Essay

A Routine-Based Theory of Routine Replication

Roberto Grandinetti [ORCID]

Department of Economics and Management, University of Padova, Via del Santo 33, 35123 Padova, Italy; roberto.grandinetti@unipd.it

Abstract: Organizational routines have been investigated by scholars from two opposite perspectives: the first is rooted in the evolutionary economics of Nelson and Winter; the second relies on the reconceptualization of routines proposed by Feldman and Pentland. The main reason that has kept the perspectives separated concerns the issue of routine replication, which found space in the former while it remained in the shadows in the latter. Studies that have dealt with this issue offer many clues on the one or other form that replication can take. What is lacking is a routine-based theory of routine replication capable of comparing their different forms. The paper pursues this goal in two stages. First, routines are reconceptualized as repetitive, recognizable patterns of interdependent actions, connected with the external environment, guided by specific knowledge and involving multiple, interacting actors and artifacts. Then, this reconceptualization leads to a discussion of the issue of routine replication and its forms. This way of conceiving routines leads to developing an original and unitary theoretical framework covering the different forms of routine replication. What lends intra-organizational replication a greater replicability than inter-organizational replication is the presence of a template and of actors specialized in planning the replication process. In its serial and routinized form, intra-organizational replication can potentially reach the highest level of replicability. The same results can be achieved by the routine replication that underlies franchise systems. In the two forms of inter-organizational replication—spin-offs and employee mobility—the template is replaced by a weaker knowledge repository consisting of the memory of individuals who leave one organization and try to replicate its routines at another. The disadvantage deriving from the lack of a template can be contained when specific factors are present that facilitate the work of replication actors.

Keywords: routines; routine-specific knowledge; routine replication; intra-organizational replication; spin-offs; labor mobility

1. Introduction

Many businesses in retail and other service sectors are organized as chains of outlets that are identical or very similar to one another [1]. The emergence of numerous industries, niches and geographical clusters is due to a seed company spinning off new ventures that in turn serve as business incubators [2]. It is through the inter-organizational mobility of human resources, that what has proven successful at one firm, can most often be transferred to another [3].

According to scholars of evolutionary economics [4,5], these three diverse, important phenomena have something in common: they are all potential carriers of replicating organizational routines, rather like the genetic material transferred through the reproduction processes of biological organisms, or through the more recently discovered horizontal gene transfer [6]. These scholars associate routines and replication because they envisage them as knowledge that instructs actions within organizations. This knowledge is relatively stable, making routines replicable inside and outside the organizations in which they develop. The hypothesis that routines developed in one organizational context can be replicated in another has received a good deal of empirical validation, such as the study by Jonsson

and Foss on Ikea's international expansion through the opening of new stores using the greenfield approach [7].

However, the authors who share this knowledge-based view of routines, known as the *capabilities perspective* on organizational routines [8] or also *entity perspective* [9], have not examined how replication takes place, in relation both to the specific characteristics of the "genetic material" involved, i.e., routines, and to the various forms in which replication can occur. It was reasonable to expect that an accomplished theory of the replication of organizational routines could be brought forth within a second perspective for investigating them, which has been described as the *practice* or *performative perspective* [8,10]. This is because scholars taking this approach have examined routines as behaviors and actions contributing to what we know about how routines function, particularly as concerns the role of participating actors and of routine artifacts [10–13]. The replication of organizational routines is a topic that has remained in the shadows in this line of research—as a possibility allowable in theoretical terms but not encountered in the real world—because of the variability/instability that is intrinsic to routines. This standpoint is well captured by Feldman when she states that the most fitting metaphorical reference for routines is represented not by genes, but by the wind [14].

Thus, a research gap emerges regarding the topic of replicability-replication of organizational routines from which derives the research question that this paper seeks to answer: is it possible to build a *routine-based* theory of routine replication and its heterogeneity? In other words, the aim of the paper is to develop a conceptual framework of routine replication in the variety of forms that this process can take that is grounded not simply in a biological metaphor (albeit anchored in a clear identification of the general nature of routines) but in what organizational routines specifically are and how they function within organizations.

Such a theoretical effort appears useful, first to understand whether phenomena that generally remain separated in the management literature, such as enterprise creation through successful spin-offs or corporate growth through similar plants or outlets, actually have a common root. Moreover, a theory of replication underpins any theory of evolution, whether it pertains to biological or organizational populations [5]. However, while evolutionary biologists have an established understanding of their replicating material, the same cannot be said in the field of organizational evolution, which explains why the theories available in this field are unable to account for the different evolutionary patterns that distinguish the history of different industries as well as the different evolutionary stages that mark the history of the same industry [5]. In this respect, too, a routine-based theory of routine replication may offer useful insights.

Generally speaking, the strategy chosen to answer the research question has consisted of bridging two different and distant approaches to analyze organizational routines—the capabilities perspective and the performative perspective—developing, with the help of some constructs rooted in the performative perspective, the Nelson and Winter's intuition of considering knowledge as a fundamental and general requirement of a heterogenous process, such as the replication of routines.

2. Research Strategy

More specifically, the development of a routine-based theory of routine replication in its various forms has been carried out in two steps, the first of which lays the foundations for the second.

The first step (discussed in Section 3 of the paper) begins with an account of how routines have been conceptualized from the capabilities and performative perspectives, respectively. This overview is based on the most relevant contributions produced within either perspective, and explains why studies in the two strands have followed different and essentially non-communicating paths. Based on this observation, we propose an extended definition of organizational routines that reconciles the two perspectives with a view to dealing with the issue of routine replication. On the one hand, this definition empha-

sizes that routines are repetitive patterns of interdependent actions involving multiple, interacting actors and artifacts, as established by Feldman and Pentland in their seminal contribution of the performative perspective [11] and later taken up and deepened by a large body of theoretical and empirical studies. On the other hand, our definition adds that organizational routines are guided by specific knowledge, and connected with the outside environment, as established by Nelson and Winter in their seminal contribution of the capabilities perspective [4] and other works that have been inspired by it. However, while everything related to the actions of actors and the use of artifacts involved in routines has been well studied, the nature of routine-specific knowledge and the interface between routines and environment have both remained poorly investigated by scholars of the capabilities perspective. Therefore, an in-depth look at these two issues was needed in order to thoroughly explain the concepts of relative stability, replicability and replication of organizational routines. This discussion, conducted with the help of some works from the literature on knowledge management and organizational learning, takes up the last part of Section 3.

The second step in our theoretical construction (discussed in Section 4 of the paper) starts with the contribution by Nelson and Winter, which provides us with our first building blocks, and particularly, the concept of template, and a first specification of the variety of forms that replication can take [4]. A review of the literature that has dealt with routine replication following in the footsteps of the two founders of modern evolutionary economics has enabled us to acquire an appropriate definition for routine replication, and to complete the typology of replication forms. On these grounds, together with the insights from the first step, we develop a routine-based theoretical framework of routine replication in its various forms. To be more specific, we advance five propositions concerning: a comparison between intra- and inter-organizational routine replication; the peculiarity of the serial form in intra-organizational replication; the peculiarity of routine replication in franchising systems; the factors that contribute to juxtaposing inter-organizational with intra-organizational replication; a comparison between the two ways in which inter-organizational replication can take place, i.e., spin-offs and employee mobility.

3. Routines as Knowledge and Actions

3.1. Nelson and Winter's Intuition

In *An Evolutionary Theory of Economic Change* Richard Nelson and Sidney Winter claim that: "firms may be expected to behave in the future according to the routines they have employed in the past" [4] (p. 134). Like a gene, a routine is relatively stable and can, therefore, determine highly patterned and repetitive behaviors in the time between one variation of the routine and the next.

The two economists elaborate on their "genetic" view starting from the behavioral theory of the firm proposed by Cyert and March, who see the firm as a system that adapts to its environment through experience and learning [15]. A firm's experience is embodied in a number of standard operating procedures that constantly guide the firm's behavior. This set of learned behavioral rules is the memory the firm can count on at any given point. The rules change every time the organization receives new input through its interaction with the environment. Nelson and Winter consider routines to be a broader variety of items than the firm's standard operating procedures alone, but they substantially depart only a little from the idea of Cyert and March [16].

Regarding the kind of knowledge associated with this memory that organizations possess, Nelson and Winter were influenced by Polanyi's thinking on human knowing, "starting from the fact that we can know more than we can tell" [17] (p. 4). With this in mind, they attributed great importance to the tacit dimension of routines, consistently with their idea of routines as the organizational equivalent of individual skills. Based on this assumption, the knowledge stored in routines is maintained through practice, similar to personal skills. The only difference is that practice is individual in the latter case, and collective in the former and, thus, demands the ability of participants in the

routine to receive and interpret messages from other members. Several passages in Nelson and Winter's book suggest, however, that the knowledge associated with a routine can be at least partly encoded in formal memories, and that "these formal memories play an important role" [4] (p. 99).

This genetic and cognitive interpretation of routines is not the only one advanced by Nelson and Winter in their book and other works [18]. They sometimes talk about routines as behavioral patterns. These two ways of identifying routines as cognitive regularities or behavioral regularities have continued to be confused or seen in opposition to one another in studies published after Nelson and Winter's book [19–21]. Hodgson and Knudsen aimed to overcome this ambiguity in an ontological framework named "Generalized Darwinism", capable of encompassing evolution both in nature and in human society [22]. Adopting the genotype generalization proposed by the evolutionary biologist Dawkins [23], they define organizational routines as a specific type of replicator. Similar to biological replicators (genes), routines are persistent containers of encoded instructions for behaviors that can be replicated in some way [22,24]. Replicators are contained in organisms or organizations (interactors), the characteristics of which express the information contained in the replicators they host. In short, Hodgson and Knudsen—and other authoritative scholars who shared their approach to evolution [25]—claim that routines are not behaviors, but stored knowledge that makes it possible to instruct behaviors. Hodgson and Knudsen also described routines as "dispositions", which may or may not be actually expressed in ongoing behavior [5,22]. This is consistent with the genes-routines analogy in Nelson and Winter [4], according to which routines give rise to an organization's "possible" behaviors. In this sense, the picture is much the same as in biology: a gene is a region of genetic material that encodes a specific functional unit, such as a protein, but the presence of a given gene in an organism does not automatically mean that the corresponding protein will be produced therein [26].

3.2. Feldman and Pentland's Reconceptualization

According to Martha Feldman and Brian Pentland, "an organizational routine is a repetitive, recognizable pattern of interdependent actions, involving multiple actors" [11] (p. 96). Each routine consists of two distinct and interrelated aspects: the ostensive and the performative. On these founding concepts, a specialized literature has developed that can be appropriately described as a practice perspective on routines because the focus is on the everyday activity of organizing, or else as a performative perspective, the emphasis being on the aspect that makes them visible [8,27].

