**Subsidiary managers’ knowledge mobilizations: Unpacking emergent knowledge flows**

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**Abstract**

Knowledge flows are a key source of advantage for multinational corporations (MNCs); however the nuances of knowledge flow practices and their micro-foundations require further theoretical development. Using qualitative data on 40 cases of subsidiary managers’ knowledge mobilizations, this paper unravels micro-level practices of knowledge flows in MNCs. We find that subsidiary managers’ knowledge mobilizations initiate a complex pattern of subsidiary knowledge inflows, pinpointing the significance of lateral and bottom up exchanges (locally as well as internationally). We use these insights to distinguish between two types of subsidiary knowledge flows: deliberate and emergent, and discuss how their differences have profound implications for the investigation of MNC knowledge flows and their micro-foundations.

**Keywords:** knowledge flows, knowledge transfers, MNC/MNE, knowledge seeking behavior, middle managers, subsidiary

1. **Introduction**

Knowledge flows are an important source of advantage for multinational corporations (MNCs) ([Gupta & Govindarajan, 2000](#_ENREF_42), [Kogut & Zander, 1992](#_ENREF_55) and [1993](#_ENREF_56), [Mudambi, 2002](#_ENREF_76)). There are two main ways that make knowledge flows in the MNC strategically important. First, knowledge may be shared for reuse and leverage, i.e. flow from an ‘advanced’ competence creating unit to other units which then implement and utilize the generated knowledge. This leads to a reuse of technologies, practices, processes and competences across the MNC ([Ghoshal & Bartlett, 1988](#_ENREF_37), [Kostova, 1999](#_ENREF_57), [Kostova & Roth, 2002](#_ENREF_58), [Szulanski, 1996](#_ENREF_97), [Szulanski & Jensen, 2006](#_ENREF_99), [Zander & Kogut, 1995](#_ENREF_116)). Second, knowledge flows serve as inputs for competence development whereby different existing knowledge is combined, integrated and blended to create new knowledge ([Ghoshal & Bartlett, 1988](#_ENREF_37), [Kotabe, Dunlap-Hinkler, Parente & Mishra, 2007](#_ENREF_60), [Mudambi, 2002](#_ENREF_76), [Regner & Zander, 2011](#_ENREF_88), [Tsai, 2001](#_ENREF_108)). In addition to utilizing MNC (internal) knowledge, external knowledge sourced from other organizations may offer unique, non-redundant, and context-specific knowledge for competence development ([Almeida & Phene, 2004](#_ENREF_1), [Meyer, Mudambi & Narula, 2011](#_ENREF_66), [Phene & Almeida, 2008](#_ENREF_85)). Although knowledge flows include operational and day-to-day exchanges, this paper is concerned with such competence impacting knowledge flows from a subsidiary perspective.

Research on MNC knowledge flows taking a subsidiary perspective has seen considerable interest over the last couple of years. A systematic review of this literature ([Michailova & Mustaffa, 2012](#_ENREF_67)) highlights two important gaps which this paper directly addresses. One, previous studies on knowledge flows are heavily biased towards aggregated examinations that leave under-explored specific practices that constitute a knowledge flow and so, in their agglomeration, create the MNC-specific pattern of knowledge flows. Unearthing the nuances of such practices can yield a more grounded and conceptually refined understanding of knowledge flows (see also [Tallman & Chacar, 2011a](#_ENREF_100), [2011b](#_ENREF_101)), in particular in relation to how practices at the micro-level initiate and lead to certain patterns of MNC knowledge exchanges. Two, Michailova and Mustaffa ([2012](#_ENREF_67)) conclude that subsidiary characteristics have been the predominant focus of pervious research at the expense of analyzing knowledge flows at the level of the individual. Given the need to deepen insights on individual behavior and individual agency, there have been repeated calls to examine knowledge flows at the micro-level to advance our understanding of their micro-foundations ([Doz, 2006](#_ENREF_22), [Foss, 2006](#_ENREF_31), [Foss & Pedersen, 2004](#_ENREF_35), [Mäkelä, Andersson & Seppälä, 2012](#_ENREF_64), [Minbaeva, Mäkelä & Rabbiosi, 2012](#_ENREF_71), [Tippmann, Mangematin & Sharkey Scott, 2013](#_ENREF_104), [Tippmann, Sharkey Scott & Mangematin, 2012](#_ENREF_105)). Micro-foundations generally refer to individual-level factors, here knowledge mobilization practices, that help to explain a collective phenomenon, in this study MNC knowledge flows ([Felin & Hesterly, 2007](#_ENREF_27)) and give primacy to the activities of individuals in organizational knowledge processes ([Felin, Zenger & Tomsik, 2009](#_ENREF_28)).

To contribute towards filling these voids relating to knowledge flow practices and MNC knowledge flow micro-foundations, we differentiate between two different patterns of competence impacting knowledge flows: *deliberate knowledge flows* (the intentional, top management–driven strategic effort to managing the pattern of competence impacting knowledge exchanges) and *emergent knowledge flows* (the lateral and bottom up competence impacting knowledge exchanges that are not directly guided by top management). We undertook a qualitative investigation into 40 responses to non-routine problems sampled from four subsidiaries and analyzed the details of subsidiary managers’ knowledge mobilizations, i.e. knowledge searched for, identified and transferred to initiate and enact a knowledge inflow. Delineating these knowledge mobilization practices and patterns, this paper contributes by unpacking the nuances of emerging knowledge flows, showing how subsidiary managers may initiate bottom up and later knowledge mobilizations which reuse MNC knowledge in an emergent fashion. Our detailed investigation has implications for studies on MNC knowledge flows, particularly studies taking a subsidiary perspective and examinations concerned with knowledge flow micro-foundations.

The next sections introduce the theoretical background of competence impacting knowledge flows initiated by subsidiary managers. We then outline our methodology for this exploratory study, present the main findings and their implications for theory, future research and management practice.

