The Effect of Institutional Context, Distance, and Routine Complexity on the Transfer of Routines Across Borders

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Transferring routines and practices within Multinational Enterprises (MNEs) is a prevalent and, at times, tedious process. New institutional context imposes forces for local adaptation, which disrupts the stability of the routine - stability due to the interplay between ostensive (the codified and/or abstract version of the routine) and performative (the practiced version) aspects of the routine. Change in routines is then needed to ensure local adaptation and the routine reaches a new state of stability. Our study focuses on the micro-processes of the transfer process and the pertinent states of stability and change in the focal routines and practices. We use simulation experiments and examine the effect of intuitional pressures for local adaptation. The local adaptation speed of ostensive routine is shown to matter. Slow enactment of the revised version of the ostensive routine (i.e. implementation of the locally adapted routine) at the subsidiary level can disrupt the stability of the routine.

Keywords: international transfer of routines, institutional context, local adaptation time, system dynamics, simulation, Headquarters and Subsidiary relationship

INTRODUCTION

To successfully expand abroad, firms need to properly transfer certain routines and practices (i.e. a bundle of routines) from the headquarters locations to the new locations they enter or their existing subsidiaries. The transfer may be aimed at replication of existing organizational modules (McDonald's way of expansion) (Jensen & Szulanski, 2007, Szulanski & Jensen, 2008, Winter & Szulanski, 2001) including its routines and practices, or merely the transfer of certain routines and practices (e.g. due diligence for acquisitions (Nadolska and Barkema, 2007)). The routine or practice can rarely be transferred across borders 'verbatim' (i.e. copy exactly). Depending on the institutional profile of the host country, this transfer imposes the need for local adaptation of the routine and practices (Kostova and Roth, 2002). The transfer process takes the routine and practice from an extant established state (at the headquarters) to a new state of stability. Transferring the routine and practice thus has a critical role in a successful international expansion.

This study focuses on the routine transfer process and its internal and external dynamics during the transition process from headquarters (i.e. pre-transfer) to the host country subsidiary. We use the conceptual account of routines that introduce ostensive (i.e. abstract patterns) and performative (i.e. specific actions) routines (Feldmand and Pentland, 2003) to unlock the black box of routine and its internal dynamics. Previous studies have focused on 'verbatim' international transfer of routines, or replication (Winter & Szulanski, 2001), routine micro-processes and their effect on capability learning in international joint

ventures (Prashantham and Floyd, 2012), and power and micro-politics of transfer of human resource practices (Geary and Aguzzoli, 2016). There are also studies that, absent the institutional and country border effects, have explored the transfer of routines across the geographic space (Bucher and Langley, 2016; D'Adderio, 2014). To our knowledge, however, in the routine and international business (IB) literature, we know little about the process of transferring routine from one state of stability (at the headquarters) to another (at the subsidiary). To address this gap, we ask the following research question: *how does the adaptation to external institutional forces at the subsidiary location influence the process of transfer routines and their internal dynamics?*

We adopt organizational theorists' account of routine (as opposed to that of organizational economists – see Parmigiani & Howard-Grenville, 2011) and define it as *"repetitive, recognizable pattern of interdependent actions, carried out by multiple actors"* (Feldman and Pentland, 2003). We argue that the transfer of routines across borders revitalizes the routine to a new state of stability that is not necessarily the same as what HQs has transferred to subsidiaries. At the subsidiary level, the routine goes through iterations of implementation and experimentation (or performances) until a consensus is reached on what adjustments should be made for the routine to be adapted at the subsidiary level. Generally, the higher the dissimilarities, the more local adaptation is required. Three institutional dimensions are identified as influential factors: technical proximity, cultural adaptability, and political similarity.

Our theory development endeavor is based on a simulation experiment using system dynamics (Sterman, 2000; Davis, Eisenhardt and Bingham, 2007). This simulation technique fits our study context as we deal with a complex system (i.e. routine and institutional differences) with internal dynamics that face external influential factors. Routines in a local context are suggested to be generative and constantly evolving due to the interplay between performances and ostensive routine (hence the *dynamism*). They are also *complex* as (1) they are repetitive and may change in each iteration compared to the previous one, (2) they require recognizability of a pattern of action that is interdependent, and finally, (3) multiple actors are involved. If we add the international institutional dimension, we will face a complex and dynamic system.

The simulation method has been an effective theory development tool in some seminal studies in management (e.g. March, 1991) , and international business and management scholars have used it (Adler & Hashai, 2007, Bauer & Fisher, 2000, Chandra & Wilkinson, 2017, Cheng & Leung, 2004, Dinkevych, Wilken, Aykac, Jacob, & Prime, 2017, Durvasula, Netermeyer, Andrews, & Lysonski, 2006, Eapen, 2013, Flores, Aguilera, Mahdian, & Vaaler, 2013, Fuad & Gaur, 2019, Kingsley, Noordewier, & Vanden Bergh, 2017, Li & Rugman, 2007, Tailan & Seth, 2009, Wu, Lao, Wan, & Li, 2019). In particular, the system dynamics simulation technique can deal with complex and dynamic systems (Sterman, 2000; Davis, Eisenhardt and Bingham, 2007) and has previously been used in studies of organization capability development and erosion (Rahmandad, 2012, and Rahmandad and Repenning, 2016), diffusion of practices (Etzion, 2014), complexity theory (Anderson, 1999), dynamics of innovation implementation (Repenning, 2002), and unanimous organizational decision rules (Romme and Georges, 2004), among other studies.

We study the micro-processes of routine transfer from MNE headquarters (origin) to the subsidiaries that adopt the routine. We find that the speed of local adaptation of the routine plays an important role. As the routine evolves, the speed of adjustment of the ostensive routine relative to the speed of adjustment of the performative routine matters. More specifically, each time actions are made based on an ostensive routine, local adaptation may lead to the deviance of these actions from what the latest version of ostensive routine dictates. If the deviance is repetitive enough to form a pattern, actors involved in the routine may revise their understanding of the routine (i.e. ostensive routine) for the next time it is performed (Feldman and Pentland, 2003) and reach a consensus. Identifying the pattern, reflecting on it and discussing it among organizational actors (within the subsidiary and between the subsidiary and headquarters) takes time, which we call *ostensive routine adjustment time*. Likewise, after the ostensive routine is revised, its deployment in action, communication of needed changes, and preparing the actors for this change take time, which we name *performative routine adjustment time*. Taking too much time to make the required changes in the ostensive routine at the subsidiary level may lead the routine to a state of high variance, and routine instability may ensue. This is not favorable in international expansion as MNEs favor some degree of consistency and global integration simultaneously with responding to the pressures for local adaptation.