By following performative thinking, the ostensive aspect is the structural or cognitive part of a routine that serves as a guide for its participants. Feldman and Pentland see this part as something abstract, or the routine in principle [11]. On the other hand, since a routine involves multiple actors, its ostensive aspect incorporates the subjective understanding of all these actors. This multiplicity stems from the fact that different participants have different, and sometimes conflicting points of view on the routine, depending on their role, individual interests and goals. The authors acknowledge that different participants' views may come into alignment, but they consider the effects of such a process deceptive. In the end, the ostensive aspect "cannot encompass specific performances because it is impossible to specify any routine in sufficient detail that it could actually be carried out" [11] (p. 100). The ostensive aspect of the routines, therefore, "suffers" not only from its intrinsic multiplicity, but also from a substantial indeterminateness [28].

The performative aspect is the routine in practice (versus in principle) that embodies "the specific actions, by specific people, at specific times and places, that bring the routine to life" [11] (p. 94). This aspect is seen as intrinsically variable or, better still, as improvisational. Such a radical opinion of the performative aspect's variability derives from the already-mentioned limited feasibility of specifying performance on an ostensive level. On this basis, it is highly unlikely that the performative aspect of a given routine can appear the same every time it is enacted by its participants. In addition, since "the performative aspect

creates, maintains, and modifies the ostensive aspect" [11] (p. 94), its extreme variability also makes the ostensive aspect highly unstable.

Returning to the ostensive aspect, thinking of it as the abstract idea of the routine, and also as the set of routine participants' different individual understandings, could appear contradictory, and it is. As concerns the routine in principle, it has to be said that Feldman and Pentland borrowed this idea from an analysis of power by the French philosopher Latour, who distinguished between an ostensive definition (power in principle) and a performative definition (power in practice) [29]. Latour saw these two definitions of power and, more generally, of the social link as completely different, as each makes possible what the other cannot. More importantly, they are irreconcilable and consequently cannot resemble aspects or "parts" of the same ontology. Hence, applying Latour's ostensive–performative dichotomy to routines, as Feldman and Pentland do, seems to be inappropriate from the ontological standpoint [30].

Authors of the performative perspective attribute an important role to artifacts [13,31]. Feldman and Pentland define them as objectified summaries of routines [11], a sort of "appendage" of the ostensive aspect that may take various forms. In a later work, Pentland and Feldman connect artifacts to both the ostensive and the performative aspects: while artifacts such as rules and written procedures are efforts to codify the ostensive aspect, artifacts such as work logs and databases "provide a convenient archival trace of the performative aspect" [32] (p. 796). If some artifacts, such as a typical standard operating procedure, are efforts to codify the ostensive aspect, the authors warn against the mistake of identifying the ostensive aspect as a whole with these artifacts, and also against the symmetrical error of thinking that a well-designed standard operating procedure cancels the intrinsic performative variability of a routine. In other words, artifacts are at the heart of organizational routines, but even the most codified of artifacts cannot play a routine back [12].

The ostensive–performative duality leads to the paradox of (n)ever-changing routines [33]: if they feature as much (synchronic) variety of individual understandings and as much (diachronic) variability of performance, as Feldman and Pentland suggest, how can routines possibly be recognized and defined as repetitive patterns of actions? In order to distance themselves from a reified and static interpretation of routines, the two founders of the performative perspective seem to go too far in the opposite direction. In particular, as concerns heterogeneity in performance, they resort to the metaphor of musical improvisation, quoting the work by Weick [34]. However, Weick analyzed improvisation as a way of innovating routines (and other things), referring to jazz. At the same time, he warned that organizations and their routines cannot live on improvisation alone. Metaphorically speaking, other musical genres are needed, as well as jazz, for a complete representation of organizational life. Pentland and Feldman then try to explain the coming and going of stability and continuous change by means of a dual viewpoint, from far and near: "When viewed from a distance, any particular organizational routine can exhibit a great deal of continuity over time [...] Closer observation of routines reveals that they can change continuously and endogenously" [32] (p. 794). This is an evocative image, but it is inconsistent with the practice or performative perspective, according to which routines can only be "seen" inasmuch as they are actions (performative dimension), and they can only be seen from "close up", taking an ethnographic approach [35,36].

A relatively original process perspective on routines has emerged more recently, which sees them as inherently dynamic or unstable [31]. This line of research stems from the seminal contributions of Feldman and Pentland (as we have seen), but now the idea that people use the ostensive aspect to orient the performative aspect is largely set aside. In the end, as Feldman put it, "the ostensive aspect can be theorized as action" [14] (p. 38).

This tendency to assume that everything is action is countered by the theoretical contribution from Dionysiou and Tsoukas [10]. These authors examine the previously-recalled paradox of (n)ever-changing routines by considering the interaction within the routine, between the routine's participants. Starting from Mead's symbolic interactionism [37],

Dionysiou and Tsoukas come to the conclusion that "interacting participants are likely to develop at least some minimum level of shared understanding or schemata about the joint activity, which enables them to anticipate the behavior of other members, establish some confidence about how to behave, and meet basic requirements for the coordination of joint activities" [10] (p. 193). The ostensive aspect also includes participants' action dispositions. Drawing on the works of Hodgson and Kudsen [22], and Birnholtz et al. [33], Dionysiou and Tsoukas claim that: action dispositions lie at the interface with the performative aspect, they are retained in the procedural memory of the single participants in the routine and they enable participants to respond to familiar inputs in a repetitive way. As the interaction proceeds, the shared schemata are reinforced and the action dispositions become increasingly mutually coherent and stable. With the concept of shared schemata, Dionysiou and Tsoukas offer an interpretation of the cognitive structure of routines that diverges from the conviction rooted in Feldman and Pentland [11] that there can be as many "versions" of a routine as there are participants, and that participants' cognitive alignment may be apparent only.

3.3. An Extended Definition of Organizational Routines

Reviewing the main contributions attributable to the capabilities and the performative perspectives shows that they suggest two ways of conceiving organizational routines—one based on knowledge that instructs patterns of action, the other based on these same patterns—that are not antagonistic but represent two distinct focuses chosen by scholars adopting the two perspectives. Here, we first propose an extended definition of routines that includes the connection between these two focuses and the other relevant elements emerging from the literature to help us deal with the topic of routine replicability-replication. It seems useful for our purposes to start with the definition of routines most commonly adopted nowadays, to which we can add the necessary integrations.

According to Feldman and Pentland, "an organizational routine is a repetitive, recognizable pattern of interdependent actions, involving multiple actors" [11] (p. 96). This definition is succinctly represented on the right-hand side of Figure 1 as actions or behaviors, to use a construct that overlaps with that of actions in the literature on routines [19]. The most important element in the basic definition from a replication perspective concerns the repetitiveness of the actions because repetitiveness (action stability) and knowledge stability are two faces of the same coin, whereas replication needs stability. Oddly enough, it is also what many studies have ritually recalled at the time of defining routines, but then left in the background, almost as if having routines (that tend to be stable) condemned a firm to immobilism [38].

Our first and most important integration into the basic definition is the connection between the right- and left-hand sides of Figure 1, between the actors' actions and the knowledge that makes them repetitive, retained in the actors' memory [4,10,22]. Without this connection, we cannot properly analyze the phenomenon of routine replication. We can say that a routine developed in a certain organizational context has been replicated in another by looking at the pattern of actions in the two cases, but behind this possible outcome there is a transfer (replication) of routine-specific knowledge from the former context to the latter. It is this knowledge that makes the routine replicable. We do not speak of the ostensive aspect of a routine rather than of routine-specific knowledge [39–41] because—as we saw before—the ostensive aspect has remained an ambiguous costruct in the performative perspective literature.

Consistent with this assumption about the role of knowledge in routines, we must add to the actors and their memory as knowledge holders those artifacts that represent codified forms of the knowledge specific to a given routine [13,31,32].
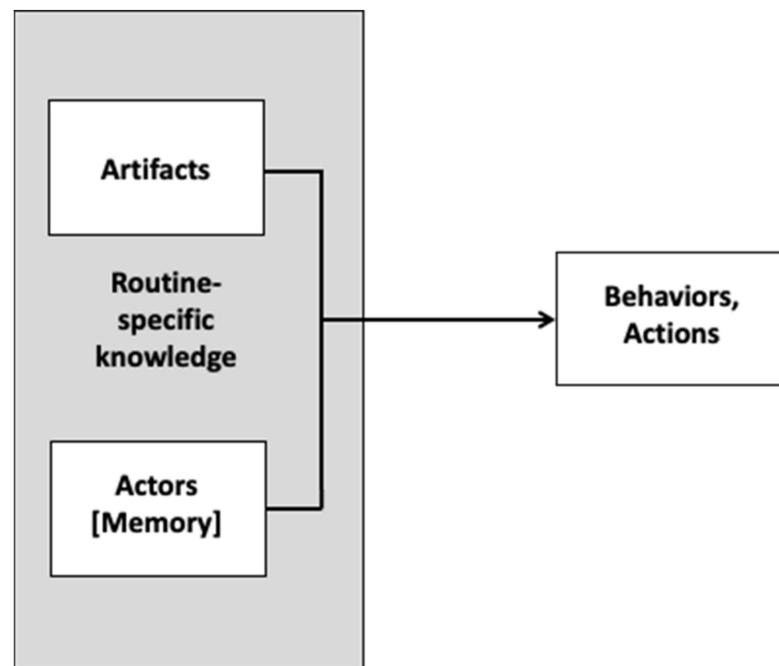
Figure 1. Organizational routines as knowledge and actions.

Actors taking part in a routine interact with one another. We are not referring here to the informative connections established between actors in relation to their respective roles in the routine as a sequence or network of actions. This interaction is an implicit feature of the collective dimension recalled in the basic definition of routines, as clearly stated already by Nelson and Winter [4]. We refer instead to *inter-action* between actors through verbal or other forms of communication [42]. This interaction is precisely the focus of a study conducted by Feldman and Rafaeli on routines as sources of interpersonal relationships and mutual understanding [43]. Recently, there have been increasingly more works moving in the direction suggested by this pioneering study [10,44–49], bearing in mind that in these studies interaction does not necessarily mean a dialogue between the parties; it can be any type of interpersonal communication, even if it is unidirectional.

The last addition to the basic definition concerns the interaction with the competitive environment, which is unavoidable when we speak of firms in general, and more specifically of their routines [50]. We are interested here not in how the environment influences changes in routines, which is the core issue in Nelson and Winter's evolutionary theory [4], but in how routines interface with the environment inasmuch as the latter is their ultimate *raison d'être* [15].

In conclusion, we can integrate the basic definition of routine as follows: an organizational routine is a repetitive, recognizable pattern of interdependent actions, connected with the external environment, guided by specific knowledge and involving multiple, interacting actors and artifacts. Of all the elements comprised in this extended definition of organizational routines, two remain underinvestigated in the literature: (i) the nature of routine-specific knowledge, our replicator in the language of Generalized Darwinism [5]; (ii) the interface between routines and environment or the relationship between "genotype" and "phenotype". Each of them requires analysis before we deal with the topic of routine replication.

