targets, choice of target markets), rule re-creation (integration of new ideas from other franchisees, from this franchisee), rule translation (franchisee clarifying particular elements of the marketing and sales process) and rule performance (monitoring of sales targets, pushing for higher levels of sales). Thus, the framework provides a new way of thinking about how replication unfolds in organizations or why it might falter. This new understanding of replication has several important theoretical and methodological implications. This is summarized in the following section.

The proposed understanding of replication as a social practice also contributes to existing body of literature. Specifically, it adds to Jensen and Szulanski's (2007) study. They investigate the role of existing routines and capabilities (templates) for the effectiveness of replication. The paper shows that templates act as referrants (i.e. help to solve problems in local implementation) and as persuaders (by providing evidence of the value of a routine). The proposed understanding of replication as a social practice adds to Jensen and Szulanski's argument. 'Rule (re-) creation' acknowledges that the selection of a template is a political process shaped by the interests of various stakeholders. We could assume that being flagged as a template unit or not, adds prestige to the respective unit and its management or signals poor performance, respectively.

Finally, we are contributing to Szulanski and Jensen's (2008, 1740) study of the replication of franchising networks. Szulanski and Jensen show that 'copy exactly' has positive influence on the growth of a franchising network. They conclude that "...exploration of the process of mastering an existing practice, how it occurs, and moderating factors that may address the speed of mastery is likely to be particularly valuable". Conceptualizing replication as a social practice provides the possibility to disentangle these influencing factors

of replication in greater detail and help to explain the variety of local routines and capabilities that are the (inevitable) result of replication activity.

Implications for further empirical research on replication

In addition to the theoretical contributions described above, the proposed understanding of replication as a social practice has also significant implications for empirical research designs on replication. More specifically in this section we are focussing on two aspects. First, for each sub-practice of replication we crystallize implications for research design regarding several dimensions. Second, we discuss characteristics of suitable contexts for research on replication and especially and argue that franchising organizations are a good venue to study the dynamics of replication.

Implications for research design and methodology

Conceptualizing replication as a social practice has significant implications for the research design used. Table 2 provides an overview of these implications for each of the three aspects of replication. First, the major objective for exploring rule (re-) creation is the analysis of codified knowledge on routines and capabilities, the identification of activities involved in rule (re-) creation, how these documents are established and changed and how relevant stakeholders influence this process. For example, in a franchising context, the franchisor orchestrates updates of the handbook and disseminates knowledge. However, rule (re-) creation might also be driven by replicatees. Thus, in order to understand rule (re-) creation the loci of analysis are both the replicator and the replicatees. The type of communication involved is most likely to be multilateral, as various stakeholders are involved in the process. The perspective required is longitudinal in order to analyse how rules are (re-) created over time. While interviews provide the opportunity to get an overview of activities and explore

the relevant stakeholders' view on replication, it is limited by respondents (post rationalized) accounts of their experience. Thus, we suggest complementing interviews with field observation and the analysis of 'objective' data like documentations, status reports, etc. Second, the research objective of analysing 'rule translation' is to explore how routines and capabilities are 'communicated' and how the replicator and replicatee organize rule translation. The locus of analysis is the interaction between the replicator and replicatee. This requires access to the communications between these parties (e.g. meetings, documents, etc.), data on replicatee's perspective on the local context as well as objective data on replicatee's organizational context. Communication is very likely to be multilateral as several replicatees and also external parties (e.g. consultants) may be involved. Finally, by analyzing 'rule performance' we are aiming at analyzing replicatees' actual local activities. Thus the locus of analysis is the replicatee. This requires an analysis of how replicatees interpret their own context, their business situation, resources and skills available. The mode of communication is also very likely to be multilateral as replicatees have to make sense of their situation and fill latent 'knowledge gaps' by contacting the replicator, other replicatees or external parties. The perspective required is longitudinal in order to investigate how the replicatee establishes routines and capabilities in the local context.