THEORETICAL DEVELOPMENT

As a source of both stability and change, routines can be used as a means of control, legitimacy, efficiency, and learning (Miner, Ciuchta, & Gong, 2008, Rerup & Feldman, 2011), as well as balancing political power in organizations (Nelson & Winter, 1982, Zbaracki & Bergen, 2010). Depending on the dominant rationale for implementing routines, the adherence of subsidiaries to the MNE's latest version of routine during the transfer process may be favorable. When routine is a means of control, for example, as in the case of franchise businesses, there is an *intention* in place by the headquarters (franchisor) that subsidiaries (franchisees) adhere to the exact templates of headquarters' routines. The franchisor uses this control mechanism to ensure consistent quality of service and products and consequently protect its brand. Alternatively, if a pharmaceutical MNE has a documented procedure to produce a drug and the procedure has been approved by the home or host country government authorities, the exact implementation and high degree of adherence to the routine are favorable to ascertain business legitimacy. In other cases, the need for a balance between local adaptation and global integration (Bartlett and Ghoshal, 1989) imposes a trade-off between adherence to two competing goals (D'Adderio, 2014): (verbatim) replication of headquarters' version of routine (to achieve global integration), and the degree to which certain elements of routine may be changed (to pursue local adaptation). Thus, depending on the goal and rationale for the transfer and implementation of routines, various degrees of adherence to the headquarters' version may be favorable. Previous studies have examined the role of intention (which is critical in identifying the transfer goal) in adherence to routines and its effect on stability (or instability) (Anand, Gary, & Siemen, 2011)

In the context of MNEs, one may analyze the interplay of the role of intentions embedded in the philosophy which guides the routine transfer and implementation by subsidiaries with compatibility of the routines in the new country. We define adherence as the degree of exact implementation of the latest version of routine transferred from headquarters to the subsidiary. The amount of local adjustment and fine-tuning of the routine would indicate the deviance from the latest version of the routine. The final version of the implemented routine results from sequences of recursive experimentations and adjustments (Feldman & Pentland, 2003, Rerup & Feldman, 2011) to adhere to the requirements of the local context of the host country.

Transfer of Routines vs. Diffusion of Practices

The unit of analysis in this study is the transfer of routine within an MNE. The literature on the diffusion of practices ⌗ is fairly rich compared to the transfer of routines in general, let alone the dearth of specific research on their transfer *within* organizations. Practices comprise bundles of routines; however, we need to clarify the distinction and similarities of routines and practices for two reasons. First, the distinction elaborates on the contribution of this study compared to the literature on the diffusion of practices. Second, in our theory development, we use some of the mechanisms that are in effect for the diffusion of practices to explain the transfer of routines.

Routines are meant to accomplish a task; their outcomes are actions and behaviors. Practices also have outcomes; however, their outcome is necessary to create value or prevent a potential loss for organizations. Routines do not create value in and of themselves. A combination of routines, however, is a source of value creation or loss prevention for the organization. The fact that practices are social entities resulting from the interaction and interdependence of social actors makes the diffusion of practice similar to the transfer of routines. Therefore, we partly use the literature on the diffusion of practices to theorize the transfer of routines.

Specifically, we build on the literature on variation and adaptation of practices during the diffusion process, which is mainly based on deinstitutionalization literature (Oliver, 1992). The latest version of a routine in MNE is an agreed-upon version resulting from a balance between sequences of entropy and inertial pressures during the legitimation process (Meyer & Rowan, 1977). Subsidiaries of the MNE tend to take the institutionalized procedures and routines for granted and view them as legitimate (c.f.Meyer & Rowan, 1977, Zucker, 1987). External institutional conditions of the context, however, make the subsidiary

challenge the institutionalized practice; hence, the deinstitutionalization, the process by which the legitimacy of an established routine discontinues in the context of a new country.

Studies on the contingencies that lead to variations during the process of diffusion (Ansari, et al., 2010), and that of deinstitutionalization (Oliver, 1992), introduce three main contextual dimensions that affect the adaptability of the practice to the new context, namely technical, cultural, and political elements. We will explain the mechanisms that drive each of the three dimension's effect on the adaptation of the routines when transferred across borders in a 'non-verbatim' format when we develop the study's propositions. While we focus on the 'non-verbatim' transfer of routines, it is important to highlight its distinction with the intended 'verbatim' transfer of routines, the subject in studies of replication as a strategy (Winter & Szulanski, 2001).

Replication of business practices has been studied in the strategy literature to investigate how businesses copy their extant businesses and practices "verbatim" to grow and expand (Winter & Szulanski, 2001). Replication seems to be a special case of diffusion in which high deviances from original practice are undesirable. Diffusion of practices has been studied in the context of MNEs as well (Kostova, 1999). Among the studies of diffusion and replication, we build on the specific literature that highlights the contextual antecedents of deviance from the institutionalized procedures and practices (Ansari, et al., 2010, Oliver, 1992) because it is both more aligned with our interest in this paper in studying "non-verbatim" transfer of routines across borders, and more suitable for the unstable nature of the phenomenon of interest per se (i.e. routine). We base our analysis on three types of pressures for local adaptation: technical, cultural, and political factors.

Technical Proximity

By technical proximity, we mean the degree to which the attributes of a routine are compatible with extant technologies of the recipient subsidiary in an MNE. A recently acquired typical subsidiary in the semiconductors industry, for example, has extant technologies essential to implementing the new routines meant to transfer from the new parent. If the technical proximity is low, the subsidiary will try to minimize the cost of implementation, regardless of the original reason for the transfer of routine from the parent. We argue that the degree to which the extant technologies are compatible with the technical requirements of the latest version of the parent's routines is influenced by both the history and background of the subsidiary and its absorptive capacity.