3.4. Routine-Specific Knowledge

As Dionysiou and Tsoukas explained, a routine can only exist and continue to reproduce itself every time it is activated if there is a process of knowledge sharing such that participant actors are capable of completing the interdependent actions corresponding to the routine as a whole [10]. Each actor can acquire a specific knowledge of the routine

irrespective of their relationships with the other actors during the performance of the routine. For instance, an actor may take a training course before being assigned to the routine, while another may acquire information from colleagues at a time when the routine is not underway. Feldman and Rafaeli [43], and Dionysiou and Tsoukas [10], are nonetheless convinced that the most important mechanism of knowledge sharing lies in the actors' repeated interactions every time they engage in the routine. The role of knowledge sharing through interaction between individuals within organizations has been abundantly analyzed in the literature regarding knowledge management and organizational learning [51,52], especially concerning within-firm teams—or communities of interaction, as Nonaka calls them [53]. These fields of research help to explain the link between organizational routines and knowledge.

First of all, we need to clarify that shared knowledge does not mean shared schemata in the sense used by Dionysiou and Tsoukas [10]. Without detracting from their important contribution, it is important to emphasize that individual and potentially shared schemata are mental models [54] with wide-ranging effects. Their influence is exerted when pursuing stability as well as when seeking change—in general and with specific reference to routines [55,56]. What interests us for the purposes of our analysis is to restrict the focus to knowledge that participants in a routine can share on the questions of:

- the things to do (the actions to be taken), or *know-what* [57];
- how to do them and in what order, or *know-how* [58,59];
- why they have to be performed in a certain way, or *know-why* [60,61];
- and who does and knows what, or *know-who* [62].

If we consider a routine at a certain moment in time, a part of this knowledge is shared, while another part belongs to single participants and is not shared—at this particular point in time, at least [63]. Both parts make the routine stable, i.e., a repetitive pattern of actions. Knowledge sharing can involve multiple people simultaneously (as typically happens at a meeting of participants in a routine), or it can spread along a chain or through a network of bilateral interactions. On-the-job (or on-the-routine) training is also a form of knowledge sharing. A special, rather delicate case is when a participant in a routine is the only one who has a certain knowledge and has to transfer it to another participant destined to replace him/her. These knowledge-sharing ways enable routines to withstand, within certain limits, a turnover in their participants without too many problems [64–66].

When speaking of routine-specific knowledge, we mean, therefore, two knowledge components that always go together: shared knowledge, and unshared but sharable knowledge. Many routines consist of several subroutines [10,67] and, in such cases, we need to consider two levels of shared knowledge, one within each subroutine, the other relating to the routine as a whole. The ratio between shared and unshared knowledge differs from one routine to another, but it also changes over time for the same routine. For instance, it increases when routine managers adopt effective knowledge-sharing practices [68]. The fact of participants having individual knowledge that they do not share stems from the division of cognitive labor between them because "everyone cannot know everything" [11] (p. 104). This division also implicates a diversity of interests and goals, but this type of multiplicity does not prevent routines from continuing to be repetitive patterns of actions, to some degree at least [4,67].

Whether it is shared by the routine participants or not, the knowledge we are talking about serves its purpose of guiding individual actions in a tacit state. Of course, when tacit knowledge is transferred from one participant to another through interaction, it is temporarily made more or less explicit by the former so that it can be absorbed by the latter—a process analyzed in depth by Nonaka and Takeuchi [69]. This is not tacit knowledge *à la* Polanyi, by means of which "we know a person's face, and can recognize it among a thousand, indeed among a million" [17] (p. 4), for instance, which is subconscious and, therefore, impossible to explicate and unsharable by definition. It is a tacit knowledge that can be made explicit and is, therefore, sharable [70,71]. Routines also have a tacit dimension *à la* Polanyi, on the level of individual skills, but this is not the same as the

tacit knowledge of interest here because of its importance from a replication perspective. Unfortunately, the literature on organizational routines has not taken this difference into account, either from the capability perspective [4] or from the performative perspective [32]. More radically, some authors have proposed a purely "procedural" view of routines, which would be stored as procedural memory, without involving the declarative memory [72–74]. Declarative (explicit) memory is implicated in learning about facts and events, while procedural (non-declarative, implicit) memory subserves the learning of skills such as the ability to recognize and respond promptly to a given signal [75]. However, conceiving routines as collective automatisms makes a sort of caricature of them [76]. Instead, we know from the research field of cognitive neuroscience that declarative and procedural memories interact in a number of ways [77]. In the words of Giddens, "actors will usually be able to explain most of what they do, if asked" [78] (p. 6).

When artifacts are routine-specific knowledge holders (Figure 1), they are accessible and shared by the participants [79], and the knowledge they embody is internalized or interiorized by the participants [69]. Actors sometimes employ artifacts in their interaction. In other words, cognitive artifacts take effect alongside and within the interaction between participants, facilitating knowledge sharing, and adding their own specific contribution to guiding individual actions. This assumption is wholly consistent with the way in which Pentland and Reuter conceptualize artifacts in a work preceding the advent of the performative perspective [80]: learning from Giddens [78], the authors qualified them as resources for action.

3.5. In Search of the Routine Phenotype

Looking at the link between routines and environment, this interface takes two general forms: traits and behaviors, or actions [22]. The tangible products are traits, and the "stability" of their attributes is a founding principle of the quality assured by the firm and perceived by its clients. The price of the product is also a trait. Customer services delivered by the firm's personnel occupy the sphere of behaviors instead, while online services are halfway between traits and behaviors. These and other examples of traits and behaviors all involve one or more organizational routines.

Biologists would call traits and behaviors "phenotypes", i.e., the ultimate expression of a structure for instruction (the information encoded in the biological genotype), or what the environment "sees" [26,81]. Figure 2 shows the link between the genotype of a given routine (its specific knowledge) and its final visible appearance, i.e., its phenotypic expression.

While the question of the phenotype remains in the background in the evolutionary theory of Nelson and Winter [4], it comes to the fore in Hodgson and Knudsen' studies. In their earlier works [22], they use the term phenotype as in Figure 2, to mean the manifest behaviors and other attributes (traits) of an interactor, be it a biological organism or an organization, while genotype refers to the underlying set of instructions on which the phenotype partly depends. In later works, however [5], they identify the phenotype with the interactor as proposed by the philosopher of science Hull [82], so the organization that hosts the routines is the phenotype, and the routines determine the behavior of this phenotype. This second interpretation, also shared by Nelson [83], is clearly incompatible with the first. On the other hand, Becker et al. [84] draw a parallel between the performative aspect described by Feldman and Pentland [11] and the phenotypic aspect of routines, that would, thus, come to occupy a place in the middle of Figure 2 as well. However, this is a forced parallelism given that in performative studies the ostensive dimension of routines remains far from a genotype and, moreover, does not even appear in the way they are defined [11,85].
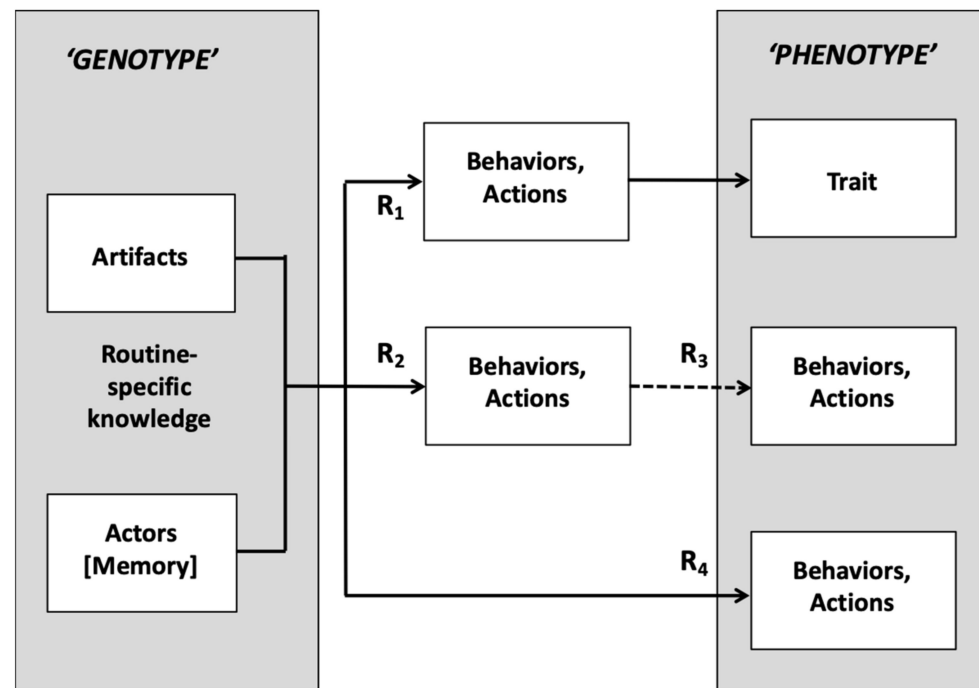
Figure 2. Connecting routines with their environment.

The genotype–phenotype distinction, thus, remains an unsolved issue in the literature on organizational routines. This is because the difference between the two types of routine in relation to their interfacing with the environment has yet to be analyzed. Figure 2 brings out this difference, disentangling the routines that interface directly with the environment (R_3 and R_4) from those that do not because they only serve the former type of routine (R_2), or contribute to the production of a trait (R_1). An example of the R_2–R_3 connection that is amply used in the literature on service management concerns front-office as opposed to back-office routines (the dotted line in Figure 2): front-office routines represent the "moment of truth" [86], but this would almost always be an unpleasant moment for the service organization without the support of back-office routines.

4. Routine Replication and Its Forms

4.1. Replication as Strategy

The intrinsic variability of organizational routines brought the issue of their replication out of the practice perspective [87]. This topic is only addressed in a few case studies [88–91] of routine replication with adaptation. Their relative stability, on the other hand, made the same issue relevant to Nelson and Winter [4] and other scholars who followed in their tracks. In their seminal contribution, they identify two types of routine replication: intra-organizational replication, as in the case of establishing a new plant identical to the original and employing the same routines; and imitation, as a consequence of the fact that "a firm observes that some other firm is doing things that it would like to be able to do" [4] (p. 123). In the first type of replication—which Nelson and Winter name "inheritance"—an existing routine serves as a template for a new one, as if it were a gene. The authors add that copying becomes more difficult if we move from intra-organizational replication to imitation, when the routine to copy is not available as a template.

Between pure intra-organizational replication (when a whole template is readily available) and pure imitation (when no template is available in any meaningful sense), Nelson and Winter also consider various intermediate cases. For instance, adjacent to the first they place inter-firm cooperation for the purpose of technology transfer, when imitation occurs with the active support of the firm being imitated. On the other hand, the case of an imitator taking one or more employees with experience of a routine away from

the imitatee (especially if they are employees that the imitatee would transfer to a new unit of its own in an effort to replicate its existing one) is a far cry from pure imitation.