1. **Competence impacting knowledge flows: Deliberateness and emergence**

Drawing on Mintzberg and Waters ([1985](#_ENREF_72)), we argue that the literature on competence impacting MNC knowledge flows can be summarized into two perspectives: deliberate and emergent knowledge flows1. The first, deliberate knowledge flows, denotes an intentional, top management–driven strategic effort to managing the pattern of competence impacting knowledge exchanges. It refers to the leverage of ‘superior’ competences which are usually generated by headquarters or advanced subsidiaries with creative roles ([Meyer et al., 2011](#_ENREF_66)). As a MNC’s knowledge related advantages hinge on its ability to transfer competences effectively and efficiently, such deliberate knowledge flows are a central part of MNC strategy andsubstantial efforts have been made to build MNCs’ capacities to leverage ‘superior’ processes and practices across their dispersed operations.

Deliberate competence and knowledge replication may follow different approaches ([Baden-Fuller & Winter, 2007](#_ENREF_8), [Szulanski & Jensen, 2006](#_ENREF_99)). The parent organization often pursues a directing role ([Szulanski, 2000](#_ENREF_98)) with the subsidiaries becoming “confronted with internal organizational pressure from their parent company to adopt a practice”([Kostova, 1999](#_ENREF_57), [Kostova & Roth, 2002, p. 217](#_ENREF_58)). Even in lateral knowledge flows between subsidiary units, headquarters may direct and actively participate in these exchanges ([Ciabuschi, Dellestrand & Kappen, 2011](#_ENREF_15), [Yamin, Tsai & Holm, 2011](#_ENREF_114)); an involvement which is more likely if corporate value creation could be at stake ([Poppo, 2003](#_ENREF_87)). In these deliberate knowledge flows, MNC management often decides strategically on what knowledge is leveraged, the timing of replication and on the approaches for executing such replication efforts. The role of subsidiary management is to ensure that the inflowing knowledge is adopted, implemented and the risk of minimal (or even ceremonial) adoption avoided ([Kostova & Roth, 2002](#_ENREF_58)). The task of front-line employees is to internalize the knowledge by developing knowing-in-practice ([Hong, Snell & Easterby-Smith, 2009](#_ENREF_50)), and they may undertake certain adaptations to respond to local, context-specific needs ([Saka-Helmhout, 2009](#_ENREF_91) and [2010](#_ENREF_92)). Overall deliberate knowledge flows unfold top-down within subsidiaries.

In addition to deliberate knowledge flows, there is also evidence that knowledge is exchanged, reused and leveraged in the MNC in more emergent ways. Besides their role in knowledge and competence implementation, subsidiary managers, for example, also actively search for knowledge ([Tippmann et al., 2013](#_ENREF_104), [Tippmann et al., 2012](#_ENREF_105)), in particular when motivated by a need to respond to non-routine problems ([Cyert & March, 1963](#_ENREF_18)). This motivated search behavior – or problemistic search - may lead relevant knowledge to be sought and selected ([Schulz, 2003](#_ENREF_94)) and has been previously linked to MNC knowledge flows ([Monteiro, Arvidsson & Birkinshaw, 2008](#_ENREF_74), [Zellmer-Bruhn, 2003](#_ENREF_117)), as it leads to subsidiary knowledge *in*flows if knowledge is mobilized from external or other internal MNC units to assist subsidiary-led solution finding activities.

Aligning with our emphasis on competence impacting knowledge flows, the middle management perspective of strategy and organizational knowledge suggests that middle managers of the MNC are the nexus for many knowledge flows that relate to organizational competences. Using a broad definition ([Wooldridge, Schmid & Floyd, 2008](#_ENREF_113)), MNC middle management includes managers below MNC top management and above first-level supervision in the organizational hierarchy. In this study, the focus is specifically on subsidiary mid-level management, referred to as subsidiary managers throughout this paper. With the rise of networked or heterarchical MNC structures ([Bartlett & Ghoshal, 1998](#_ENREF_9), [Ghoshal & Bartlett, 1990](#_ENREF_38)), subsidiaries in general have a more central role in the exchange of knowledge, receiving knowledge from headquarters and other units ([Gupta & Govindarajan, 1991](#_ENREF_41) and [2000](#_ENREF_42)). Within such a complex and decentralized architecture of MNCs, characterized by vertical and lateral knowledge flows across different hierarchical levels of the organization, middle managers (such as subsidiary managers) undertake the critical task of mediating, catalyzing and leading knowledge exchanges ([Hedlund, 1994](#_ENREF_46), [Nonaka, 1988](#_ENREF_80) and [1994](#_ENREF_81)).

Looking more closely at vertical knowledge flows, front-line staff possess knowledge that is very specific to their immediate task environment, and top management provides strategic direction and knowledge with regards to the general product-market, technological or geographical domain ([Mom, Van Den Bosch & Volberda, 2007](#_ENREF_73)). Operating at the nexus where this specific, bottom up knowledge and general, top-down knowledge collide, subsidiary managers have channels to mobilize knowledge from subsidiary front-line and higher-level management both located at the focal subsidiary and other international sites.

Middle managers are also critical in developing and maintaining the lateral connections within large organizations such as MNCs ([Hedlund, 1994](#_ENREF_46), [Nonaka, 1994](#_ENREF_81)), interacting with management peers across functional and geographic boundaries. Such lateral communication across geographic space is an important integrating device within MNCs to manage the dispersion of the organization ([Ghoshal, Korine & Szulanski, 1994](#_ENREF_39)). Subsidiary managers may utilize these horizontal links to mobilize knowledge ([Mors, 2010](#_ENREF_75)) and may cross-leverage competences by ‘moving’ existing capabilities to areas where they believe these capabilities can generate value ([Taylor & Helfat, 2009](#_ENREF_102)).