The background of an organization matters in the future path that it pursues. The distinctive characteristics of an organization's founding context continue to affect the subsequent implementation and adoption of routines and decision-making of its managers, as the imprinting literature implies (Marquis, 2003). Absorptive capacity impacts the technological proximity of the subsidiary and routine as well. Absorptive capacity is defined as the ability of the firm to evaluate and recognize the value of new and external information and assimilate and commercialize it (Cohen & Levinthal, 1990). Subsidiaries with higher absorptive capacities can understand, implement, and assimilate the routine in its original latest format, especially when the tacit aspect of skills and knowledge required to run a routine is dominant.

Proposition #1: Technical proximity between the latest version of the routine and the subsidiary leads to lower deviance from the latest version of the MNE routine.

Cultural Adaptability

We define cultural adaptability as the degree to which the attributes of a routine are compatible with the culture (values, beliefs, etc.) of the recipient of the routine. When routines transfer across borders, they move to a culturally different context. The roles and responsibilities (at an individual or subsidiary level for micro and meso-routines) assigned by the new routine to the actors in the new local context may depart from what their culture implies as appropriate behavior (Bhagat, Kedia, Harveston, & Triandis, 2002). This, in turn, affects how welcoming or resistant they are to adopting the new routine. If cultural adaptability is low, actors will do their best to adjust the routine or selectively infer or interpret the uncertain or unclear features of the routine and to make it more different from what has been sent from the parent company.

Proposition #2: *Cultural adaptability between the latest version of routine and the subsidiary is associated with to lower deviance from the latest version of MNE routine.*

Political Similarity

We define political similarity as the degree to which the normative attributes of the transferring routine are compatible with the interests, positions, and agenda of the actors in the subsidiary who potentially get involved in the routine. Whereas routines, as agreed upon ways of getting the task done, are discussed to perform the role of truces which bridge divergent interest groups (Nelson & Winter, 1982) and collapse at times (Zbaracki & Bergen, 2010) , their similarity with what the adopting actors prefer impacts the amount of effort by actors for implementing a more favored version of the routine to minimize their potential political (and the subsequent economic) loss.

Routines with elements of morality, which usually do not hold universally, are typically a source of contention. For example, a joint venture between an MNE and a local firm in Pakistan for the production of soccer balls, which faces the pressures of implementing the norms of child labor (Khan, Munir, & Willmott, 2007) may strive to adjust the age-specific definition of a child versus an adult because child labor in Pakistan may not have the same amount of social stigma as it does in Canada. Alcohol-serving routines in subsidiaries of a hotel franchise business may not face the same level of leeway in Islamic countries as they do in the rest of the world. A Christmas party routine in McDonald's franchises in North America may be adjusted to an Eid-Al-Fitr party (a feast at the end of Ramadan month) in the branches in Saudi Arabia to adapt to the interests of local customers (as the actors involved in the routines).

Proposition #3: *Political similarity between the latest version of the routine and the subsidiary is related to lower levels of deviance from the latest version of the MNE routine.*

Routine Complexity

Routines in an MNE vary in their level of complexity, and complexity matters in the process of transfer and diffusion ⌷ across borders. By routine complexity, we mean the degree to which an MNE's routines are causally ambiguous or difficult to understand and implement by the subsidiary. The sources of complexity can be associated with the repetitiveness, recognizability of the action pattern, and the involvement of multiple actors, as these are the main attributes of a routine by definition.

Firstly, repetition is the proximal cause (as opposed to the dismal cause) of forming a habit at the individual level or a routine at the organizational level(Knudsen, 2008, Page 129). Repetitiveness is key to the complexity of a routine and its transfer internationally in stages of implementation and institutionalization (cf. Kostova, 1999). During the process of implementation of the routine by the subsidiary, each repetition is a natural experiment based on which the actors involved in the routine adjust their interactions endogenously, and the stakeholders (e.g. headquarters and subsidiary managers) outside the boundary of routine decide on how to influence the adjustment in the next iteration exogenously. Routines vary in the *type* of repetition. Some routines recur discretely, while others recur continuously.

Building an evacuation routine during a fire alarm is a good example of a *discrete* routine. Since actors involved in fire alarms do not have too many chances of experimenting with the real fire *ex-ante* and adjusting their understanding of the procedures of evacuating the buildings *ex-post*, fire drills are used to help decrease the causal ambiguity of the routine and increase the recognition of their critical aspects through further repetition of a discrete routine. In the case of *continuous* routines, however, routine is meant to perform a daily task. Production and sales routines are examples in this group. The actors involved in continuous routines have enough chance to experiment with different iterations of the task, to adjust and fine-tune their individual and collective understanding, and to reduce their perceived complexity of routine.

TABLE 1
ROUTINE COMPLEXITY AND ITS DIMENSIONS

Dimension	Types/Contributing factors
Repetitiveness	– **Discrete routine**; low level of repetitiveness; as in the case of rare events and crises (e.g. Fire alarm and drill) – **Continuous routines**; high level of repetitiveness; as in the case of daily organizational activities such as sales and production.
Recognizability of action patterns	Pentland, Hærem, & Hillison (2010)
Actors	– **Number** of actors – **Characteristics** of actors (e.g. subsidiary role and power in subsidiary level routines)
Interdependency	**Type** (Thompson, 1967) – *Sequential* interdependence – *Reciprocal* interdependence – *Pooled* interdependence **Level** – Based on relative power of actors (Pfeffer & Salancik, 1978)

Secondly, involved actors also matter in the complexity of a routine. The *number* and *characteristics* of actors involved are the two dimensions pertaining to actors and their role in the level of complexity of a routine. A higher number of actors increases the effort required to communicate and track the interrelationship among actors, creating a higher complexity for the routine. Characteristics of actors such as their knowledge- skills- and abilities, as well as background (experience, the network they embed in, etc.) for individuals involved in micro-routines impact how they cognitively analyze their role in relation to others involved in the routine. Subsidiary-level characteristics such as subsidiary role (Birkinshaw & Morrison, 1995) and power (Mudambi & Navarra, 2004) relative to other subsidiaries and the headquarters affect the complexity of subsidiary-level routines (or meso-routines).