In discussing such intermediate forms, Nelson and Winter make no mention of new ventures founded by ex-employees of incumbent firms (spin-offs). Their disregard for this form of replication can be explained by the fact that they focused mainly on large organizations and their growth [92]. To grow, firms can adopt various strategies, and replication (i.e., growing by creating other similar organizational units) is one of them.

Replication as a growth strategy becomes the focus of a number of studies by Winter and others [1], in view of the growing number of chain organizations, i.e., companies that grow by establishing similar outlets delivering a product or performing a service. In presenting the key elements of this strategy, Winter and Szulanski [93,94] refine the concept of template by defining it as a working example of a successful routine or set of routines accessible only to the replicating firm, which gives it an advantage over any potential imitator. In fact, the former can directly observe the template (a routine in action) during the process of its copying, solving any problems that arise through its scrutiny. This makes it possible to replicate a routine, in the sense of creating "another routine that is similar to the original routine in significant respects" [95] (p. 349). Then Jensen and Szulanski examine the benefits of using templates beyond the boundaries of chain organizations, studying a repeated experience of transferring best practices associated with sales processes within the Rank Xerox organization [96]. In this study and others [97], replication is not associated with the creation of new organizational units but with using a routine, even a newly formed one, which has performed well somewhere within the organization in other parts of the same organization. Interestingly, Szulanski and Jensen [98], and then Winter et al. [99] extend the idea of template-based replication from intra-organizational replication to replication in franchising systems.

The tacit dimension and the problems of causal ambiguity characteristic of any template naturally make its replication difficult [100], but the problem should also be seen dynamically: a firm may learn about the template as it gains experience of replication. The replicating organization's learning process coincides with a gradual tendency to make its approach to replication more structured [7,93].

4.2. Spin-Offs and Inter-Organizational Imitation as Forms of Replication

Similar to Nelson and Winter, Hodgson and Knudsen ignore spin-offs in their early works [22]. Later on, in the light of Klepper's seminal contributions regarding spin-offs, they acknowledge this kind of new venture as a possible form of routine replication, attributing their specificity to their being tied up with new organizations, or organizational interactors in the language of Generalized Darwinism [5]. This gives us three general forms of routine replication instead of the two already identified by Nelson and Winter [4]: intra-organizational replication, inter-organizational imitation, and spin-offs [5].

Klepper wrote two seminal contributions [101,102] on the topic of spin-offs defined as new ventures whose founders had previously been employed by established firms in the same industry. The first proposes a new approach to spin-offs that stems from combining an idea of Dyck [103] about spin-offs inheriting various characteristics from their parents with the notion of routines developed by Nelson and Winter [4]. The second is an in-depth empirical study of new entrants in the automobile industry in the U.S.A. between 1895 and 1966. What emerges is that those best equipped to cope with the competition had been founded by people with a lengthy experience of working for the industry's leading companies. Klepper's work, and a study conducted at the same time and in the same vein by Phillips [104] on Silicon Valley law firms were followed by various studies on other industries or countries. As a review conducted by Klepper himself [2] shows, the findings of these studies confirm one or both of the aspects that had emerged in the study on the automotive industry: (i) spin-offs perform better than other types of new entrants, in terms of survival rates and other performance measures; (ii) spin-offs from high-performing incumbents fare better than those deriving from less successful incumbents. Another

finding of Klepper's review is the association between spin-offs and industry clustering as in the case of the automobile industry localized in Detroit and several other cases. Subsequent studies converge on these results [105–113].

Unlike the studies on intra-organizational routine replication, the research conducted by Klepper and others pays little attention to the process of replication, as it focuses more on the performance of spin-offs (e.g., their survival likelihood). Therefore, it only indirectly demonstrates the process of routine inheritance [2,114,115]. An exception lies in a recent work by Maryann Feldman et al. [116], which compares the organizational practices of a sample of spin-offs with those of their parent firms, and with those of a sample of other established firms, finding strong evidence of routine replication via spin-off.

Routine replication by imitation between incumbent firms has only been analyzed in two empirical studies [117]. Both [3,65] focus on the mobility of key employees, i.e., those with a consolidated experience of their organization's source routines. The work by Wezel and colleagues compares imitation with spin-offs, demonstrating that founders of spin-offs are better at transferring industry knowledge than employees who move from one firm to another. Both studies advance the idea that key employees moving from a parent firm to another incumbent represents a mechanism of routine replication, supporting it (indirectly) by looking at the impact of employee mobility on the competitive performance of the organizations being imitated [3] or by comparing the organizations being imitated with their imitators [65].

4.3. Reconceptualizing Routine Replication

The literature on routine replication makes two main theoretical contributions: one on the identification of the forms in which it can occur [3,5,65,101,102] and one on the concept of template, intended as a working example of an organizational routine in intra-organizational replication [93]. What is missing, however, from the studies on routine replication (which can all come under the umbrella of the capabilities perspective) is an interpretation of the forms of replication based on what routines are and how they operate (as analyzed in the previous section). We try to fill this gap by constructing a routine-based theoretical framework of routine replication in its various forms. With the aid of Figure 3, the various steps in this construction are outlined below.
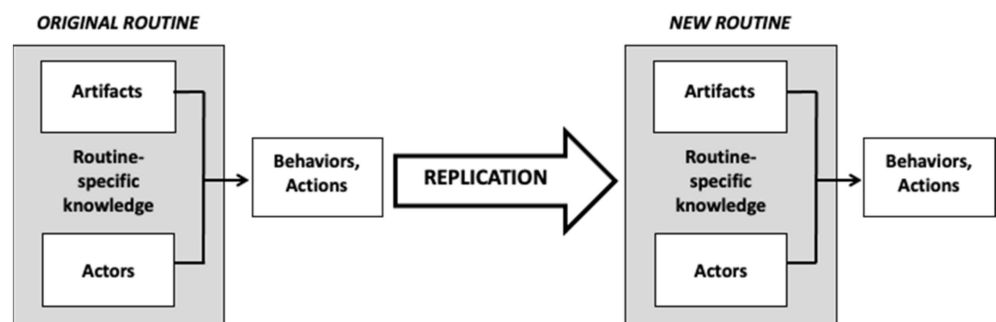
General form	Intra-organizational replication		Inter-organizational replication	
Knowledge repository	Template Individual memory Artifacts		Individual memory Artifacts	
Specific form	Routinized replication	Non-routinized replication	Spin-off	Imitation
Replicability degree	4	3	2	1

Figure 3. Framing routine replication in its forms.

The upper part of Figure 3 contains a simplified representation of the routine being replicated, as in Figure 1. Adopting the definition of routine replication suggested by Szulanski and Jensen [95] (p. 349), we mean that a given routine has been replicated if the new routine "is similar to the original routine in significant respects". This definition comes from a study on Rank Xerox's intra-organizational replication efforts in the early 1990s, but it also fits the bill for the other two forms of replication—inter-organizational imitation and spin-offs—that emerged from our review. There are three aspects of this definition that is important to emphasize. First, the definition demands that we compare the copy with the "original" routine, meaning that the variability entirely within the performative sphere—i.e., due to contingent factors affecting "specific actions, by specific people, at specific times and places" [11] (p. 94)—should be disregarded because it already exists in the replica, just as it does in the source routine. Then, similarity "in significant respects" means that the copy of a routine is unlikely to be perfect [4]. An exact replication is hindered by individual skills that inform the unsharable knowledge of the routine, as well as by random micro-variations or copy errors [118]. Finally, replication is a strategy. The following discussion is based on the point of view of a firm or individual pursuing a strategy of "perfect" (realistically perfect) replication of one or more organizational routines. When we talk about replication we can refer to this strategy, to its outcome (not necessarily achieved as the adopted definition implicitly suggests), or to the process aiming to achieve the outcome.

Going along with Jensen and Szulanski [96], routine replication is a form of knowledge transfer. Following our definition and reexamination of the concept of routines, we might add that a replication strategy uses the specific knowledge of a source routine as the means, its end being to replicate its phenotypic expression. In other words, it is the success that this expression has had in the competitive environment that motivates the decision to replicate it, whatever form the replication takes. Knowledge transfer needs knowledge repositories that, in the case of replicating a routine, correspond to the artifacts associated with the routine, the actors involved in the replication with their individual memory, and sometimes the source routine (or template). Artifacts or, better still, cognitive artifacts have an important role in the replication of a routine, but—being codified expressions of routine-specific knowledge, and consequently transferable by definition—their role does not differ significantly between the various forms of replication [41]. To emphasize the differences between the forms of routine replication, we, therefore, need to focus on the replication actors and templates. The lower part of Figure 3 shows the main characteristics of the different forms of replication: intra-organizational and inter-organizational replication as general forms; routinized and non-routinized replication as specific forms of intra-organizational replication; spin-off and imitation as specific forms of inter-organizational replication.

Intra-organizational replication differs fundamentally from spin-offs and inter-organizational imitation in three important aspects. First, there is a level superordinate to the replication actors, where the replication is chosen and planned as a business strategy [94]. This distinctive feature implicates the presence of two groups of replication actors: the first includes the people responsible for facilitating routine replication; the second those who implement it to generate a new routine. The facilitating actions typically include training the participants in the routine. As replication is a process "by which organizations reuse knowledge that is already in use" [94] (p. 208), they can also use a template or working example, considered as a repository of routine-specific knowledge that is potentially subject to copying [119]. The replication actors can absorb routine-specific knowledge by observing the behaviors and actions of the actors who work in the source routine, and also by interacting with them and sharing knowledge. They can also check the link between the routine-specific knowledge of the working example and its phenotype as observable in the competitive environment. The first proposition of our conceptual framework can, therefore, be defined as follows:

Proposition 1. *Replicability is greater in intra-organizational than in inter-organizational routine replication processes. This is due to the presence in the former of a level superordinate to the replication in practice, actors specialized in supporting it, and a template to which to hook it, making it easier to deal with the complexity of the process.*

There are two clearly-differentiated forms of intra-organizational replication, adding a further form to the three discussed in the literature: one is serial replication, or the "McDonalds approach" [93]; the other coincides with the first steps of a serial replication, or is a choice a firm makes in certain situations—to set up a new production plant in order to (replicatively) expand its production capacity, for example—in which case routines used at the existing plant serve as a template for the new investment [4,120,121]. In both situations, the replicating organization can use a working routine as a template, but in the case of serial replication this is part of a structured and routinized approach for the purpose of producing *n* events of the same type within a certain time frame. The fact of having specific routines for replication, developed over time by the actors working to support the replication (the first group of replication actors), gives routinized replication an advantage over non-routinized replication when it comes to obtaining an exact copy—in other words, a greater replicability degree, as shown in Figure 3. A second proposition follows:

Proposition 2. *Considering the two forms of intra-organizational replication, the serial one has a greater replicability because it is not only template-based, but also routine-guided.*

Interestingly, franchising systems develop via a process of routine replication that is a hybrid form combining routinized replication with inter-organizational imitation. As we have seen, the scholars of intra-organizational replication include franchise replication in their research domain [98,99], even if franchisees are independent entrepreneurs. This choice seems justified because the transfer of knowledge in franchising systems and contracts goes largely in the direction from the franchisor to the franchisees, starting from the routines replicated at every opening of a new outlet. For that matter, many franchising systems are mixed also including franchisor-owned outlets, in which case franchisors transfer the same routines to both types of outlets [122]. The market for franchises, as Knott acutely noted, "appears to be a market for organizational routines" [123] (p. 930). In this market, franchisees "purchase" routines whose replication perfectly fits the bill for the serial form of intra-organizational replication. We can, thus, add another proposition to our conceptual framework:

Proposition 3. *Even if the routine replication accompanying the development of franchising systems is formally of the inter-organizational type, the fact of being template-based and routine-guided makes it very similar to the serial form of intra-organizational routine replication.*

Imitation and spin-offs are forms of inter-organizational replication in which the firm that replicates is an incumbent firm in the former case, and a newly-founded business in the latter. The knowledge transfer involves one or more replication actors with experience of the source routine, who can recall a part of this routine-specific knowledge, and they exploit this endowment to recreate the routine at the new organization. Thanks to their individual memory, which serves as a knowledge repository, they can try to develop routines in the new context that are similar to the original ones in significant respects [41].