Departing from the common emphasis on using the subsidiary as the level of observation of knowledge flows and responding to the need for micro-level investigations ([Foss, Husted & Michailova, 2010](#_ENREF_33), [Foss & Pedersen, 2004](#_ENREF_35), [Minbaeva, Foss & Snell, 2009](#_ENREF_70)), we pursued an individual-level approach that seeks to unravel explanatory mechanisms of organizational knowledge flows by focusing on individual actions, interactions and activities ([Felin & Foss, 2005](#_ENREF_26), [Felin & Hesterly, 2007](#_ENREF_27), [Felin et al., 2009](#_ENREF_28)). Fundamentally, knowledge flows depend on human interactions and people’s abilities to transfer knowledge ([Argote & Ingram, 2000](#_ENREF_5), [Argote, Ingram, Levine & Moreland, 2000](#_ENREF_6), [Argote, McEvily & Reagans, 2003](#_ENREF_7), [Noorderhaven & Harzing, 2009](#_ENREF_82)): it is not units as such that exchange knowledge, but individuals within those units. Previous studies that examined MNC knowledge flows from the perspective of the individual concentrated on expatriates ([Bonache & Zárraga-Oberty, 2008](#_ENREF_12), [Crowne, 2009](#_ENREF_17), [Engelhard & Nägele, 2003](#_ENREF_25), [Hocking, Brown & Harzing, 2004](#_ENREF_48) and [2007](#_ENREF_49), [Lazarova & Tarique, 2005](#_ENREF_61)), knowledge workers ([Sunaoshi, Kotabe & Murray, 2005](#_ENREF_96)) or general knowledge sourcing efforts within MNCs ([Teigland & Wasko, 2009](#_ENREF_103)). Although the strategy and organizational knowledge literatures highlight the critical role of middle managers in catalyzing knowledge exchanges, to our knowledge, this perspective has not yet been systematically applied to the MNC context.

Given that most research on subsidiary knowledge flows has taken an aggregated perspective, for example, by asking subsidiary top managers to indicate how much knowledge the subsidiary received over a given time period ([e.g. Ambos & Ambos, 2009](#_ENREF_2), [Björkman, Barner-Rasmussen & Li, 2004](#_ENREF_11), [Driffield, Love & Menghinello, 2010](#_ENREF_23), [Gupta & Govindarajan, 2000](#_ENREF_42), [Monteiro et al., 2008](#_ENREF_74), [Schulz, 2001](#_ENREF_93) and [2003](#_ENREF_94), [Tsai, 2001](#_ENREF_108) and [2002](#_ENREF_109)) or analyzed patent citations ([Kotabe et al., 2007](#_ENREF_60)), investigating subsidiary managers’ knowledge mobilizations allows the development of a more nuanced view of how knowledge inflows that appear in these summary measures are actually initiated in practice. This will inform research on the micro-foundations of knowledge flows by revealing some of the details of subsidiary managers’ behaviors, activity patterns and manifestation of individual agency in MNC knowledge flows. This leads us to ask how subsidiary management (as the MNC’s middle management) utilizes the different channels for knowledge mobilization in practice and how that influences competence impacting knowledge flows in the MNC.

1. **Method**
	1. *Research design and setting*

While there has been much research on knowledge flows in MNCs, how subsidiary managers actually mobilize knowledge in practice is not well understood. Given this exploratory approach and the aim of generating a better understanding, a case study design was particularly suited to this research. This afforded us the opportunity to gain an in-depth understanding of subsidiary managers’ knowledge mobilizations by enquiring closely into their actions and thus appreciating the real-life complexities of MNC knowledge processes ([Eisenhardt, 1989](#_ENREF_24), [Yin, 2009](#_ENREF_115)).

This study used an embedded case study research design (Yin, 2009), sampling a larger number of subsidiary managers in four organizations. Following theoretical sampling ([Pauwels & Matthyssens, 2004](#_ENREF_84)), we selected four, wholly-owned, greenfield subsidiaries of four different MNCs in the ICT industry. The four subsidiaries - all located in Ireland and part of two U.S. and two European MNCs - are here called Epsilon, Gamma, Omega and Sigma to preserve their anonymity. While all MNCs were chosen from a single industry to reduce extraneous variation, the subsidiaries were selected to represent a range of different variables at the corporation (MNC) and subsidiary levels (see Table 1) - including aspects that have previously been found to influence knowledge flows. This introduced theory-driven variance and divergence into our investigation of subsidiary managers’ practices in mobilizing knowledge. The focal subsidiaries were of different sizes, indicating different levels of knowledge stocks ([Gupta & Govindarajan, 2000](#_ENREF_42), [van Wijk, Jansen & Lyles, 2008](#_ENREF_111)) and had different numbers and types of mandates, a sign of the concentration and scope of their knowledge ([Gupta & Govindarajan, 2000](#_ENREF_42), [Hansen & Løvås, 2004](#_ENREF_44), [van Wijk et al., 2008](#_ENREF_111)). In addition, the structure of the MNCs’ international operations varied sufficiently to incorporate local, regional and global subsidiary responsibilities. These factors translated into different levels of subsidiary autonomy and of international integration and interdependencies ([O'Donnell, 2000](#_ENREF_83)), which influence knowledge flow patterns ([Gupta & Govindarajan, 2000](#_ENREF_42), [Hansen & Løvås, 2004](#_ENREF_44)).

Theoretical sampling was also used to select subsidiary middle manager interviewees. They were selected widely to include managers from R&D, operations, sales, services and support units to develop insights that are derived from different subsidiary mandates, including competence implementing and competence creating units, which exhibit different organization-level patterns of competence transfers ([Cantwell & Mudambi, 2005](#_ENREF_14), [Meyer et al., 2011](#_ENREF_66)). This also introduces theory-driven divergence at the subsidiary sub-unit level to appreciate aspects of their unique organizational context ([Rugman, Verbeke & Wenlong, 2011](#_ENREF_90)). In addition, the managers’ company tenures varied (from one to 18 years) suggesting different time spans for building interpersonal networks and social capital which can serve as valuable channels for knowledge sharing in particular in large and geographically distributed organizations like MNCs ([Hansen, 1999](#_ENREF_43), [Inkpen & Tsang, 2005](#_ENREF_52), [Mäkelä & Brewster, 2009](#_ENREF_65), [Mors, 2010](#_ENREF_75)). Although some subsidiary managers were home country or third country nationals, most were host country nationals and some had previously been expatriates. Having undertaken an international assignment in the past may help the subsidiary manager to ‘know-who’ in developing a more wide-ranging interpersonal network ([Dickmann & Harris, 2005](#_ENREF_20), [Hocking et al., 2004](#_ENREF_48)). This replication logic ([Eisenhardt, 1989](#_ENREF_24), [Yin, 2009](#_ENREF_115)) at the organization and subsidiary management levels is an empirical advantage as there is a need for research to investigate knowledge flows in subsidiaries of several MNCs instead of focusing only on a single organization ([Michailova & Mustaffa, 2012, p. 391](#_ENREF_67)) to generate findings of greater theoretical transferability.