Thirdly, the *type* and *level* of interdependence of actors play a significant role in the complexity of a routine. Thompson (1967) suggests three types of interdependence between an organization's actors: sequential, reciprocal, and pooled. Each interdependence type pertains to a one-way dyad, a two-way dyad, or a network of relations in an organization, respectively. A worker on the shop floor, for example, who fastens a screw of a product and passes it over to the next person, has a sequential interdependence with the following individual. The level of complexity increases from sequential interdependence to pooled interdependence. The l*evel* of interdependence is the other dimension that affects complexity. Power is well believed to be a significant source of interdependence (Pfeffer & Salancik, 1978). The higher the mutual dependence and power imbalance (Casciaro & Piskorski, 2005) between the actors involved in a routine, the more complex the routine is. Both the type and level of interdependence dimensions interact to make a routine more or less complex.

Finally, the recognizability of the patterns of actions (Pentland, Hærem, & Hillison, 2010) in a routine contributes to reducing its complexity. The more the patterns of recurrent actions are vivid both to endogenous and exogenous actors, the more they can understand, interpret, and internalize the "if-then" conditions in the routine. This, in turn, affects how the routine gets transferred within the MNE and the amount of intended and unintended local adjustments made to the new version of the routine. Less complex routines alleviate the effect of contextual factors that lead to an intended or unintended change in routine during the transfer, implementation, adjustment and fine-tuning process in the local subsidiaries.

Proposition #4: *Routine complexity decreases the negative association between (1) technical proximity, (2) cultural adaptability, (3) political similarity, and the deviance of subsidiary from the latest version of MNE routine.*

MICRO-PROCESSES OF ROUTINE ADAPTATION

Prior to Transfer (Base Model)

Internal dynamics of a routine, absent any transfer process, has been manifested as the interplay between their ostensive and performative aspects (Feldmand and Pentland, 2003). This dynamic makes the routine an ever-evolving entity. The ostensive aspect is a stabilizer, and the performative aspect of routine is a source of change, innovative actions, improvisation, and adaptation (Feldman and Pentland, 2003). There is a recursive interplay between the ostensive routine (stock of coded and abstract action patterns) and the performative routine (stock of actions and performances). Bucher and Langley (2016) identified routine reorientation dynamics as "building up from the performative" and "pushing down from the ostensive" (Page 3).

Thus, before transfer, routines constantly and gradually evolve from within. The dynamics start at the early stages of routine emergence (Bapuji, Hora, and Saeed, 2012), when variances in how a certain task is done converge. A pattern of action starts to develop and accumulate into an early version of the ostensive routine ($R_{O\,(t0)}$). Then, the next time the same task is to be done, actors refer to the precedent (the latest version of ostensive routine) and enact it as a first iteration of performative routine ($R_{P\,(t0)}$). Over time, variations in performances are inevitable and develop a pattern that feeds into the stock of ostensive routine as an inflow (Inflow$R_{O\,(t0)}$).

Similar to mechanisms that cause organizational capability erosion (Rahmandad and Repenning, 2016), dynamics such as adaptation traps in organizational learning can lead to erosion of routines. The process of ostensive routine development is then intervened through an outflow parameter (Erosion$R_{O\,(t0)}$). In essence, the revision of a common understanding of a routine (ostensive) is manifested by adding new patterns (inflow) and deleting obsolete or misunderstood aspects of the routine. The micro-processes of the development of ostensive and performative routine can be formalized as:

$$\frac{d\,R_{P\,(t)}}{dt} = InflowR_{P(t)} \tag{1}$$

$$\frac{d\,R_{O\,(t)}}{dt} = InflowR_{O(t)} - ErosionR_{O(t)} \tag{2}$$

As the routine literature elucidates, the processes of ostensive routine development and performative routine enactment are interrelated (Feldmand and Pentland, 2003). In a system dynamics theory development setting, one can assume this interrelationship as a floating goal dynamic (Sterman, 2000) where the two aspects of ostensive and performative routines iteratively follow each other as if they are both floating and evolving over time. If we consider the routine as a system, the ostensive aspect would be a "desired state for system" (as it is expected that actions follow the routine procedure), and the performative aspect of routine would be the "current state of the system" in practice. In a floating goal system, they are both considered stock variables, and the goal (desired state of the system) floats as it is not exogenous to the system. Figure 1 provides an overview of the internal micro-processes of routine where rectangles are (ostensive and performative) routine stocks and valves represent flows.
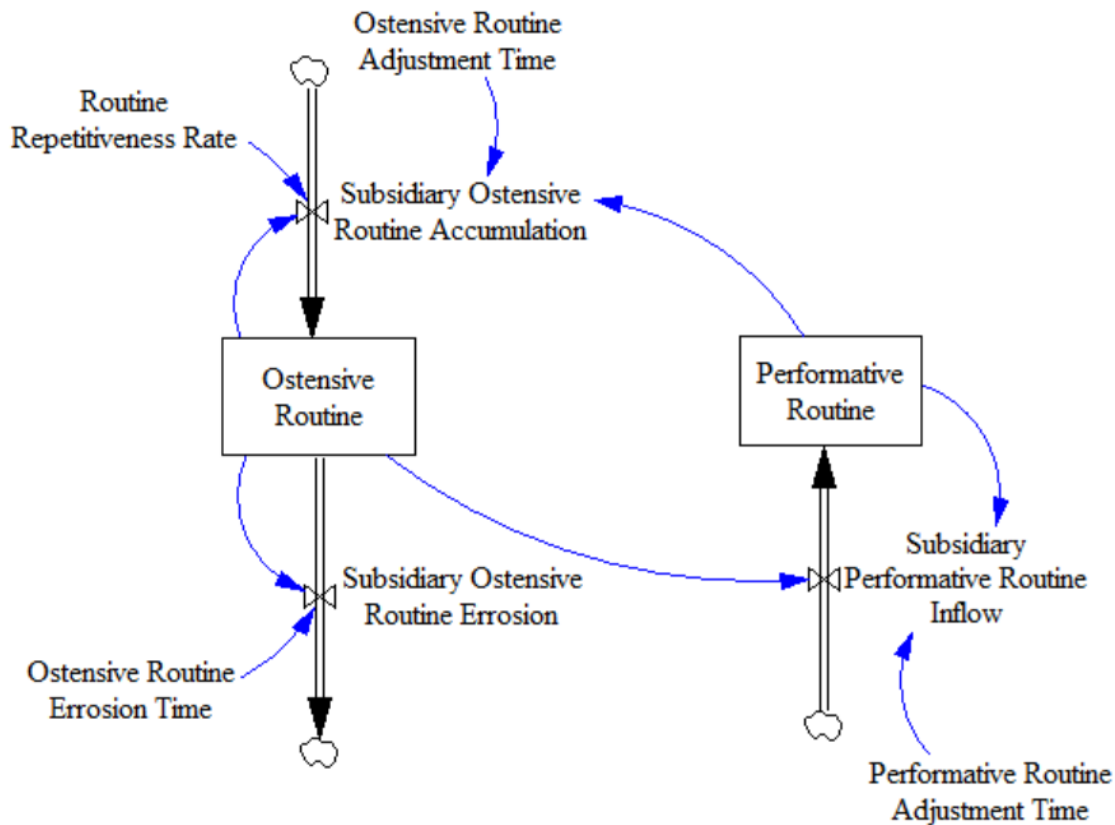
Local Adaptation During Routine Transfer