Inter-organizational replication suffers from a structural disadvantage (a lower replicability degree) *vis-à-vis* intra-organizational replication because it lacks the three favorable conditions characterizing the latter (Proposition 1). This disadvantage is very obvious when the replication process is particularly complex, such as when there is a low ratio of shared to unshared knowledge, or in the event of subroutines, and consequently of different pieces of shared knowledge [67]. Inter-organizational replication can involve other factors relating to the characteristics of the replication actors that may reduce this disadvantage, however. A first factor concerns the routine-specific knowledge that ex-employees have stored in their

memory, and especially the unshared part, which will be greater in individuals with a more lengthy experience of a given routine, and those employed in different tasks or in more responsible positions—in short, the key employees [2,4,124]. A second factor regards the ex-employees' social capital, and specifically their relations with ex-colleagues still engaging in the source routines [114,125], who enable the replication actors to access the template, even if only indirectly. Although these relations are personal, they are clearly more likely if the parent firm's attitude to the employees who leave it is benevolent, or not hostile at least [126,127]. An "extreme" form of benevolence consists in inter-organizational imitation assisted by the imitatee [4]. A third factor is the team effect, when several employees leave the same organization. This is of interest here inasmuch as these individuals have already been interacting at the original organization as actors in routines, and they meet again as replicating (and interacting) actors in a different organizational context, whether they join an existing incumbent firm or a spin-off [107,128,129]. The team factor certainly has a very direct and effective impact for the purpose of coping with the complexity of replication, providing the team individuals the knowledge to be replicated more broadly together than could be carried out by the most endowed individual alone [41]. To this advantage we can add another deriving from these people's experience of interacting with one another at the parent firm, which reduces the time it takes to develop the new routine (replication) at the recipient organization [130,131]. The limit case of such a team effect is when the whole team involved in a routine shifts from one business to another, in which case inter-organizational replication takes on features that brings it closer to intra-organizational replication. From all the above, the following proposition emerges:

Proposition 4. *The disadvantage of inter-organizational replication compared with intra-organizational replication (in terms of routine replicability) can* be mitigated by four factors, which may also take effect together and in synergy. Three relate to the replication actors and concern: their experience of the source routines (key employees); their maintaining relationships with ex-colleagues still engaged in the source routines; and their having engaged in the same source routines (team effect). The fourth factor concerns the possible goodwill towards the replicating organization shown by the organization that the replication actors have left.

Even if spin-offs and imitation have much in common as forms of human resource mobility, an important difference between them concerns the context they arrive in, which is greenfield for a spin-off, but not for inter-organizational imitation. In the latter case, it may prove difficult to harmonize the novelties brought in by employees arriving from a different firm with what already exists at the recipient organization [132,133]. Moreover, the not-invented-here syndrome also affects organizational routines [134]. That is why imitations are generally associated with more difficulties, and consequently a lower degree of replicability, than spin-offs [3,118]. This brings us to our last proposition:

Proposition 5. *Considering the two forms of inter-organizational replication, spin-off has a greater replicability than inter-organizational imitation because the replication actors operate in a virgin organizational context that they themselves contribute to creating.*

5. Discussion

The objective of this paper has been to construct a theoretical framework capable of accounting for the replication of organizational routines in the variety of forms that this process can take. The idea that routines are replicable because of the knowledge they embed was first proposed by Nelson and Winter [4] along with the observation—then refined by Hodgson and Knudsen [5]—that routine replication takes a variety of forms, as indeed it does in the case of biological replication. However, the metaphorical analogy between genes and routines must stop in the face of the obvious diversity that exists between the simple information structure of DNA in genes and the complex cognitive structure of organizational routines involving interacting actors and interdependent actions. Those

who have penetrated this complexity are the scholars of routines in practice, but they have placed the problem of replication at the margins of their field of observation, while the heterogeneity of its forms has simply not been acknowledged. Nelson and Winter's intuition about the replication of routines has, thus, not given rise to a routine-based theory of this manifold process.

The choice to achieve our research objective by bridging the gap related to routine replication through a two-stage path was dictated by the need to have a definition of organizational routines suitable for our purpose. Combining the performative perspective on routines with the capabilities perspective, we defined them as repetitive, recognizable patterns of interdependent actions connected with the external environment, guided by specific knowledge, and involving multiple, interacting actors and artifacts. With this, we have not intended to add a new definition to those already available, but to recognize that routines are knowledge and actions at the same time [19], and failing to take their intrinsic duality into account makes it impossible to understand any process involving them, including their replication. In fact, it is the specificity of knowledge and its collective nature that stabilizes it, and this stability provides the repetitiveness (stability) of actions. Without this invariance, however relative, talking about replication simply does not make sense.

In tackling this definition, there was need to further investigate the nature of routines with regard to their specific knowledge and the link between genotype and phenotype. As it became clear in the last two subsections of Section 3, in all the literature on routines, whatever the analytical perspective taken, the difference between tacit knowledge as "hardly" tacit—and, therefore, structurally unsharable—and sharable tacit knowledge has never been clarified, while on the genotype–phenotype link one can only say that confusion has reigned supreme. Our two insights, on the one hand, represent a contribution to the knowledge of organizational routines distinct from that related to the topic of replication, and on the other hand, allow us to grasp the "tacit dimension" of our extended definition of routines. Individual actions are guided by routine-specific knowledge that is partly shared by participants through interaction with one another and with artifacts, and partly belongs to each individual alone. Routine-specific knowledge guides individual actions in a tacit state, and indirectly through artifacts, which are codified forms of routine-specific knowledge. This collective nature of routine-specific knowledge accounts for its non-volatility, which in turn ensures the repeatability of the actions and behaviors guided by that knowledge. As organizations interact with the competitive environment around them, the stability of their routines ensures the stability of the phenotypic expression of the routines at the organization–environment interface.

Based on the extended definition of routines and defining routine replication of Jensen and Szulanski [96], it was possible to address the second step of the research and develop a theory of routine replication and its heterogeneity. This allows us to advance from previous studies on this topic, starting with the seminal contribution from Nelson and Winter [4] and continuing with the others reviewed in the first two subsections of Section 4. What distinguishes intra-organizational replication, lending it a greater replicability than inter-organizational replication, is the presence of a template and of two levels involved in the replication process, one on which the replication is planned, and the other on which it is implemented by replication actors (Proposition 1). In its serial and routinized form, intra-organizational replication can potentially reach the highest level of replicability (Proposition 2). The same results can be achieved by the routine replication typical of the development of franchising systems (Proposition 3). In the two forms of inter-organizational replication, the template is replaced by a weaker knowledge repository consisting of the memory of individuals who leave one organization and try to replicate its routines at another. The disadvantage deriving from the lack of a template can be contained if one or more factors facilitate the replication actors' work (Proposition 4). If this is carried out at an existing organization that has its own consolidated culture, structures and processes, then the replication actors may encounter some hurdles—something that does not happen with spin-offs (Proposition 5).

Our way of conceiving the variety of forms that routine replication can take suggests a novel interpretation of how organizational populations or industries evolve, an issue that has been largely neglected by the literature on organizational evolution [27,135,136]. If we consider an industry in a given time frame, there will be a certain number of employees who leave existing firms to establish new ones, or to join other existing firms. A proportion of these people are actors who replicate routines they experienced at the firms they have left. At every stage in the history of the industry, the two mechanisms of inter-organizational replication coexist as separate channels through which routine-specific knowledge circulates. We might add that the spin-off mechanism is dominant in the introductory stage of an industry, or in a phase following a technological discontinuity. This was demonstrated by Klepper, who takes the merit for the "empirical observation that spin-offs accounted for a large share of successful entrants that shaped the further evolution of the industries he studied" [137] (p. 744). As explained in his and others' studies [138], pioneering firms are fertile incubators for start-ups that try to reproduce their success by replicating their routines. On the other hand, the replication mechanism mediated by employee mobility identifies the phase of maturity of an industry, when the variation (innovation) of a routine developed by an incumbent firm will generally be of modest extent, in terms of new routine-specific knowledge, and may easily be replicated by a competitor with the help of an employee who has experience of the variation. Then, the imitator may become an imitatee [135].

In its two forms, inter-organizational routine replication prevents the transformation of an industry in an oligopolistic sense. Chandler reminds us of the importance of the major corporations in modern capitalistic economies: "the individuals come and go, the organization remains" [139] (p. 87). However, as long as many capable replication actors move around in a given industry and period, it is difficult for that industry to become or remain an oligopoly. On the other hand, an oligopolistic transformation has been a distinctive feature of the evolution of some industries [140,141] and—in the light of our framework—this can be explained by a weakening of the conditions that guarantee inter-organizational replication. Some firms in the industry succeed in developing routines that give them a competitive edge, and the complexity of their routines makes them very difficult to replicate, so their competitive advantage is sustainable. These firms grow at a faster rate, giving rise to a gradually increasing industrial concentration [4]. Taking this view, serial and routinized intra-organizational replication—a growth strategy clearly visible in some service industries [142–144]—can be seen as a source of oligopolistic transformation.

6. Conclusions

Combining the two analytical perspectives on organizational routines (the capabilities and the performative perspectives), we have defined routines as repetitive, recognizable patterns of interdependent actions connected with the external environment, guided by specific knowledge and involving multiple, interacting actors and artifacts. This way of conceiving routines emphasizes their replicability and enabled us to develop an original and unitary theoretical routine replication framework covering its various forms. This framework also proves useful in accounting for the different evolutionary patterns followed by different industries.

Although the paper is theoretical in nature, it has some interesting implications for entrepreneurs and managers.