Insert Table 2 about here

Contexts to study replication as a social practice

In order to study replication as a social practice, organizational contexts are required in which replication is a fundamental part of organizational member's activities. Current research on replication predominantly focuses on two contexts, franchising (e.g. Szulanski and Jensen

2008, Winter and Szulanski 2001) and multi-divisional and multi-national enterprises (e.g. Salomon and Martin 2008). Franchising is a particularly rich context, as replication of a proven business format is at the heart of the business of these organizations (Birkeland 2002). The franchisor-franchisee relationship is one which encompasses a number of paradoxes (Felstead 1993) and presents itself a rich environment for understanding how replication works in practice. The discrepancy between rule creation and rule performance is at the very heart of these organizations. The franchisor must enforce standardisation through the replication of organizational routines but at the same time maintain competitiveness through adaptations to changing market needs. Thus paradoxically, franchisees are often the instigators of modification, new product offerings and solutions to system-wide problems (Kaufmann and Eroglu 1999). At the same time franchisors enforce routines to avoid incompetence or overconfidence (Knott 2003). Studying these dynamics from the perspective of replication as social practice proposes to provide deeper insights into how these organizations actually recreate routines and capabilities in dispersed organizational contexts.

Conclusion

This paper argues that replication is a strategy and form of value creation in organizations. We map out the state of research on replication of routines and capabilities and expands the currently dominant logic of replication as knowledge transfer to a concept of replication as a social practice. The framework developed in this paper adds to the current literature by conceptualizing replication as a social practice in organizations that both pre- and succeeds knowledge transfer between the replicator and the replicatee. More specifically, by drawing upon the recent theoretical developments in the routines and capabilities literature our paper helps to unpack the social dynamics and political and power related processes involved in replication. In this respect replication does not only involve the creation, translation and

performance of rules, i.e. how to perform a routine in a local context, but is also concerned with the social construction of replication itself; i.e. the activities actors use in replication. Moreover, besides the theoretical contributions, the paper also discusses implications for further empirical research on replication as a social practice, especially in regards to research designs and research context. Prior research already stressed the strategic intent of replication (Helfat and Peteraf 2003, Winter and Szulanski 2001).

We expect that unpacking the social dimension of replication in organisations has not only implications for research and theory but promises to provide significant value-add for practitioners faced with the challenge of replicating routines and capabilities. The concept developed in this paper helps practitioners to see the wider implications of replication. It suggests that rule (re-) creation does involve multiple stakeholders and that these stakeholders have diverging interests in which form routines and capabilities are replicated in the organization. On the one hand, moderating these tensions provides the opportunity to support replicatees and reduce frictions in the process of replication. Ignorance, on the other, bears the danger of creating rules that are irrelevant or incompatible with the local context (e.g. in the case of legal requirements) or of leaving the creation of rules to political games which might lead to inferior results for the organization. In addition, practitioners might also benefit from questioning the ways their organizations go about replicating, how agendas are set up, how meetings and workshops are run, etc. and whether the actual lived practice is conducive to help replicatees translating rules in the light of their local context and finally perform routines and capabilities.