When firms expand abroad and set up subsidiaries in new host countries, they transfer the routines and practices that are comfortable with and have been proven to be their source of competitive advantage (Kilduf, 1994, Jensen and Szulanski, 2004 in JIBS). Ideally, this transfer is to be in a copy-exactly (or 'verbatim') format because (1) the existing format has been proven to be effective, and (2) changing them requires effort and can be costly and risky. However, their local adaptation is inevitable, as the international business literature posits (Ghoshal and Bartlet, 1989). Therefore, when a routine transfer is intended, it starts with an early adaptation to the local conditions based on the known differences.

Early local adaptation of routine is assumed to be guided by the headquarters, and the subsidiary will be the recipient. The headquarters adjusts the latest version of the ostensive routine to be transferred to the subsidiary. Then, this ostensive routine evolves through two mechanisms: (1) *endogenous mechanism* - It changes through endogenous mechanism (internal dynamics of routine) as a result of the interplay between ostensive and performative routines (as we theorized earlier and presented the model in Figure 1). In this case, the incoming ostensive routine is taken from the headquarters and adapted based on the known factors. Then, a process of experimentation starts until a new state of routine stability ensues. (2) *Exogenous mechanism* – The routine is exposed to external forces for local adaptation. These forces originate mostly from the local environment, which dictates certain adjustments. We previously elaborated on three forces: Technical proximity, cultural adaptability, and political similarity.

The local adaptation forces and the mechanism of routine transfer from headquarters to subsidiary are illustrated in Figure 2. The adaptation mechanisms affect the process of transfer by an initial intrusion, modelled through the flow from "Headquarters Ostensive Routine" to "Subsidiary Ostensive Routine"

(namely HQ Subsidiary Routine Transfer). This stage is analogous to handing in the encoded routine procedures and protocols to the subsidiary after initial anticipated required adaptations. Later, fine-tuning is needed at the subsidiary level through experimentation and the enactment of the transferred routine. This latter mechanism is modelled at the right-hand end of Figure 2 through the effect of "pressures for local adaptation" on "subsidiary performative routine inflow."

ANALYSIS AND RESULTS

To track down and fix the errors before the complexity of the model increased, we ran the simulation model as it was being developed, based on the standard practice in the system dynamics literature (Sterman, 2000). Model development had two main stages, initially at the subsidiary level and then including the headquarters effect. First, we ran the base model of endogenous change of a routine in the presence of adaptation pressures and due to an interplay between ostensive and performative routines. Second, we added the effect of headquarters transfer of (ostensive) routine to the subsidiary. As we explained previously, in practice, the sequence is reversed. However, we started with subsidiary-level dynamics for model development purposes and added the subsidiary as an exogenous factor.

In analyzing the models and setting up the variables, we made some assumptions to focus on the mechanisms unique to this research. First, we assumed that the pressure for local adaptation diminishes over time to an above-zero minimum. The learning curve effect (Barkema and Vermeulen, 1998; Yelle, 1979) also helps the firm over time. Further, once certain adaptations are met, their pressures will be removed. For example, in a franchise food chain business, initial adaptation of ceremonial routines is usually helpful in catering to local consumer preferences (e.g., a routine related to Christmas parties may not be ideal for a franchise in a predominantly Muslim country). After this initial adaptation, some experimentation and fine-tuning may still be needed. But after a while, it will be settled and stabilized. Second, we assumed the pressure for local adaptation is the geometric average of the three institutional pressures of technical proximity, cultural adaptability, and political similarity. Third, these three pressures are assumed to have a normal distribution over time, with averages of 1, 4, and 2.5 (on a scale of 1 to 5) to represent a hypothetical scenario where the subsidiary is low, high, and medium in each dimension.

FIGURE 2
OVERALL MODEL OF TRANSFER OF ROUTINE FROM
## HEADQUARTERS TO SUBSIDIARY
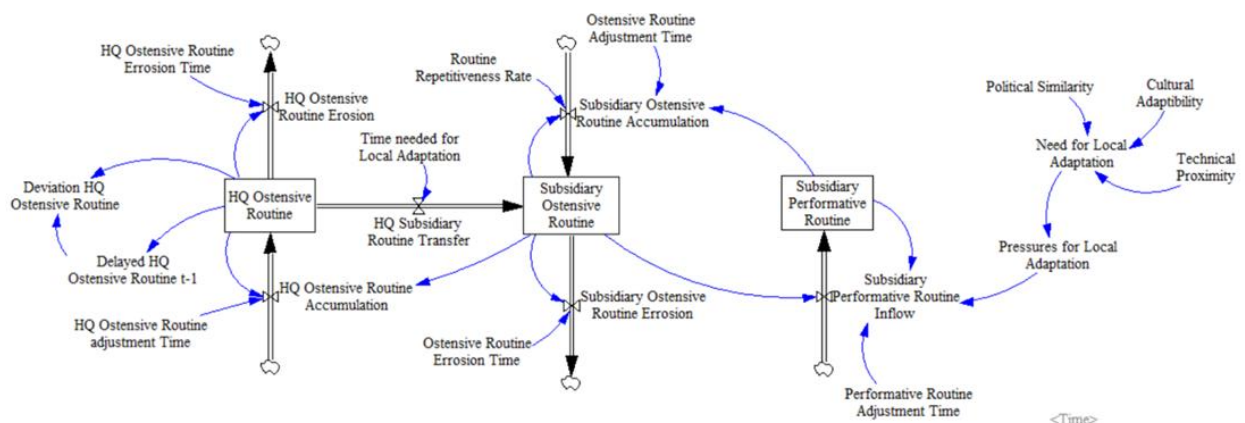
Transfer of Routine From HQs to Subsidiary	Internal Dynamics of Subsidiary Routine	Local Adaptation Pressures