6.1. Managerial Implications

With regards to a routine replication strategy that is sustainable on the competitive plane, people wishing to implement it in its inter-organizational versions must be aware of the problem posed by the absence of a template to serve as working example. They need to prepare adequately during the period before they leave the parent firm. They should: accumulate an in-depth knowledge of the source routines; establish interpersonal relations

that can be usefully activated to support the replication process; select colleagues to take with them to make up an effective team.

A second implication worth emphasizing concerns the choice of an employee expert in a particular routine or set of routines working very well in his or her firm to transfer this knowledge to instruct behaviors and actions in another incumbent firm. This choice must be preceded by an adequate knowledge of the target organizational context, keeping in mind that the not-invented-here syndrome or other obstacles may result in the failure of the strategy. Full awareness of the possible problems to be addressed may lead to forgoing that strategy or, if not, planning remedies to facilitate the replication process.

Finally, let us consider the opening of new franchising outlets. From the replication standpoint, events of this type can benefit from the advantageous conditions typical of routinized intra-organizational replication, but it is hard to make good use of this potential without an alignment between the franchisor's strategy and the behavior of the (relatively independent) franchisees. Franchisors can reduce the risk of this alignment not taking place through careful selection of franchisees and their on-the-template training before the new outlets are started.

6.2. Limitations and Further Research

Much empirical research remains to be conducted to confirm the theoretical perspective suggested in this paper. A first issue concerns the effective replicability of routines in the case of inter-organizational replication. As we have seen, this issue has almost always only been examined indirectly, with the exception of the work by Feldman et al. on a sample of Danish start-ups, which compared their organizational practices, between spin-offs and start-ups of other types, and with their parent companies, if any [116]. Other studies may move along these lines of research using sets of variables that (compared with those used by Feldman and colleagues for their organizational practices) come closer to representing organizational routines. Starting from information of this type, we could also compare the various forms of replication, testing the propositions contained in our theoretical framework on routine replication.

Moreover, the whole discussion developed in the paper is based on the point of view of a firm or individual deciding to replicate one or more successful routines. Thus, our field of observation excludes the opposite strategy of adapting source routines to the new contexts, i.e., cases in which the replication dilemma conceptualized by Winter and Szulanski [93] is resolved, not in replication but in adaptive variation, to use a term from evolutionary biology [145]. On the other hand, our reflection on the heterogeneity of the replicative phenomenon suggests a generalization of the replication dilemma. Indeed, the study of this issue has so far been confined to intra-organizational replication [7,88,93] up to the boundary form of franchising [122,146], while a similar dilemma could be found and analyzed in spin-offs [41] as well as in inter-organizational imitation.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Friesl, M.; Larty, J. Replication of Routines in Organizations: Existing Literature and New Perspectives. *Int. J. Manag. Rev.* **2013**, *15*, 106–122. [CrossRef]
2. Klepper, S. Spinoffs: A review and synthesis. *Eur. Manag. Rev.* **2009**, *6*, 159–171. [CrossRef]
3. Wezel, F.C.; Cattani, G.; Pennings, J.M. Competitive Implications of Interfirm Mobility. *Organ. Sci.* **2006**, *17*, 691–709. [CrossRef]
4. Nelson, R.R.; Winter, S.G. *An Evolutionary Theory of Economic Change*; Belknap Press: Cambridge, UK, 1982.
5. Hodgson, G.M.; Knudsen, T. *Darwin's Conjecture: The Search for General Principles of Social and Economic Evolution*; University of Chicago Press: Chicago, IL, USA, 2010.
6. Koonin, E.V. *The Logic of Chance: The Nature and Origin of Biological Evolution*; Pearson Education: Upper Saddle River, NJ, USA, 2012.
7. Jonsson, A.; Foss, N.J. International expansion through flexible replication: Learning from the internationalization experience of IKEA. *J. Int. Bus. Stud.* **2011**, *42*, 1079–1102. [CrossRef]

8. Parmigiani, A.; Howard-Grenville, J. Routines revisited: Exploring the capabilities and practice perspectives. *Acad. Manag. Ann.* **2011**, *5*, 413–453. [CrossRef]
9. Breslin, D. What evolves in organizational co-evolution? *J. Manag. Gov.* **2016**, *20*, 45–67. [CrossRef]
10. Dionysiou, D.D.; Tsoukas, H. Understanding the (Re)Creation of Routines from Within: A Symbolic Interactionist Perspective. *Acad. Manag. Rev.* **2013**, *38*, 181–205. [CrossRef]
11. Feldman, M.S.; Pentland, B.T. Reconceptualizing Organizational Routines as a Source of Flexibility and Change. *Adm. Sci. Q.* **2003**, *48*, 94–118. [CrossRef]
12. Pentland, B.T.; Feldman, M.S. Designing routines: On the folly of designing artifacts, while hoping for patterns of action. *Inf. Organ.* **2008**, *18*, 235–250. [CrossRef]
13. D'Adderio, L. Artifacts at the centre of routines: Performing the material turn in routines theory. *J. Inst. Econ.* **2011**, *7*, 197–230. [CrossRef]
14. Feldman, M.S. Routines as process: Past, present, and future. In *Organizational Routines: How They Are Created, Maintained, and Changed*; Howard-Grenville, J., Rerup, C., Langley, A., Tsoukas, H., Eds.; Oxford University Press: Oxford, UK, 2016; pp. 23–46.
15. Cyert, R.M.; March, J.G. *A Behavioral Theory of the Firm*; Prentice-Hall: Englewood Cliffs, NJ, USA, 1963.
16. Gavetti, G.; Greve, H.R.; Levinthal, D.A.; Ocasio, W. The behavioral theory of the firm: Assessment and prospects. *Acad. Manag. Ann.* **2012**, *6*, 1–40. [CrossRef]
17. Polanyi, M. *The Tacit Dimension*; Garden City: Doubleday, NY, USA, 1966.
18. Nelson, R.R.; Winter, S.G. Evolutionary Theorizing in Economics. *J. Econ. Perspect.* **2002**, *16*, 23–46. [CrossRef]
19. Becker, M.C. Organizational routines: A review of the literature. *Ind. Corp. Change* **2004**, *13*, 643–678. [CrossRef]
20. Stańczyk-Hugiet, E.; Piórkowska, K.; Stańczyk, S. Demystifying emergence of organizational routines. *J. Organ. Change Manag.* **2017**, *30*, 525–547. [CrossRef]
21. Wolthuis, F.; Hubers, M.D.; van Veen, K.; de Vries, S. The concept of organizational routines and its potential for investigating educational initiatives in practice: A systematic review of the literature. *Rev. Educ. Res.* **2022**, *92*, 249–287. [CrossRef]
22. Hodgson, G.M.; Knudsen, T. The firm as an interactor: Firms as vehicles of habits and routines. *J. Evol. Econ.* **2004**, *14*, 281–307. [CrossRef]
23. Dawkins, R. *The Selfish Gene*; Oxford University Press: Oxford, UK, 1976.
24. Hodgson, G.M.; Knudsen, T. The nature and units of natural selection. *J. Evol. Econ.* **2006**, *16*, 477–489. [CrossRef]
25. Aldrich, H.E.; Hodgson, G.M.; Hull, D.; Knudsen, T.; Mokyr, J.; Vanberg, V.J. In defence of generalized Darwinism. *J. Evol. Econ.* **2008**, *18*, 577–596. [CrossRef]
26. Whitlock, M.C. From DNA to phenotypes. In *The Princeton Guide to Evolution*; Losos, J.B., Ed.; Princeton University Press: Princeton, NJ, USA, 2014; pp. 40–46.
27. Abatecola, G.; Belussi, F.; Breslin, D.; Filatotchev, I. Darwinism, organizational evolution and survival: Key chal-lenges for future research. *J. Manag. Gov.* **2016**, *20*, 1–17. [CrossRef]
28. Wright, A. Organizational routines as embodied performatives: A communication as constitutive of organization perspective. *Organization* **2016**, *23*, 147–163. [CrossRef]
29. Latour, B. The powers of association. In *Power, Action and Belief*; Law, J., Ed.; Routledge and Kegan Paul: London, UK, 1986; pp. 264–280.
30. Simpson, B.; Lorino, P. Reviewing routines through a pragmatist lens. In *Organizational Routines: How They Are Created, Maintained, and Changed*; Howard-Grenville, J., Rerup, C., Langley, A., Tsoukas, H., Eds.; Oxford University Press: Oxford, UK, 2016; pp. 47–70.
31. Howard-Grenville, J.; Rerup, C. A process perspective on organizational routines. In *Sage Handbook of Process Organization Studies*; Langley, A., Tsoukas, H., Eds.; Sage Publications: London, UK, 2017; pp. 323–339.
32. Pentland, B.T.; Feldman, M.S. Organizational routines as a unit of analysis. *Ind. Corp. Change* **2005**, *14*, 793–815. [CrossRef]
33. Birnholtz, J.P.; Cohen, M.D.; Hoch, S.V. Organizational Character: On the Regeneration of Camp Poplar Grove. *Organ. Sci.* **2007**, *18*, 315–332. [CrossRef]
34. Weick, K.E. Improvisation as a Mindset for Organizational Analysis. *Organ. Sci.* **1998**, *9*, 543–555. [CrossRef]
35. Feldman, M.S.; Orlikowski, W.J. Theorizing Practice and Practicing Theory. *Organ. Sci.* **2011**, *22*, 1240–1253. [CrossRef]
36. Feldman, M.S.; Pentland, B.T.; D'Adderio, L.; Lazaric, N. Beyond routines as things: Introduction to the special issue on routine dynamics. *Organ. Sci.* **2016**, *27*, 505–513. [CrossRef]
37. Mead, G.H. *Mind, Self, and Society from the Standpoint of a Social Behaviorist*; University of Chicago Press: Chicago, IL, USA, 1934.
38. Farjoun, M. Beyond dualism: Stability and change as a duality. *Acad. Manag. Rev.* **2010**, *35*, 202–225.
39. Miller, K.D.; Pentland, B.T.; Choi, S. Dynamics of Performing and Remembering Organizational Routines. *J. Manag. Stud.* **2012**, *49*, 1536–1558. [CrossRef]
40. Annosi, M.C.; Martini, A.; Brunetta, F.; Marchegiani, L. Learning in an agile setting: A multilevel research study on the evolution of organizational routines. *J. Bus. Res.* **2020**, *110*, 554–566. [CrossRef]
41. Furlan, A.; Grandinetti, R. Can Routines be Inherited? A Microfoundational Approach to Spinoffs. *Eur. Manag. Rev.* **2020**, *17*, 885–899. [CrossRef]
42. Del Giudice, M.; Della Peruta, M.R.; Maggioni, V. Collective knowledge and organizational routines within academic communities of practice: An empirical research on science–entrepreneurs. *J. Knowl. Econ.* **2013**, *4*, 260–278. [CrossRef]

43. Feldman, M.S.; Rafaeli, A. Organizational Routines as Sources of Connections and Understandings. *J. Manag. Stud.* **2002**, *39*, 309–331. [CrossRef]

44. Turner, S.F.; Rindova, V. A Balancing Act: How Organizations Pursue Consistency in Routine Functioning in the Face of Ongoing Change. *Organ. Sci.* **2012**, *23*, 24–46. [CrossRef]

45. Turner, S.F.; Rindova, V.P. Watching the Clock: Action Timing, Patterning, and Routine Performance. *Acad. Manag. J.* **2018**, *61*, 1253–1280. [CrossRef]

46. Sargis-Roussel, C.; Belmondo, C.; Deltour, F. Bringing People Back in: How Group Internal Social Capital Influences Routines' Emergence. *Eur. Manag. Rev.* **2017**, *14*, 101–112. [CrossRef]

47. Eberl, M. *Organizational Routines Meet Experimental Psychology: The Role of Implicit Learning in the Modification of Organizational Routines*; Springer: Wiesbaden, Germany, 2018.