References

- Abell, P., Felin, T. and Foss, N. (2008). Building mirco-foundations for the routines capabilities, and performance links. *Managerial and Decision Economics*, **29**, pp. 489-502.
- Ambrosini, V. and Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management? *International Journal of Management Reviews*, **11**, pp. 29-49.
- Amit, R. and Schoemaker, P.J.H. (1993). Strategic assets and organizational rent. *Strategic Management Journal*, **14**, pp. 33-46.
- Antonacopoulou, E. (2006). The relationship between individual and organizational learning: New evidence from managerial learning practices. *Management Learning*, **37**, pp. 455-473.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, **17**, pp. 99-120.
- Bijker, W.E. (1997). The social construction of fluorescent lighting, or how an artefact was invented in its diffusion stage. In Bijker, W.E. & Law, J. (eds.), *Shaping Technology / Building Society. Studies in Sociotechnical Change*. Cambridge, Mass. and London: MIT Press, pp.
- Birkeland, P.M. (2002). *Franchising dreams: The lure of entrepreneurship in America* Chicago: University of Chicago Press.
- Bourdieu, P. (1977). *Outline of a theory of practice* Cambridge: Cambridge University Press.
- Bruns, H.C. (2009). Leveraging functionality in safety routines: Examining the divergence of rules and performance. *Human Relations*, **62**, pp. 1399-1426.
- Callon, M. (1998). An essay on framing and overflowing: Economic externalities revisited by sociology. In Callon, M. (ed.), *The laws of the markets*. Oxford: Blackwell, pp. 244-269.
- Carlile, P.R. (2004). Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries. *Organization Science*, **15**, pp. 555-568.
- Cohen, M.D. and Bacdayan, P. (1994). Organizational routines are stored as procedural memory: Evidence from a laboratory study. *Organization Science*, **5**, pp. 554-568.

- Cohen, W.M. and Levinthal, D.A. (1990). Absorptive-capacity - a new perspective on learning and innovation. *Administrative Science Quarterly*, **35**, pp. 128-152.
- Cox, J. and Mason, C. (2007). Standardisation versus adaptation: Geographical pressures to deviate from franchise formats. *The Service Industries Journal*, **27**, pp. 1053-1072.
- D'Adderio, L. (2001). Crafting the virtual prototype: how firms integrate knowledge and capabilities across organisational boundaries. *Research Policy*, **30**, pp. 1409-1424.
- D'Adderio, L. (2008). The performativity of routines: Theorising the influence of artefacts and distributed agencies on routines dynamics. *Research Policy*, **37**, pp. 769-789.
- Desai, V.M. (2010). Rule violations and organizational search: A review and extension. *International Journal of Management Reviews*, **12**, pp. 184-199.
- Dierickx, I. and Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, **35**, pp. 1504-1511.
- Easterby-Smith, M., Graca, M., Antonacopoulou, E. and Ferdinand, J. (2008). Absorptive capacity: A process perspective. *Management Learning*, **39**, pp. 483-501.
- Eisenhardt, K.M. and Martin, J.A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, **21**, pp. 1105-1121.
- Essén, A. (2008). Variability as a source of stability: Studying routines in the elderly home care setting. *Human Relations*, **61**, pp. 1617-1644.
- Feldman, M.S. (2000). Organizational routines as a source of continuous change. *Organization Science*, **11**, pp. 611-629.
- Feldman, M.S. and Pentland, B.T. (2003). Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, **48**, pp. 94-118.
- Felin, T. and Foss, N.J. (2009). Organizational routines and capabilities: Historical drift and course-correction towards microfoundations. *Scandinavian Journal of Management*, **25**, pp. 157-167.
- Felstead, A. (1993). *The corporate paradox : power and control in the business franchise* London ; New York: Routledge.
- Gavetti, G. (2005). Cognition and Hierarchy: Rethinking the microfoundations of capabilities' development. *Organization Science*, **16**, pp. 599-617.