The results of the initial (subsidiary level) and the final analyses (overall model) are presented in Figure 3. The first graph shows the diminishing effect of local adaptation over time. This behavior was inputted into the model based on the assumption we explained earlier. The rest of the graphs show the behavior over time of ostensive routine at the subsidiary and the headquarters level and the performative routine at the subsidiary level. All these graphs have an initial growth (due to the net accumulation of routine details and codes) until they plateau after a while. This type of behavior, we suggest, is a successful transfer of routine as it reaches a state of stability. The ultimate levels for each of the subsidiary and headquarters routines are different due to the applied local adaptation at the subsidiary level.
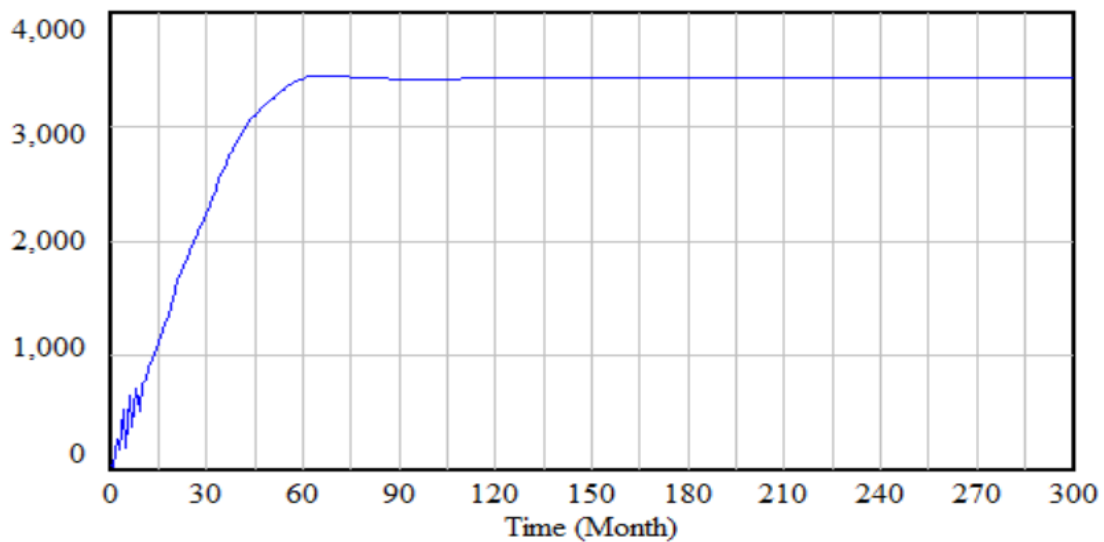
FIGURE 3
ANALYSIS RESULTS AND THE BEHAVIOR OVER TIME OF DEVELOPMENTS IN OSTENSIVE ROUTINE AT THE SUBSIDIARY AND HEADQUARTERS AND THE PERFORMATIVE ROUTINE AT THE SUBSIDIARY LEVEL

Pressures for Local Adaptation : R3pp

HQ Ostensive Routine : R3pp
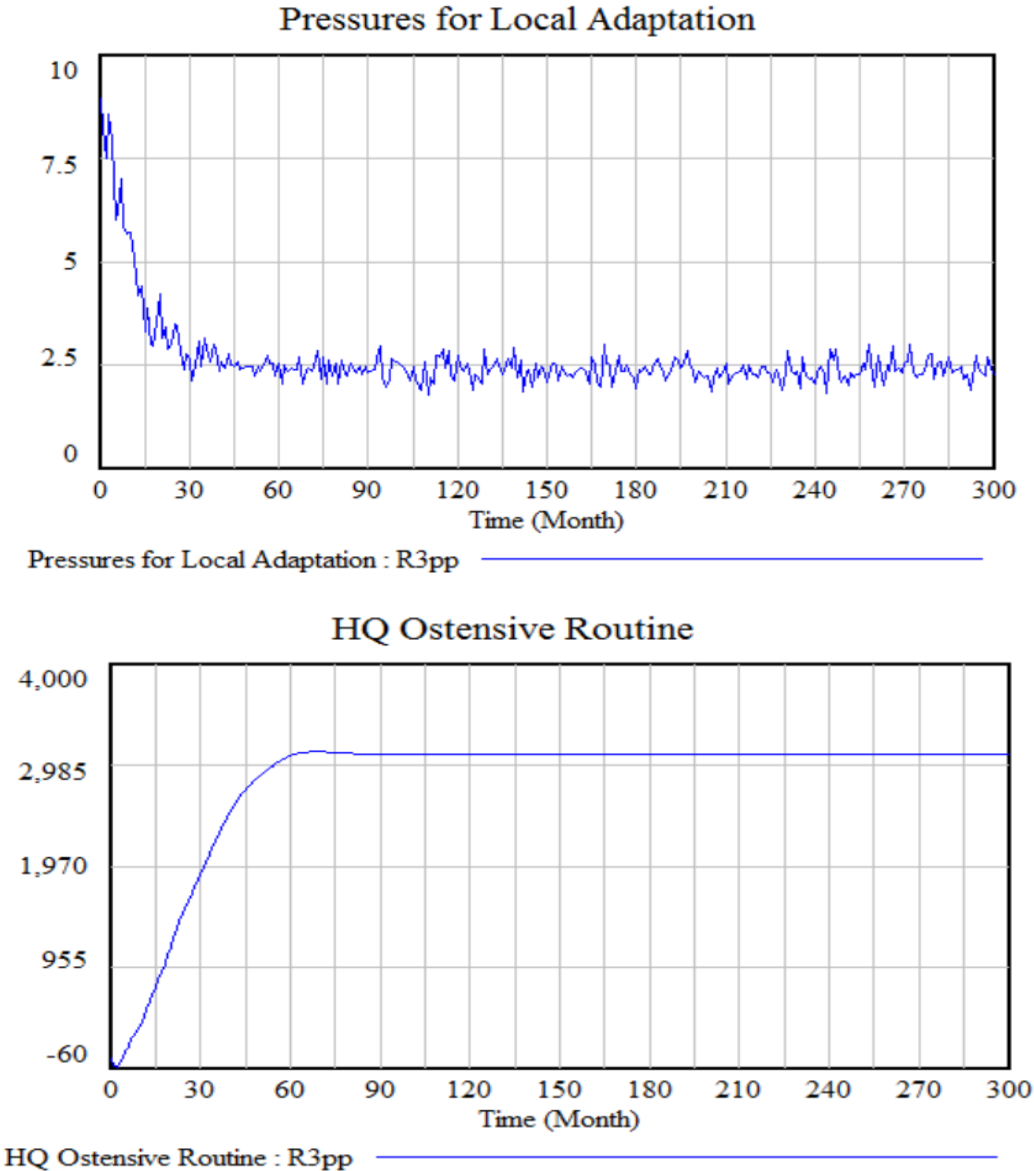
Subsidiary Ostensive Routine