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***Insert Table 1 here***

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* 1. *Data collection*

We used multiple data collection techniques: study of secondary sources, 34 interviews with subsidiary middle managers (referred to as ‘subsidiary managers’ throughout the paper), 7 interviews with subsidiary senior managers and a review of archive materials - to gather information about the subsidiaries and their parent MNCs more generally, as well as in-depth data about subsidiary managers’ knowledge searches. The semi-structured interviews with subsidiary managers were the main data collection technique and used to explain specific non-routine problem(s) and their corresponding search for knowledge. In contrast to responses to day-to-day problems, problemistic search (as a response to non-routine problems) is a rarer event. Implementing the resultant solutions that change espoused processes and practices at the subsidiary or MNC level is one of the main ways organizations can achieve continuous, evolutionary adaptation ([Tippmann et al., 2012](#_ENREF_105)). Given their significance for organizational adaptation, non-routine problems are often complex, ambiguous and pose high knowledge needs ([Nickerson & Zenger, 2004](#_ENREF_79)). This makes problemistic search a suitable approach for investigating actual *knowledge mobilizations* (i.e. knowledge searched for, identified and transferred to initiate and enact a subsidiary knowledge inflow), the main unit of analysis for this article. Focusing on knowledge mobilizations also allows us to understand how patterns in managers’ actions relate to conceptualizations of MNC knowledge flows. The respondents were line and project managers. These interviews lasted approximately one hour (some up to 75 minutes), with the main focus on gathering material on specific aspects directly related to knowledge searches. Respondents were asked to recall one or two specific non-routine problems and explain how they searched for knowledge as part of their solution finding process for each incident. We sought information on situations that occurred during the past year to allow for an accurate recall of events ([Huber & Power, 1985](#_ENREF_51)) and used open-ended questions and probes to encourage detailed responses as well as to promote more accurate recall of specific actions and interactions rather than more general opinions or beliefs ([Miller, Cardinal & Glick, 1997](#_ENREF_69)). These prompts were particularly useful to elicit where exactly the knowledge was searched and what kind of knowledge was mobilized. Interviews were recorded, transcribed verbatim and verified with respondents to ensure their accuracy.

Seven senior-level subsidiary managers, including Business Directors and General Managers, were interviewed to gain a deeper understanding of each MNC’s knowledge processes and how the subsidiary normally exchanged knowledge with other parts of the organization. Five of these interviews were recorded and transcribed verbatim; detailed notes were taken and transcribed immediately afterwards in the other two. These senior management interviews also provided additional detail on the solution finding which we combined with archival information and data from subsidiary management interviews for triangulation.

We collected data on 42 cases of non-routine problems, but dropped two from the analysis due to missing detail, resulting in a final dataset of 40 cases. Importantly, a detailed post-hoc analysis of the solutions implemented revealed that they mostly led to changes in routines (modifying existing or creating new routines) or created new technology components, so contributing to the renewal of competences at the subsidiary and even MNC level. In addition, the urgency and potential to cause a negative impact on operational performance required that the subsidiary managers developed a solution to resolve the initial challenge. Table 2 briefly summarizes the range of non-routine problems included in the dataset.

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***Insert Table 2 here***

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* 1. *Data analysis*

The dataset contains information on the subsidiary managers’ problem solving processes, including detailed information on how the subsidiary managers mobilized knowledge. Realizing that their knowledge mobilizations had direct implications for competence impacting MNC knowledge flows, we focused more closely on this aspect.

The data analysis progressed through multiple phases, starting with identifying knowledge components. As typical for complex systems, organizational knowledge is decomposable into different components, i.e. its constituent parts that in their interdependence build a knowledge architecture or organizational knowledge system ([Henderson & Clark, 1990](#_ENREF_47), [Simon, 1962](#_ENREF_95)). Following this notion, we initially identified the various knowledge components - internal and external - which the subsidiary managers mobilized as part of their solution finding. Knowledge flows comprise search and transfer ([Hansen, 1999](#_ENREF_43)), so careful attention was paid to coding only those components that were actually exchanged and excluding those which, although identified as part of the search, were not mobilized. As the right column of Table 2 shows, a total of 146 knowledge components were identified, with a considerable variation (from zero to ten) across the cases.

We then examined these 146 knowledge components to identify the constituent sub-themes. To give our analysis an early structure and to facilitate cross-case comparison, these knowledge components where classified under the broad, literature-based dimensions ([Miles & Huberman, 1994](#_ENREF_68)) of tacit and explicit knowledge. Tacit knowledge refers to knowledge which is difficult to articulate and accumulates through experience; whereas explicit knowledge can be expressed easily and codified ([Polanyi, 1966](#_ENREF_86)). We then coded these knowledge components into the major themes identified from the data: (1) declarative knowledge, (2) practice - process embedded in documents, tools, technology, (3) experience, advice, (4) practice - understanding of practice and (5) specialist expertise, competence.