- Helfat, C.E. and Peteraf, M.A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, **24**, pp. 997-1010.
- Howard-Grenville, J.A. (2005). The persistence of flexible organizational routines: The role of agency and organizational context. *Organization Science*, **16**, pp. 618-636.
- Jarzabkowski, P., Balogun, J. and Seidl, D. (2007). Strategizing: The challenges of a practice perspective. *Human Relations*, **60**, pp. 5-27.
- Jarzabkowski, P. and Paul Spee, A. (2009). Strategy-as-practice: A review and future directions for the field. *International Journal of Management Reviews*, **11**, pp. 69-95.
- Jensen, R. and Szulanski, G. (2004). Stickiness and the adaptation of organizational practices in cross-border knowledge transfers. *Journal of International Business Studies*, **35**, pp. 508-523.
- Jensen, R.J. and Szulanski, G. (2007). Template use and the effectiveness of knowledge transfer. *Management Science*, **53**, pp. 1716-1730.
- Johnson, G., Melin, L. and Whittington, R. (2003). Micro strategy and strategizing: Towards an activity-based view. *Journal of Management Studies*, **40**, pp. 3-22.
- Kaufmann, P.J. and Eroglu, S. (1999). Standardization and adaptation in business format franchising. *Journal of Business Venturing*, **14**, pp. 69-85.
- King, A.W. (2007). Disentangling interfirm and intrafirm causal ambiguity: A conceptual model of causal ambiguity and sustainable competitive advantage. *Academy of Management Review*, **32**, pp. 156-178.
- King, A.W. and Zeithaml, C.P. (2001). Competencies and firm performance: Examining the causal ambiguity paradox. *Strategic Management Journal*, **22**, pp. 75-99.
- Knorr-Cetina, K.D. (2001). Objectual practice. In Schatzki, T., Knorr Cetina, K.D. & Savigny, E. (eds.), *The Practice Turn in Contemporary Theory*. London: Routledge, pp.
- Knott, A.M. (2003). The organizational routines factor market paradox. *Strategic Management Journal*, **24**, pp. 929-943.
- Kogut, B. and Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, **3**, pp. 383-397.

- Laamanen, T. and Wallin, J. (2009). Cognitive dynamics of capability development paths. *Journal of Management Studies*, **46**, pp. 950-981.
- Latour, B. (1997). Where are the missing masses? The sociology of a few mundane artifacts. In Bijker, W.E. & Law, J. (eds.), *Shaping Technology / Building Society. Studies in Sociotechnical Change*. Cambridge, Mass.: MIT Press, pp. 205-224.
- Leonard-Barton, D. (1992). Core capabilities und core rigidity: A paradox in managing new product development. *Strategic Management Journal*, **13**, pp. 111-126.
- Lippmann, S. and Rumelt, R. (1982). Uncertain imitability: An analysis of interfirm differences in efficiency under competition. *Bell Journal of Economics*, **13**, pp. 418-438.
- Lockett, A., Thompson, S. and Morgenstern, U. (2009). The development of the resource-based view of the firm: A critical appraisal. *International Journal of Management Reviews*, **11**, pp. 9-28.
- MacPherson, A., Jones, O. (2008). Object-mediated learning and strategic renewal in a mature organization. *Management Learning*, **39**, pp. 177-201.
- Makadok, R. (2001). Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal*, **22**, pp. 387-401.
- March, J.G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, **2**, pp. 71-87.
- March, J.G., Schulz, M. and Zhou, X. (2000). *The dynamic of rules. Change in written organizational codes* Stanford: Stanford University Press.
- Maritan, C.A. and Brush, T.H. (2003). Heterogeneity and transferring practices: Implementing flow manufacturing in multiple plants. *Strategic Management Journal*, **24**, pp. 945-959.
- Nelson, R.R. and Winter, S.G. (1982). *An evolutionary theory of economic change* Cambridge, Mass.: Belknap Press of Harvard University Press.
- Orlikowski, W.J. (2002). Knowing in practice: Enacting a collective capability in distributed organizing. *Organization Science*, **13**, pp. 249-273.
- Penrose, E.T. (1959). *The theory of the growth of the firm* New York,: Wiley.