Subsidiary Ostensive Routine : R3pp ——————————
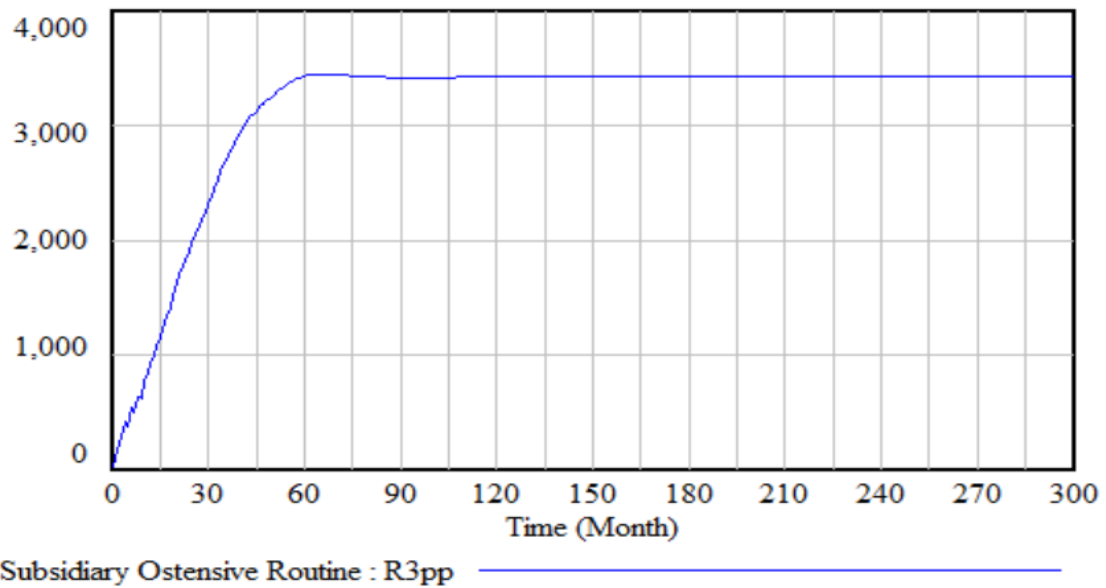
Subsidiary Performative Routine

Speed of Adaptation for Ostensive and Performative Routines

Subsidiary-level adjustment times are twofold in our model. First, ostensive routine adjustment time (ORAT) is the time needed to make adjustments in the ostensive routine after a deviation in performance occurs. As the routine literature posits, the endogenous interplay between stability and change within the routine makes the routine an ever-evolving entity (Feldman and Pentland, 2003). Once a routine is enacted based on a common understanding among the involved agents, its next iteration of enactment may deviate from the ostensive routine. If this deviation recurs and a pattern develops, a revision in the ostensive routine may be deemed reasonable. The speed of adaptation is affected by the time needed to identify the change in the pattern of actions, make a collective sense of it and reach a consensus. We label this time as the ostensive routine adjustment time, which may be affected by various mechanisms. For example, political tensions among the involved actors may delay sensemaking and reach a consensus that the routine as a political "truce" may collapse (Zbaracki and Bergen, 2010).

FIGURE 4
**SENSITIVITY ANALYSIS AND THE EFFECT OF RELATIVE ADJUSTMENT TIME FOR
OSTENSIVE AND PERFORMATIVE ROUTINES ON THE STABILITY OR INSTABILITY
OF ROUTINE AFTER THE TRANSFER PROCESS**
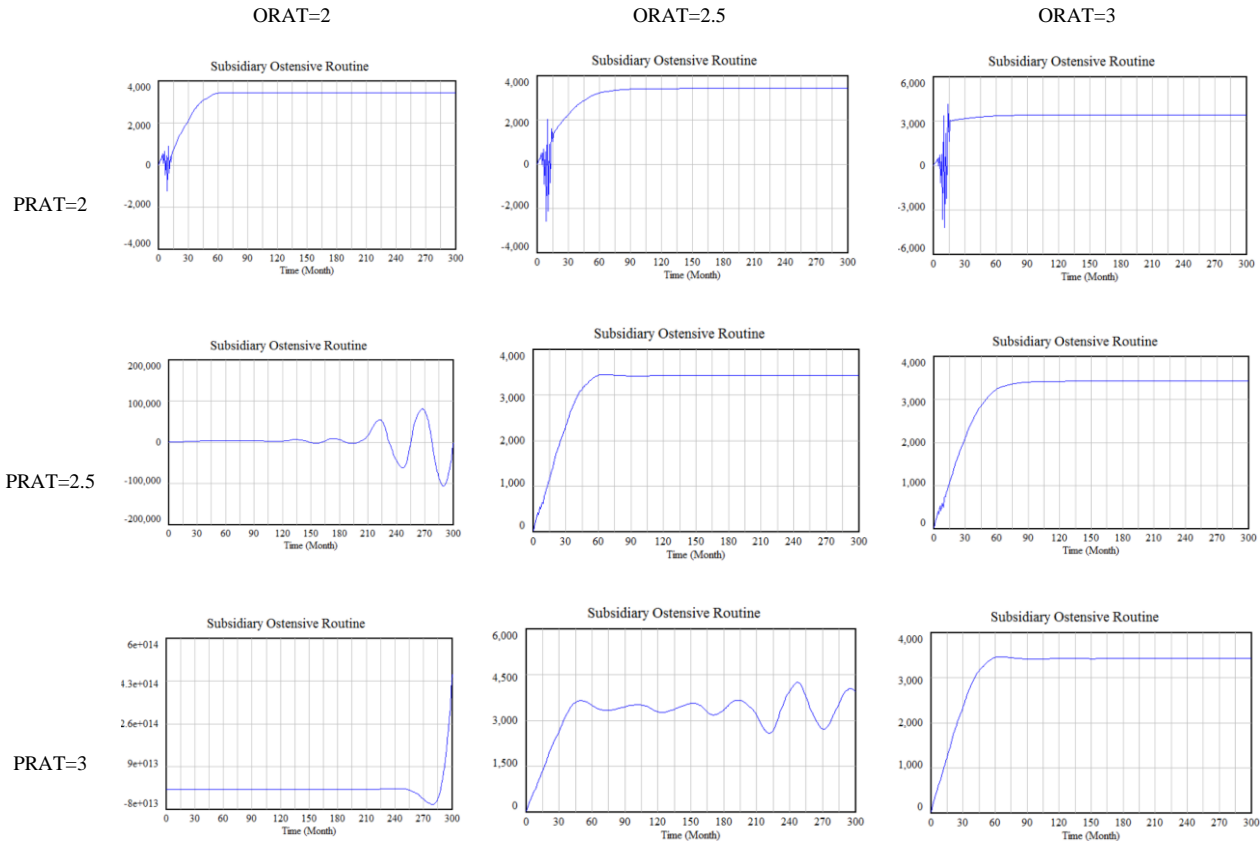
ORAT= Ostensive routine adjustment time
PRAT= Performative routine adjustment time