To analyze knowledge mobilization patterns, i.e. the sources of inflowing knowledge ([Foss & Pedersen, 2002](#_ENREF_34)), we examined whether internal knowledge components were sourced vertically (either bottom up from front-line staff/management or downwards from top management), horizontally from middle management peers or from a central knowledge database (repository). We explored the geographic proximity of targeted knowledge sources, cross-coding all knowledge components as being sourced locally (from the same subsidiary) or internationally (from another international location of the MNC). For each knowledge exchange (which totaled 122, as managers may have used one knowledge source for more than one knowledge component), we also coded whether the knowledge was sourced internally - from within the same or another function - or externally, to account for further subtleties in the diversity of knowledge sources targeted. After completing the within-case analysis, we generated a meta-matrix by ‘stacking’ the 40 cases under common codes ([Eisenhardt, 1989](#_ENREF_24), [Miles & Huberman, 1994](#_ENREF_68)) reflecting the knowledge components mobilized and the sourcing patterns involved (local/international, lateral/vertical, within/across functions, internal/external). This meta-matrix represented a highly condensed presentation of the within-case analysis and greatly facilitated comparison across the 40 cases.

Overall, multiple measures were employed to strengthen the trustworthiness of the qualitative data and analysis ([Lincoln & Guba, 1985](#_ENREF_62)): multiple data analysis iterations; constant moving between data and theory; protecting confidentiality; confirming the validity of preliminary analyses with respondents; and using NVivo to perform a systematic and consistent analysis of knowledge mobilization practices.

1. **Findings**

The first two data analysis phases revealed the main themes of those knowledge components that the subsidiary managers mobilized: Table 3 provides supporting data for each theme, while Figure 1 summarizes our findings about knowledge inflow patterns and depicts the intensity and sources of those different sourced knowledge components. Overall, we found that subsidiary managers chose internal knowledge much more often than external knowledge. Where external knowledge was mobilized subsidiary managers worked equally often with local, host-country sources and with geographically distant collaborators.

For illustrative purposes, we present our findings in a descriptive format along the knowledge component themes, although, in most cases, knowledge search processes unfolded in practice in more idiosyncratic, complex and iterative ways.

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***Insert Table 3 here***

***Insert Figure 1 here***

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* 1. *Experience and advice*

The subsidiary managers we interviewed valued the experience and advice of others. Although mobilizing experience by itself can reinforce previous knowledge accumulation paths and thus cause inertia, it can also stimulate creative outcomes if reframed through the interpersonal interaction of seeking help ([Hargadon & Bechky, 2006](#_ENREF_45)). Valuing the knowledge located at the same site and the efficacy of face-to-face exchanges, subsidiary managers sought experience from peers in local management who might have encountered similar issues in their particular areas. They asked for advice within their local management teams, occasionally including subsidiary senior management and also front-line employees, whose bottom up knowledge brought deeper understandings of problem subtleties and trustworthy, first-hand advice for solution crafting: *“while she is not a manager, she has huge experience… I trust her. She has a very good brain. …she is somebody whose opinion is well worth hearing”* (Epsilon, case 2); *“the experience from our team. … This is the informal, very practical experience”* (Gamma, case 12).

This search for experience and advice also included colleague managers from other sites, again on the basis that they might may have previously encountered similar challenges: *“we [Irish and US sister units] share knowledge and experience. When that comes into play mostly is when we have a critical situation”* (Sigma, case 10). In such situations, the subsidiary managers usually either belonged to the same MNC group or division or could draw on existing inter-personal relationships. Seeking experience and advice was mainly geared towards understanding and (re-)framing the non-routine problem involved, as well as seeking further input for achieving solutions: commonly reported actions included approaching *“experienced”* colleagues *“as peers”* to obtain *“their advice”* and to *“share”* experience openly.

* 1. *Practice – process embedded in document, tools, technology*

Many organizations codify their practices and processes so as to enhance learning ([Zollo & Winter, 2002](#_ENREF_118)) and promote knowledge standardization to speed up replication: practice elements can be carried and embedded in software tools and technologies as well as in documents ([Zander & Kogut, 1995](#_ENREF_116)). Our data suggests subsidiary managers were often interested in building on and reusing suitable elements of existing *“best”* or *“good work”* practices: *“This was an established, recognized way”* (Epsilon , case 2) so as to *“take the best of what they were doing”* (Gamma, case 13). Interestingly, these practices were sourced more intensely from international sources, both laterally and bottom up, than locally, with subsidiary managers mobilizing selected practice elements embedded in documents, tools and technology; commonly expressed as taking the *“ model”*, *“tools”* or *“program”*: *“There is actually a lot of material there that can be taken. It doesn’t need to be created from scratch”* (Gamma, case 4); *“There are a lot of tools, best practice and processes that have been set up. So, we cannot use all of them, but we can learn hell of a lot of what happened there”* (Gamma, case 7). Being embedded in artifacts facilitated searching and moving these knowledge components, but the properties of the mobilized knowledge often remained rather general, so additional understanding of tacit elements was usually required for its successful performance.

* 1. *Understanding of practice*

 Despite the efforts of many organizations to codify practices, much important knowledge related to routine performance - including the exact workings of different micro-level practice elements - remained causally ambiguous, tacit (and thus harder to share) and contextual, so that its mobilization required more effort. The data shows that subsidiary managers often searched and mobilized this tacit practice understanding - the ‘how’ element - by seeking detailed explanations of how to perform the process/model in everyday practice to give them a deeper understanding of the complexities involved: *“they serve as kind of council … they can really talk you through how exactly they handled it”* (Gamma, case 11); and *“they [management peers in the US] understood the challenges we were going through and could help us to understand how they had managed issues like that”* (Omega, case 1).

As with sourcing embedded practices, this type of knowledge exchange occurred more often between subsidiary managers internationally than locally. Global management peers were approached to gain understanding of routines in broader practice contexts or to *“understand the success”* of routines (Gamma, case 13) by learning more about the approaches other units took towards similar issues. Subsidiary managers visited sister sites to gain more in-depth understanding and also sourced tacit practice understandings from front-line employees who possessed the relevant *“ground level or base level”* (Sigma, case 3) knowledge. The managers also organized moving employees, usually on short term assignments, to transfer tacit knowledge and assist the focal unit team to learn and implement particular practices.