- Pentland, B.T. and Feldman, M.S. (2005). Organizational routines as a unit of analysis. *Industrial and Corporate Change*, **14**, pp. 793-815.
- Peteraf, M.A. (1993). The cornerstones of competitive advantage - A resource-based view. *Strategic Management Journal*, **14**, pp. 179-191.
- Powell, T.C., Lovallo, D. and Caringal, C. (2006). Causal ambiguity, management perception, and firm performance. *Academy of Management Review*, **31**, pp. 175-196.
- Prahalad, C.K. and Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, **68**, pp. 79-91.
- Preda, A. (2000). Order with things? Humans, artifacts, and the sociological problem of rule-following. *Journal for the Theory of Social Behavior*, **30**, pp. 269-298.
- Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory*, **5**, pp. 243-263.
- Reed, R. and Defellipi, R. (1990). Causal ambiguity, barriers to imitation and competitive advantage. *Academy of Management Review*, **15**, pp. 88-102.
- Regnér, P. (2008). Strategy-as-practice and dynamic capabilities: Steps towards a dynamic view of strategy. *Human Relations*, **61**, pp. 565-588.
- Reynod, B. (2005). The void at the heart of rules: routines in the context of rule-following. The case of the Paris Metro Workshop. *Industrial and Corporate Change*, **14**, pp. 847-871.
- Rivkin, J.W. (2001). Reproducing knowledge: Replication without imitation at moderate complexity. *Organization Science*, **12**, pp. 274-293.
- Salomon, R. and Martin, X. (2008). Learning, knowledge transfer, and technology implementation performance: A study of time-to-build in the global semiconductor industry. *Management Science*, **54**, pp. 1266-1280.
- Salvato, C. (2003). The role of micro-strategies in the engineering of firm evolution. *Journal of Management Studies*, **40**, pp. 83-108.
- Salvato, C. (2009). Capabilities unveiled: The role of ordinary activities in the evolution of product development processes. *Organization Science*, **20**, pp. 384-409.

- Sidnell, J. (2003). An ethnographic consideration of rule-following. *Journal of the Royal Anthropological Institute*, **9**, pp. 429-445.
- Simonin, B.L. (1999). Ambiguity and the process of knowledge transfer in strategic alliances. *Strategic Management Journal*, **20**, pp. 595-623.
- Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, **17**, pp. 27-43.
- Szulanski, G. (2000). The process of knowledge transfer: A diachronic analysis of stickiness. *Organizational Behavior and Human Decision Processes*, **82**, pp. 9-27.
- Szulanski, G., Cappetta, R. and Jensen, R.J. (2004). When and how trustworthiness matters: Knowledge transfer and the moderating effect of causal ambiguity. *Organization Science*, **15**, pp. 600-613.
- Szulanski, G. and Jensen, R.J. (2004). Overcoming stickiness: An empirical investigation of the role of the template in the replication of organizational routines. *Managerial and Decision Economics*, **25**, pp. 347-363.
- Szulanski, G. and Jensen, R.J. (2008). Growing through copying: The negative consequences of innovation on franchise network growth. *Research Policy*, **37**, pp. 1732-1741.
- Teece, D.J., Pisano, G. and Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, **18**, pp. 509-533.
- Tripsas, M. and Gavetti, G. (2000). Capabilities, cognition, and inertia: Evidence from digital imaging. *Strategic Management Journal*, **21**, pp. 1147-1161.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, **5**, pp. 171-180.
- Winter, S.G. (1995). Four Rs of profitability: rents, resources, routines and replication. In Montgomery, C. (ed.), *Resource-Based and Evolutionary Theories of the Firm: Towards a Synthesis*. Boston: Kluwer Academic Publishers, pp. 147-178.
- Winter, S.G. and Szulanski, G. (2001). Replication as strategy. *Organization Science*, **12**, pp. 730-743.

Zahra, S.A. and George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, **27**, pp. 185-203.

Zollo, M. and Winter, S.G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, **13**, pp. 339-351.