Second, performative routine adjustment time (PRAT) is needed to enact a change in the ostensive routine. Time is required to execute and implement the latest version of the routine. Various practical, political, and routine-related factors may impact the time needed for this implementation. For example, artifacts (i.e. non-human, material objects) are considered part of the routine (D'Adderio, 2011; Bapuji et al., 2012). Adjusting the artifacts and how they are involved in the routine process may take time and thus delay the execution of the routine.

Ideally, one expects to see a stable state of the routine for the transfer process to succeed. Increased routine instability disturbs the developed pattern of action and turns the chain of actions into ad hoc and random performances. It will deteriorate and erode the routine and will make the process of routine transfer from the headquarters to the subsidiary a failure.

We explored the relative effect of ORAT and PRATR on the behavior of routine during and after the transfer process. In Figure 4 different configurations of low, medium, and high levels of ORAT and PRATR are illustrated. By investigating and comparing these configurations, we identified cases in which instability in routine increases over time, depicted as increased oscillations in graphs of subsidiary ostensive routine over time. In the three lower left graphs in Figure 4, the routine's instability increases over time. A common characteristic among these graphs is that PRAT is higher than ORAT. Notably, in cases where ORAT is higher than PRAT (the upper right graphs), the routine observes some disturbances. Still, eventually, the pattern of action converges, leading the routine to a state of stability.

Based on this analysis and findings we suggest the following final proposition for our study:

Proposition #5: *In the local adaptation of a routine, the post-transfer stability of a routine (or a successful transfer) is more sensitive to the speed of execution of changes rather than the speed of establishing what changes are to be made.*

DISCUSSION AND CONCLUSION

Organizational and international business scholars have deepened our understanding of the internal dynamics of routines and practices (Feldman and Pentland, 2003) and their transfer across borders (Jensen & Szulanski, 2007). Building on these advancements, this study aims to fill a critical gap by exploring the micro-processes of routine transfer from headquarters to subsidiaries, examining how these routines evolve through local adaptation, and assessing the impact of speed of local adaptation on the process of stability and change of a routine. While the first two aspects were intentional components of the study, the latter contribution emerged unexpectedly during the research. We believe this finding offers valuable insights and lays the foundation for further investigation into this phenomenon. Before delving into these future research opportunities, we will outline the primary contributions of this paper. To theorize dynamics of a routine transfer across borders we use system dynamics simulation (Sterman, 2000, Davis, Eisenhardt and Bingham, 2007).

First, our study contributes to the literature on the relationship between headquarters and subsidiaries in international business. In particular, it delved into some of the micro-processes of routine evolution during the transfer process and under the pressures of local adaptation. Three institutional forces are identified as influential factors in the adaptation process: political similarity, cultural adaptability, and technical proximity. These forces combined form pressures for local adaptation of the routine during and after the transfer process.

Second, we delve into the concept of local adaptation and explore the micro-processes and the speed thereof. This is a unique contribution to the literature on local adaptation and global integration (Ghoshal and Bartlett, 1989). We highlight the importance of quick execution of a revised understanding of what a routine entails (i.e. ostensive routine) at the subsidiary level. Third, this paper advances the literature on routines and their transfer across space in organizational theory literature (Feldmand and Pentland, 2003; Bucher and Langley, 2016).

The contributions of this study should be viewed in light of its limitations. First, the development of our formal model involved several assumptions. Although these assumptions closely reflect real-world conditions, they warrant further investigation. Future research could relax these assumptions to test their validity. For instance, the assumption that local adaptation pressures diminish over time presents an empirical question for future exploration. Second, future studies could integrate empirical qualitative and quantitative data to validate and extend our simulation-based findings. The critical finding on the role of adjustment time, which emerged as a novel concept in this field, calls for deeper qualitative investigation to better understand its impact on routine transfer processes and the internal dynamics of routines. Given its novelty, our current understanding of this concept and its mechanisms remains limited.

This study has practical implications, too. The message could be that international expansion could be an opportunity to revisit and recreate some of the long-established routines and practices that have become sticky (Szulanski and Jensen, 2004). In essence, the transfer of routines across borders can be viewed as an opportunity for new ways of learning and avoiding the traps that firms may fall into due to experiential learning (Levitt and March, 1988). Further, managers should be wary of the importance of adjustment time in local adaptation while expanding internationally. Since spending too much time executing the adaptation needed in practice can be detrimental, sometimes firms can continue with the status quo version of their enacted routine (or the penultimate version of the ostensive routine) until their organization is ready for a fast implementation.

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