48. Bapuji, H.; Hora, M.; Saeed, A.; Turner, S. How Understanding-Based Redesign Influences the Pattern of Actions and Effectiveness of Routines. *J. Manag.* **2019**, *45*, 2132–2162. [CrossRef]

49. Danner-Schröder, A. Without actors, there is no action: How interpersonal interactions help to explain routine dynamics. *Rev. Manag. Sci.* **2021**, *15*, 1913–1936. [CrossRef]

50. Carayannis, E.G.; Grigoroudis, E.; Del Giudice, M.; Della Peruta, M.R.; Sindakis, S. An exploration of contempo-rary organizational artifacts and routines in a sustainable excellence context. *J. Knowl. Manag.* **2017**, *21*, 35–56. [CrossRef]

51. King, W.R. (Ed.) *Knowledge Management and Organizational Learning*; Springer: New York, NY, USA, 2009.

52. Easterby-Smith, M.; Lyles, M.A. (Eds.) *Handbook of Organizational Learning and Knowledge Management*, 2nd ed.; Wiley: Chichester, UK, 2011.

53. Nonaka, I. A Dynamic Theory of Organizational Knowledge Creation. *Organ. Sci.* **1994**, *5*, 14–37. [CrossRef]

54. Klimoski, R.; Mohammed, S. Team mental model: Construct or metaphor? *J. Manag.* **1994**, *20*, 403–437. [CrossRef]

55. Balogun, J.; Johnson, G. Organizational restructuring and middle manager sensemaking. *Acad. Manag. J.* **2004**, *47*, 523–549.

56. Stiles, P.; Trevor, J.; Farndale, E.; Morris, S.S.; Paauwe, J.; Stahl, G.K.; Wright, P. Changing routine: Reframing performance management within a multinational. *J. Manag. Stud.* **2015**, *52*, 63–88. [CrossRef]

57. Edmondson, A.C.; Winslow, A.B.; Bohmer, R.M.J.; Pisano, G.P. Learning How and Learning What: Effects of Tacit and Codified Knowledge on Performance Improvement Following Technology Adoption. *Decis. Sci.* **2003**, *34*, 197–224. [CrossRef]

58. Kogut, B.; Zander, U. Knowledge of the firm, combinative capabilities, and the replication of technology. *Organ. Sci.* **1992**, *3*, 383–397. [CrossRef]

59. Brown, J.S.; Duguid, P. Organizing knowledge. *Calif. Manag. Rev.* **1998**, *40*, 90–111. [CrossRef]

60. Pfeffer, J.; Sutton, R.I. Knowing "What" to Do Is Not Enough: Turning Knowledge into Action. *Calif. Manag. Rev.* **1999**, *42*, 83–108. [CrossRef]

61. Miner, A.S.; Ciuchta, M.P.; Gong, Y. Organizational Routines and Organizational Learning. In *Handbook of Organizational Routines*; Edward Elgar: Cheltenham, UK, 2008; pp. 152–186. [CrossRef]

62. Moreland, R.L. Transactive memory: Learning who knows what in work groups and organizations. In *Shared Cognition in Organizations: The Management of Knowledge*; Thompson, L., Messick, D., Levine, J., Eds.; Erlbaum: Mahwah, NJ, USA, 1999; pp. 3–31.

63. Bolade, S.; Sindakis, S. Micro-Foundation of Knowledge Creation Theory: Development of a Conceptual Framework Theory. *J. Knowl. Econ.* **2020**, *11*, 1556–1572. [CrossRef]

64. Levitt, B.; March, J.G. Organizational learning. *Annu. Rev. Sociol.* **1988**, *14*, 319–340. [CrossRef]

65. Aime, F.; Johnson, S.; Ridge, J.W.; Hill, A.D. The routine may be stable but the advantage is not: Competitive im-plications of key employee mobility. *Strateg. Manag. J.* **2010**, *31*, 75–87. [CrossRef]

66. Argote, L.; Guo, J.M. Routines and transactive memory systems: Creating, coordinating, retaining, and transferring knowledge in organizations. *Res. Organ. Behav.* **2016**, *36*, 65–84. [CrossRef]

67. Zbaracki, M.J.; Bergen, M. When Truces Collapse: A Longitudinal Study of Price-Adjustment Routines. *Organ. Sci.* **2010**, *21*, 955–972. [CrossRef]

68. Von Krogh, G. Knowledge sharing in organizations: The role of communities. In *Handbook of Organizational Learning and Knowledge Management*, 2nd ed.; Easterby-Smith, M., Lyles, M.A., Eds.; Wiley: Chichester, UK, 2011; pp. 403–422.

69. Nonaka, I.; Takeuchi, H. *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*; Oxford University Press: Oxford, UK, 1995.

70. Cook, S.D.; Brown, J.S. Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing. *Organ. Sci.* **1999**, *10*, 381–400. [CrossRef]

71. Grandinetti, R. The explicit dimension: What we could not learn from Polanyi. *Learn. Organ.* **2014**, *21*, 333–346. [CrossRef]

72. Cohen, M.D.; Bacdayan, P. Organizational Routines Are Stored as Procedural Memory: Evidence from a Laboratory Study. *Organ. Sci.* **1994**, *5*, 554–568. [CrossRef]

73. Cohen, M.D. Perceiving and Remembering Routine Action: Fundamental Micro-Level Origins. *J. Manag. Stud.* **2012**, *49*, 1383–1388. [CrossRef]

74. Winter, S.G. Habit, Deliberation, and Action: Strengthening the Microfoundations of Routines and Capabilities. *Acad. Manag. Perspect.* **2013**, *27*, 120–137. [CrossRef]

75. Squire, L.R. Declarative and Nondeclarative Memory: Multiple Brain Systems Supporting Learning and Memory. *J. Cogn. Neurosci.* **1992**, *4*, 232–243. [CrossRef]

76. Orlikowski, W.J. Knowing in practice: Enacting a collective capability in distributed organizing. *Organ. Sci.* **2002**, *13*, 249–273. [CrossRef]

77. Ullman, M.T. Contributions of memory circuits to language: The declarative/procedural model. *Cognition* **2004**, *92*, 231–270. [CrossRef]

78. Giddens, A. *The Constitution of Society: Outline of the Theory of Structuration*; Polity Press: Cambridge, UK, 1984.

79. Narduzzo, A.; Rocco, E.; Warglien, M. Talking about routines in the field: The emergence of organizational capabil-ities in a new cellular phone network. In *The Nature and Dynamics of Organizational Capabilities*; Dosi, G., Nelson, R.R., Winter, S.G., Eds.; Oxford University Press: Oxford, UK, 2000; pp. 25–50.

80. Pentland, B.T.; Reuter, H.H. Organizational routines as grammars of action. *Adm. Sci. Q.* **1994**, *39*, 484–510. [CrossRef]

81. Mayr, E. *The Growth of Biological Tthought: Diversity, Evolution, and Inheritance*; Belknap Press: Cambridge, UK, 1982.

82. Hull, D.L. *Science as a Process: An Evolutionary Account of the Social and Conceptual Development of Science*; University of Chicago Press: Chicago, IL, USA, 1988.

83. Nelson, R.R. Recent evolutionary theorizing about economic change. *J. Econ. Lit.* **1995**, *33*, 48–90.

84. Becker, M.C.; Lazaric, N.; Nelson, R.R.; Winter, S.G. Applying organizational routines in understanding organi-zational change. *Ind. Corp. Change* **2005**, *14*, 775–791. [CrossRef]

85. Pentland, B.T.; Hærem, T.; Hillison, D. Comparing Organizational Routines as Recurrent Patterns of Action. *Organ. Stud.* **2010**, *31*, 917–940. [CrossRef]

86. Normann, R. *Service Management: Strategy and Leadership in Service Businesses*; Wiley: Chichester, UK, 1984.

87. Blanche, C.; Cohendet, P. Replication and routine dynamics. In *Cambridge Handbook of Routine Dynamics*; Feldman, M.S., Pentland, B.T., D'Adderio, L., Dittrich, K., Rerup, C., Seidl, D., Eds.; Cambridge University Press: Cambridge, UK, 2021; pp. 277–287.

88. D'Adderio, L. The Replication Dilemma Unravelled: How Organizations Enact Multiple Goals in Routine Transfer. *Organ. Sci.* **2014**, *25*, 1325–1350. [CrossRef]

89. Gupta, A.; Hoopes, D.G.; Knott, A.M. Redesigning routines for replication. *Strat. Manag. J.* **2015**, *36*, 851–871. [CrossRef]

90. Boe-Lillegraven, S. Transferring routines across multiple boundaries: A flexible approach. In *Routine Dynamics in Action: Replication and Transformation*; Feldman, M.S., D'Adderio, L., Dittrich, K., Jarzabkowski, P., Eds.; Emerald: Bingley, UK, 2019; pp. 1–10.

91. D'Adderio, L.; Pollock, N. Making routines the same: Crafting similarity and singularity in routines transfer. *Res. Policy* **2020**, *49*, 104029. [CrossRef]

92. Grandinetti, R. Is organizational evolution Darwinian and/or Lamarckian? *Int. J. Organ. Anal.* **2018**, *26*, 858–874. [CrossRef]

93. Winter, S.G.; Szulanski, G. Replication as strategy. *Organ. Sci.* **2001**, *12*, 730–743. [CrossRef]

94. Winter, S.G.; Szulanski, G. Replication of organizational routines: Conceptualizing the exploitation of knowledge assets. In *The Strategic Management of Intellectual Capital and Organizational Knowledge*; Choo, C.W., Bontis, N., Eds.; Oxford University Press: Oxford, UK, 2002; pp. 207–221.