* 1. *Specialist expertise and competence*

The novelty and complexity of many non-routine problems meant that developing solutions often required specialized knowledge – the specific *“technical skill”* held by a subject matter *“expert”* or *“specialist”*. Our data reveals three particularly noteworthy findings. First, the search for specialist expertise and competences exhibited the highest intensity of all knowledge components mobilized. A subsidiary manager described how an expert was his *“main source of technical information … and I would rely on that specific knowledge”* (Epsilon, case 2). Second, a high proportion of such exchanges involved spanning functional boundaries to search for a highly specialized unit or for individual peers with a particular competence/skill profile. Sales managers reached out to engineers, services managers to operations experts and operations managers to high-tech, PhD researchers: *“That’s a highly skilled team of PhDs, statisticians, mathematicians”* (Gamma, case 13); and *“from their skill set; very smart and bright people”* (Gamma, case 9). While these exchanges within and across functions occurred among subsidiary management peers locally, they were mostly between the subsidiary manager and front-line experts (local as well as global) depending on the location of the particular subject matter expert(s). Third, the majority of external knowledge mobilizations fell into this category, suggesting subsidiary managers sought very specific tacit knowledge when approaching external sources to deal with non-routine problems. In these instances, accessing the required subject matter expertise was a more critical factor than geographic proximity.

* 1. *Declarative knowledge*

While subsidiary managers (of course) gathered and analyzed information and data, declarative knowledge – such as *“technical documents”* - was only sought on rare occasions, either internally or externally, as *“it is very difficult to understand the exact reasons”* (Gamma, case 12) behind problems and developed solutions using only previously prepared descriptive knowledge. Sourcing declarative knowledge involved searching the MNC’s knowledge repository, browsing the web and enquiring from management peers, but (as previous studies have observed) subsidiary managers clearly preferred more interpersonal search modes, for tacit and for explicit knowledge alike, even though well-developed knowledge repositories and modern IT technologies have transformed knowledge storage and access possibilities ([Cross & Sproull, 2004](#_ENREF_16), [De Aiwis, Majid & Sattar Chaudhry, 2006](#_ENREF_19)).

Overall, our results show that subsidiary managers mobilized different kinds of knowledge components to deal with non-routine problems at their subsidiary units (see Table 4 for a summary of frequencies). Although each knowledge search process was idiosyncratic - including a number of cases with low and high intensity knowledge searches, common patterns emerged across the cases which included the mobilization of elements of existing practices, embedded in documents, tools and technology as well as the understandings required for their performance. Where practices were mobilized, they were usually recombined and blended with additional knowledge, complemented with specialist expertise or competence, as well as with experience and advice to create modified or completely new solutions. Subsidiary managers mostly mobilized knowledge laterally from their management colleagues and vertically from front-line employees. Their searches included local as well as international sources and involved a nearly balanced mix of within-function and cross-functional flows – but internal knowledge searches outweighed external ones.

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***Insert Table 4 here***

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1. **Discussion**

Competence impacting subsidiary knowledge flows contribute towards the realization of the MNC’s knowledge related advantage through searching and transferring knowledge that can be recombined to create new knowledge and competences. In other instances, competence impacting knowledge flows are the manifestation of MNC strategies to internationally replicate competences, processes and practices to reuse and leverage ‘superior’ knowledge in different locations. A recent review of the literature on subsidiary knowledge flows points out two key areas that are in need for further theoretical development ([Michailova & Mustaffa, 2012](#_ENREF_67)): (1) research to explore in detail specific practices relating to knowledge flows and (2) attention to individual-level knowledge flows to develop insights on their micro-foundations. By investigating subsidiary managers’ actual knowledge mobilization practices and their knowledge mobilization pattern as they seek to develop responses to non-routine problems, this research directly addresses these two opportunities for theory development.

* 1. *Subsidiary managers’ practices of knowledge mobilization: Unpacking the emergent knowledge flow*

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***Insert Table 5 here***

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Considerable attention has been devoted to the investigation of deliberate knowledge flows (summarized in the left column of Table 5). By building on a middle management perspective to investigate knowledge mobilization practices and patterns, this article’s main contribution relates to increasing our understanding of emergent knowledge flows (summarized on the right of Table 5). This not only unearths some of subsidiary managers’ actual knowledge mobilizations to access and apply the most appropriate knowledge given a certain situation, it also permits development of insights on a particular kind of knowledge flow practice. The investigation of practices relating to knowledge flows is one of the main areas of the subsidiary knowledge flow literature which requires further theory development ([Michailova & Mustaffa, 2012](#_ENREF_67)).

We found that subsidiary managers often source existing practices or routines located both within and outside their focal functions and both, geographically nearby and distant. They frequently complement these knowledge inflows with specialist expertise and competences, and specific experience and advice, drawing on the practice understandings of front-line employees as well as from management peers. Together, these mobilizations display a complex pattern of competence impacting knowledge flows within MNCs (see Figure 1), revealing substantial lateral as well as bottom up transfers. Importantly, our data implies that these knowledge flows are not directly guided by top management’s deliberate intentions and show important lateral and bottom up exchanges. In particular, front-line employees here provide their specialist understanding, skill and advice to actively assist solution development. Although the following discussion builds on these findings to develop more fully the notion of the emergent knowledge flow, the distinction between emergent and deliberate knowledge flow in practice is less of a sharp contrast and more of a gradual continuum.