Tables and Figures

Table 1. Replication as a social practice: Characteristics and trajectories

Replication as a social practice			
	Rule (re-) creation	Rule translation	Rule performance
Description	<ul style="list-style-type: none"> ▪ Social construction of a set of rules for routine x (ostensive aspect) ▪ Social construction of a set of rules how replication is performed 	<ul style="list-style-type: none"> ▪ Interpretation and meaning making between replicatee, replicator and others ▪ Re-contextualization of abstract rules to local situation 	<ul style="list-style-type: none"> ▪ Performance of routine in local context ▪ Recreation of routines and capabilities (improvisation, bricolage, etc.)
Core metaphor	<ul style="list-style-type: none"> ▪ Replication as a political process 	<ul style="list-style-type: none"> ▪ Replication as learning 	<ul style="list-style-type: none"> ▪ Replication as performing
Research trajectories	<ul style="list-style-type: none"> ▪ Which actors are most influential shaping the rules for routines? ▪ What is documented and what remains unsaid? ▪ Which aspects are inscribed in artefacts and what is the consequence of that? ▪ How do replicatees shape activities of replication? ▪ Which practices are more or less conducive to replication? 	<ul style="list-style-type: none"> ▪ How do replicatees make sense of abstract sets of rules (handbooks etc.)? ▪ How do replicatees make sense of their local context in order to contextualize a routine? ▪ How does the interaction between replicator and replicatee shape rule translation? 	<ul style="list-style-type: none"> ▪ How do replicatees make adjustments to fit routines to a local context? ▪ How does replicatees prior experience, communities of practice shape how a routine is performed? ▪ How does the organization deal with rule deviations?

Table 2. Implications for research design and methodology

Research design variables	Replication as a social practice		
	Rule (re-) creation	Rule translation	Rule performance
Research objective	<ul style="list-style-type: none"> ▪ Analysis of codified knowledge on routines ▪ Identification of activities involved in rule (re-) creation ▪ Identification of stakeholder involvement 	<ul style="list-style-type: none"> ▪ Explore the interaction between replicator and replicatee ▪ Investigation of replicator's and replicatee's rule interpretation 	<ul style="list-style-type: none"> ▪ Analysis of replicatees local activities ▪ Analysis of replicatees interpretation of context
Primary locus of analysis	<ul style="list-style-type: none"> ▪ Replicator ▪ Replicatee 	<ul style="list-style-type: none"> ▪ Interaction of replicator and replicatee, plus between replicatees 	<ul style="list-style-type: none"> ▪ Replicatee
Communication	<ul style="list-style-type: none"> ▪ Multilateral 	<ul style="list-style-type: none"> ▪ Multilateral 	<ul style="list-style-type: none"> ▪ Multilateral
Type of data required	<ul style="list-style-type: none"> ▪ Codified information (handbook, training courses, regional meetings, intranet, newsletters, new owners meeting) ▪ Replicator's activities regarding data gathering, interpretation, codification, etc. ▪ Replicator-replicatee meetings (particularly where replicatees provide feedback / test out new ideas / replicator sells new ideas) 	<ul style="list-style-type: none"> ▪ Communication between replicator and replicator ▪ Replicatees interpretation of local context ▪ Objective data on local context (number of people, premises, number of products etc.) ▪ Meetings (particularly for new replicatees) ▪ Replicatee-replicatee interactions (particularly new replicatees) 	<ul style="list-style-type: none"> ▪ Replicatees interpretation of local context ▪ Objective data on local context (number of people, premises, number of products etc.) ▪ Replicatees' actual local activities ▪ Replicator-replicatee interactions ▪ Third-party and replicatee interactions
Time	<ul style="list-style-type: none"> ▪ Longitudinal 	<ul style="list-style-type: none"> ▪ Point in time 	<ul style="list-style-type: none"> ▪ Longitudinal
Method	<ul style="list-style-type: none"> ▪ Interviews ▪ Observations ▪ Document analysis 	<ul style="list-style-type: none"> ▪ Interviews ▪ Observations ▪ Document analysis 	<ul style="list-style-type: none"> ▪ Interview ▪ Observations ▪ Document analysis