95. Szulanski, G.; Jensen, R.J. Overcoming stickiness: An empirical investigation of the role of the template in the rep-lication of organizational routines. *Manag. Decis. Econ.* **2004**, *25*, 347–363. [CrossRef]

96. Jensen, R.J.; Szulanski, G. Template Use and the Effectiveness of Knowledge Transfer. *Manag. Sci.* **2007**, *53*, 1716–1730. [CrossRef]

97. Davies, A.; Frederiksen, L.; Cacciatori, E.; Hartmann, A. The long and winding road: Routine creation and replica-tion in multi-site organizations. *Res. Policy* **2018**, *47*, 1403–1417. [CrossRef]

98. Szulanski, G.; Jensen, R.J. Growing through copying: The negative consequences of innovation on franchise net-work growth. *Res. Policy* **2008**, *37*, 1732–1741. [CrossRef]

99. Winter, S.G.; Szulanski, G.; Ringov, D.; Jensen, R.J. Reproducing Knowledge: Inaccurate Replication and Failure in Franchise Organizations. *Organ. Sci.* **2012**, *23*, 672–685. [CrossRef]

100. Szulanski, G. Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strat. Manag. J.* **1996**, *17*, 27–43. [CrossRef]

101. Klepper, S. Employee Startups in High-Tech Industries. *Ind. Corp. Change* **2001**, *10*, 639–674. [CrossRef]

102. Klepper, S. The capabilities of new firms and the evolution of the US automobile industry. *Ind. Corp. Change* **2002**, *11*, 645–666. [CrossRef]

103. Dyck, B. Exploring Organizational Family Trees. *J. Manag. Inq.* **1997**, *6*, 222–233. [CrossRef]

104. Phillips, D.J. A geneological approach to life chances: The parent-progeny transfer among Silicon Valley law firms, 1946–1996. *Adm. Sci. Q.* **2002**, *47*, 474–506. [CrossRef]

105. Wenting, R. The inheritance of organizational routines and the emergence of a firm genealogy in the fashion design industry. In *Handbook of Organizational Routines: Advancing Empirical Research*; Becker, M.C., Lazaric, N., Eds.; Edward Elgar: Cheltenham, UK, 2009; pp. 103–128.

106. Andersson, M.; Klepper, S. Characteristics and performance of new firms and spinoffs in Sweden. *Ind. Corp. Change* **2013**, *22*, 245–280. [CrossRef]

107. Dahl, M.S.; Sorenson, O. The who, why, and how of spinoffs. *Ind. Corp. Change* **2014**, *23*, 661–688. [CrossRef]

108. Furlan, A.; Grandinetti, R. Spin-off performance in the start-up phase—A conceptual framework. *J. Small Bus. Enterp. Dev.* **2014**, *21*, 528–544. [CrossRef]

109. Cheyre, C.; Kowalski, J.; Veloso, F.M. Spinoffs and the ascension of Silicon Valley. *Ind. Corp. Change* **2015**, *24*, 837–858. [CrossRef]

110. Cusmano, L.; Morrison, A.; Pandolfo, E. Spin-off and clustering: A return to the Marshallian district. *Camb. J. Econ.* **2015**, *39*, 49–66. [CrossRef]

111. Furlan, A. Who lives longer? Startups vs spinoffs founded as proprietorships. *Int. J. Entrep. Behav. Res.* **2016**, *22*, 416–435. [CrossRef]

112. Buenstorf, G.; Costa, C. Drivers of spin-off performance in industry clusters: Embodied knowledge or embedded firms? *Res. Policy* **2018**, *47*, 663–673. [CrossRef]

113. Capone, G.; Morrison, A. Spinoffs and parents in clusters: Evidence from the Italian motorcycle industry. *Ind. Innov.* **2020**, *27*, 1133–1159. [CrossRef]

114. Furlan, A.; Grandinetti, R. Spinoffs and their endowments: Beyond knowledge inheritance theory. *J. Intellect. Cap.* **2016**, *17*, 570–589. [CrossRef]

115. Habersetzer, A. The Role of Pre-Entry Experience of Firm Founders in Peripheral Regions: Routines, Business Contacts, and Local Starting Conditions. *Growth Change* **2017**, *48*, 769–786. [CrossRef]

116. Feldman, M.P.; Ozcan, S.; Reichstein, T. Falling Not Far from the Tree: Entrepreneurs and Organizational Heritage. *Organ. Sci.* **2019**, *30*, 337–360. [CrossRef]

117. Mawdsley, J.K.; Somaya, D. Employee mobility and organizational outcomes: An integrative conceptual frame-work and research agenda. *J. Manag.* **2016**, *42*, 85–113. [CrossRef]

118. Hodgson, G.M. Understanding Organizational Evolution: Toward a Research Agenda using Generalized Darwinism. *Organ. Stud.* **2013**, *34*, 973–992. [CrossRef]

119. Baden-Fuller, C.; Winter, S.G. Replicating organizational knowledge: Principles or template. In *Papers on Economics and Evolution*; Max Planck Institute of Economics: Jena, Germany, 2007; p. 0515.

120. Winter, S.G. The replication perspective on productive knowledge. In *Dynamics of Knowledge, Corporate Systems and Innovation*; Itami, H., Kusunoki, K., Numagami, T., Takeishi, A., Eds.; Springer: Berlin/Heidelberg, Germany, 2010; pp. 95–121.

121. Wæhrens, B.V.; Cheng, Y.; Madsen, E.S. The replication of expansive production knowledge: The role of templates and principles. *Balt. J. Manag.* **2012**, *7*, 268–286. [CrossRef]

122. Maalouf, J.; Combs, J.; Gillis, W.E.; Perryman, A. Replicate or adapt? Franchising and organizational routines. *J. Knowl. Manag.* **2020**, *24*, 775–798. [CrossRef]

123. Knott, A.M. The organizational routines factor market paradox. *Strat. Manag. J.* **2003**, *24*, 929–943. [CrossRef]

124. Aldrich, H.E.; Yang, T. How do entrepreneurs know what to do? learning and organizing in new ventures. *J. Evol. Econ.* **2014**, *24*, 59–82. [CrossRef]

125. Bocconcelli, R.; Grandinetti, R.; Tunisini, A. "Made in Italy": The Italian contribution to the development of business marketing discipline and practices. *J. Bus. Bus. Mark.* **2015**, *22*, 161–196. [CrossRef]

126. Chatterji, A.K. Spawned with a silver spoon? Entrepreneurial performance and innovation in the medical device industry. *Strateg. Manag. J.* **2009**, *30*, 185–206. [CrossRef]

127. Walter, S.G.; Heinrichs, S.; Walter, A. Parent hostility and spin-out performance. *Strat. Manag. J.* **2014**, *35*, 2031–2042. [CrossRef]

128. Miner, A.S.; Gong, Y.; Baker, T. How Does TMT Prior Experience Shape Strategy? A Routine-based Framework Based on Evidence from Founding Teams. In *The Handbook of Research on Top Management Teams*; Carpenter, M.A., Ed.; Edward Elgar: Cheltenham, UK, 2011; pp. 198–213. [CrossRef]

129. Rocha, V.; Carneiro, A.; Varum, C. Leaving Employment to Entrepreneurship: The Value of Co-worker Mobility in Pushed and Pulled-Driven Start-ups. *J. Manag. Stud.* **2018**, *55*, 60–85. [CrossRef]

130. Helfat, C.E.; Peteraf, M.A. The dynamic resource-based view: Capability lifecycles. *Strat. Manag. J.* **2003**, *24*, 997–1010. [CrossRef]

131. Ganco, M. Cutting the Gordian knot: The effect of knowledge complexity on employee mobility and entrepreneur-ship. *Strateg. Manag. J.* **2013**, *34*, 666–686. [CrossRef]

132. Lervik, J.E.; Hennestad, B.W.; Amdam, R.P.; Lunnan, R.; Nilsen, S.M. Implementing human resource development best practices: Replication or recreation? *Hum. Resour. Dev. Int.* **2005**, *8*, 345–360. [CrossRef]

133. Campbell, B.A.; Ganco, M.; Franco, A.M.; Agarwal, R. Who leaves, where to, and why worry? employee mobility, entrepreneur-ship and effects on source firm performance. *Strat. Manag. J.* **2012**, *33*, 65–87. [CrossRef]

134. Antons, D.; Piller, F.T. Opening the black box of "not invented here": Attitudes, decision biases, and behavioral consequences. *Acad. Manag. Perspect.* **2015**, *29*, 193–217. [CrossRef]

135. Grandinetti, R. Variation, replication and selection in evolving industries. *Int. J. Organ. Anal.* **2021**, *29*, 1144–1155. [CrossRef]

136. Breslin, D. A review of the evolutionary approach to the study of entrepreneurship. *Int. J. Manag. Rev.* **2008**, *10*, 399–423. [CrossRef]

137. Agarwal, R.; Buenstorf, G.; Cohen, W.M.; Malerba, F. The legacy of Steven Klepper: Industry evolution, entrepreneurship, and geography. *Ind. Corp. Change* **2015**, *24*, 739–753. [CrossRef]

138. Buenstorf, G. Evolution on the Shoulders of Giants: Entrepreneurship and Firm Survival in the German Laser Industry. *Rev. Ind. Organ.* **2007**, *30*, 179–202. [CrossRef]

139. Chandler, A.D. Organizational Capabilities and the Economic History of the Industrial Enterprise. *J. Econ. Perspect.* **1992**, *6*, 79–100. [CrossRef]

140. Arora, A.; Gambardella, A.; Klepper, S. The software industry in the emerging economies: Lessons from the history of some US industries. In *From Underdogs to Tigers: The Rise and Growth of the Software Industry in Brazil, China, India, Ireland, and Israel*; Arora, A., Gambardella, A., Eds.; Oxford University Press: Oxford, UK, 2005; pp. 171–206. [CrossRef]

141. Malerba, F.; Nelson, R.R.; Orsenigo, L.; Winter, S.G. *Innovation and Evolution of Industries: History-Friendly Models*; Cambridge University Press: Cambridge, UK, 2016.

142. Cunill, O.M.; Forteza, C.M. The franchise contract in hotel chains: A study of hotel chain growth and market con-centrations. *Tour. Econ.* **2010**, *16*, 493–515. [CrossRef]

143. Knezevic, B.; Renko, S.; Knego, N. Changes in retail industry in the eu. *Business Manag. Educ.* **2011**, *9*, 34–49. [CrossRef]

144. Güttel, W.H.; Konlechner, S.W.; Müller, B.; Trede, J.K.; Lehrer, M. Facilitating ambidexterity in replicator organi-zations: Artifacts in their role as routine-recreators. *Schmalenbach Bus. Rev.* **2012**, *64*, 187–203. [CrossRef]

145. Charlesworth, D.; Barton, N.H.; Charlesworth, B. The sources of adaptive variation. *Proc. R. Soc. B Biol. Sci.* **2017**, *284*, 20162864. [CrossRef] [PubMed]

146. Levesque, M.; Choi, Y.R.; Hsuan, J. Growth Through Franchises in Knowledge-Intensive Industries: Interplay of Routine Program and Expansion Mode. *IEEE Trans. Eng. Manag.* **2018**, *66*, 496–513. [CrossRef]