Emergent knowledge flows exhibit properties that both complement and challenge certain assumptions about competence impacting knowledge flows in MNCs. First, we observe many lateral knowledge mobilizations between management peers, occurring within and across functional boundaries, locally as well as internationally. We see this as evidence of inter-unit communication, social capital and the internal embeddedness of subsidiary managers - important enablers of knowledge flows ([Gnyawali, Singal & Mu, 2009](#_ENREF_40), [Tsai, 2000](#_ENREF_107), [Tsai & Ghoshal, 1998](#_ENREF_110)). In addition, the importance of lateral knowledge flows combined with very low knowledge mobilizations from the top resonates with findings that laterality and cooperation between subsidiaries - without headquarters involvement - promote more efficient and effective knowledge transfers ([Ciabuschi et al., 2011](#_ENREF_15), [Yamin et al., 2011](#_ENREF_114)). Our findings, however, add another consideration to questions of headquarters involvement in knowledge flows: we find not only that MNC headquarters were often uninvolved in these lateral flows, but that they even occurred ‘below their radar’ and thus beyond their direct control. So - at least in the problemistic search situations studied here - top management may have had little influence in practice on what knowledge components got mobilized and recombined by subsidiary management in perhaps ways that were unpredicted and unplanned by top management. The solutions created by the subsidiary managers we interviewed often modified existing or developed new routines and technologies, thus initiating changes to the building blocks of organizational MNC competences and capabilities ([Dosi, Faillo & Marengo, 2008](#_ENREF_21), [Winter, 2003](#_ENREF_112)). This pinpoints towards the decentralization of competence development in the MNC ([Birkinshaw, Hood & Jonsson, 1998](#_ENREF_10), [Rugman & Verbeke, 2001](#_ENREF_89), [Tippmann et al., 2012](#_ENREF_105)). It also suggests an additional consideration about how MNC top management can best be involved in knowledge flows: we argue that they can only influence emergent knowledge flows indirectly, but that developing strategic vision at the subsidiary manager level can be critical to promoting knowledge mobilizations which - while perhaps unplanned by top management and emergent - can lead to valuable solutions that contribute to developing bottom up the MNC’s competences. This discussion leads us to suggest:

***Proposition 1:*** Subsidiary managers are more likely to initiate emergent knowledge flows if they pursue bottom up and lateral knowledge mobilizations with limited HQ involvement.

Second, deliberate knowledge flows occur mostly within functional domains as replication strategies aim to copy closely superior, ‘proven’ knowledge in sister units. Although we also observed considerable within-function knowledge flows, the novelty of non-routine problems often required subsidiary managers to search across functional boundaries to look for unique, better-suited knowledge in other functional areas. The subsidiary managers then acted as boundary spanners ([Kostova & Roth, 2003](#_ENREF_59)), thereby overcoming the potential bias of inter-personal knowledge sharing remaining concentrated on the focal function ([Mäkelä, Andersson & Seppälä, 2011](#_ENREF_63)). Such boundary spanning activities have become increasingly important, but also challenging, given modern MNCs’ growing architectural complexity and knowledge dispersion ([Mudambi & Swift, 2011](#_ENREF_78)). Emergent knowledge flows represent one example of how subsidiary managers can bridge interfaces to help MNCs achieve cross-functional knowledge leverage. By actively initiating boundary spanning flows, these actions introduce diverse knowledge into focal units, increasing their potential to develop innovative and creative solutions. This is a key contrast to the potential of deliberate knowledge flows which tend to lead to relative convergence and uniformity as the overarching goal is to ‘copy’ knowledge internationally. Following this, we argue:

***Proposition 2:*** Subsidiary managers are more likely to initiate emergent knowledge flows if they pursue boundary-spanning knowledge mobilizations that bridge interfaces and deal with architectural complexity.

Third (and related to proposition 2), problemistic search and resulting emergent knowledge inflows are linked to renewing MNC competences. Importantly, we found that subsidiary managers often mobilized knowledge components not for straight reuse or implementation, but for recombination, integrating different components to generate new knowledge – showing subsidiaries’ potential for competence development. Their efforts in this regard should not be underestimated. Galunic and Rodan ([1998](#_ENREF_36)) argue that the dispersal of knowledge in MNCs decreases the likelihood of novel uses of existing knowledge being detected, making it more difficult for subsidiary managers to conceive and conceptualize novel knowledge recombinations. Considering the current trend for MNC operations to be increasingly fine-sliced into narrower mandates in the pursuit of a global factory model ([Buckley, 2009](#_ENREF_13)), which in turn further increases the structural complexity of MNCs and the specialization of knowledge ([Mudambi & Swift, 2011](#_ENREF_78)), we can expect this challenge to be further exacerbated. The simultaneous decentralization of MNC strategic knowledge processes and the increasing rate of environmental change in many industries – made more complicated by local, regional and global trends - will require fast and creative solution development at the subsidiary level, making it even more important to develop subsidiary managers’ capacities to initiate emergent knowledge flows.

We also found that subsidiary managers’ abilities to source knowledge from the front-line required the tensions rooted in different ‘professional guilds’ to be overcome ([Mudambi & Swift, 2009](#_ENREF_77)). Where different knowledge components are utilized, the emergent knowledge flow then becomes part of the subsidiary’s (re-)combinative activities, developing organizational knowledge in line with changing environmental conditions ([Kogut & Zander, 1992](#_ENREF_55)) and introducing divergence by questioning and renewing existing routines and competences. Again, this differs from the predominant outcomes of deliberate knowledge flows, which mainly seek convergence, integration, exploitation and limited deviance through the international replication of practices. We thus suggest:

***Proposition 3:***MNCs that develop subsidiary managers’ capacity to initiate emergent knowledge flows are more likely to succeed in decentralized solution development and capability renewal.

Overall, our qualitative investigation of subsidiary managers’ actual practices in knowledge mobilizations adds theoretical insights by developing a more stratified understanding of subsidiary knowledge inflows: depending on the different type of knowledge inflow (deliberate versus emergent) pursued, the typical activities and practices of subsidiary managers as well as front-line employees and top management vary along different dimensions.

* 1. *Individual-level knowledge flows: Insights for micro-foundations of MNC knowledge flows*

While the investigation of organizational-level determinants of MNC and subsidiary knowledge flows has progressed considerably, efforts to understand and model individual-level agency, behavior and antecedents of knowledge flows have remained in the background. There are significant research opportunities to further develop theory on the micro-foundations of MNC knowledge flows ([Doz, 2006](#_ENREF_22), [Foss, 2006](#_ENREF_31), [Foss & Pedersen, 2004](#_ENREF_35), [Mäkelä et al., 2012](#_ENREF_64), [Michailova & Mustaffa, 2012](#_ENREF_67), [Minbaeva et al., 2012](#_ENREF_71)).

Our findings add to the investigation of micro-foundations of knowledge flows by delineating different practices of knowledge mobilizations and patterns of knowledge inflows. We were, for example, surprised by the limited extent to which subsidiary managers searched and mobilized external knowledge, given earlier observations of the positive impact of external embeddedness on competence development ([Andersson, Forsgren & Holm, 2001](#_ENREF_3) and [2002](#_ENREF_4)) and suggestions that host-countries may offer unique, non-redundant and context-specific knowledge ([Meyer et al., 2011](#_ENREF_66)). However, a previous study on how managers source information also found that they search externally only occasionally ([Cross & Sproull, 2004](#_ENREF_16)). Managers may choose an external rather than internal source if unique knowledge is sought ([King & Lekse, 2006](#_ENREF_54)). Despite this finding, the high proportion of cross-functional mobilizations suggests that subsidiary managers do not avoid seeking diverse knowledge, but choose more often to pursue it internally. It seems plausible that non-routine problem solving requires speedy access to additional knowledge, facilitated either via established external links or by exploiting the MNC’s ‘social community’ advantages ([Kogut & Zander, 1992](#_ENREF_55)). Searching tacit external knowledge intensively may be more suited when a long-term cooperation for knowledge creation is envisaged, such as participating in external communities of practice or collaborating in alliances ([Tallman & Chacar, 2011a](#_ENREF_100) and [b](#_ENREF_101)). Also, most subsidiaries we studied had links to external partners located beyond their immediate host-country market or region: their external embeddedness had in fact become internationalized. Our findings demonstrate that; where very particular specialist expertise is needed, some subsidiary managers are willing to draw on these external, international links. These discussions allow us to put forward two propositions:

***Proposition 4a:*** If solution development requires fast access to diverse knowledge, subsidiary managers are more likely to seek it internally than externally.

***Proposition 4b:*** If solution development requires external knowledge, subsidiary managers are more likely to draw on the most appropriate external links regardless of their international location.

The findings of our study suggest that subsidiary managers are involved in two types of subsidiary knowledge inflows and that these knowledge inflows exhibit contrasting features. Although a detailed investigation of individual-level antecedents of deliberate and emergent knowledge flows is beyond the scope of this paper, there are strong reasons to expect that individual-level characteristics have a different effect on these knowledge inflows. Initiating emergent knowledge flows requires that the subsidiary managers exhibit a higher risk-taking propensity and willingness to bear uncertainty as different knowledge components are explored for their suitability during the oftentimes complex search process. The same two traits, risk-taking propensity and willingness to bear uncertainty may impede deliberate knowledge flows, for example, if the subsidiary manager is more inclined to ‘temper’ with the competence in its current form by undertaking pre-mature adaptations to ‘proven’ inflowing processes and practices, which has been shown to reduce knowledge transfer effectiveness ([Szulanski & Jensen, 2006](#_ENREF_99)). It may also be plausible that emergent knowledge flows require more social capital that spans geographic distance and corporate functions in order to increase the subsidiary managers’ ability to search for and source the more idiosyncratic and specialized knowledge required to develop innovative solutions to non-routine problems. In contrast, deliberate knowledge flow may benefit from within-subsidiary social capital in order to encourage the implementation of the received knowledge among local colleagues and front-line employees.

* 1. *Limitations and future research*

As these discussions suggest, this paper has constructive implications for research on MNC knowledge flows at a micro-level. Although our findings are based on 40 cases that were sampled from four subsidiaries and exhibit a range of organizational variables and constructive divergence at subsidiary manager level, the explorative nature of our inquiry calls for more investigations if the findings are to be generalized.

Future research on the micro-foundations of subsidiary managers’ knowledge flows could also take into consideration the different features of deliberate and emergent knowledge flows, instead of treating knowledge inflows as a conflation of these two types of flows, to investigate their respective antecedents. It seems particularly worthwhile to analyze the micro-foundations of diversity-introducing knowledge flows, for example by examining subsidiary managers’ motivation for sourcing knowledge across functions and geographic distance as well as external to the MNC or subsidiary. As it is much easier for subsidiary managers to try to reuse ‘proven’ solutions or exchange locally and/or within their functional domains, further research is needed to explain when subsidiary managers perceive the need (and act) to generate divergent knowledge mobilizations. Given that we observed considerable variation in the numbers of knowledge components sourced, further research may also be able to disentangle the exact individual- and organization-level reasons for this variance. Subsidiary managers rarely mobilized complete knowledge packages (such as full routines, processes or practices) but sourced elements selectively where they saw them as relevant ([Schulz, 2003](#_ENREF_94)). Future studies could thus also explore how managers (or individuals more generally) evaluate which elements of the MNC’s knowledge architecture can be meaningfully disaggregated and recombined. We did not specifically analyze whether the knowledge components represented location or non-location bound knowledge ([Rugman & Verbeke, 2001](#_ENREF_89)), or the translation work required to utilize knowledge from other locations, nor did we analyze in detail what knowledge was explored but not mobilized; further research could investigate these aspects. Given that applying a middle management perspective to questions of strategic merit for the MNC yielded theoretical insights in this study, further studies could develop this research avenue: more fine-grained understanding of subsidiary managers’ knowledge exchanges is needed to explore fully how their actions (or inactions) lead to creative and innovative ([Kanter, 1982](#_ENREF_53)) and strategic outcomes ([Floyd & Wooldridge, 1994](#_ENREF_29) and [1999](#_ENREF_30)), and the influence of the MNC’s knowledge governance mechanisms in directing their actions ([Foss, 2007](#_ENREF_32), [Foss et al., 2010](#_ENREF_33), [Tippmann, Sharkey Scott & Mangematin, in press](#_ENREF_106)).

We find that certain competence impacting knowledge flows may occur outside subsidiary and global top management visibility and direct control, and include mostly lateral and bottom up exchanges. This implies that these knowledge flows may not have been adequately captured by MNC knowledge flow studies built on data collected by surveying subsidiary top managers. We specifically suggest incorporating lower subsidiary and subunit management layers in such data collection efforts.

* 1. *Managerial relevance*

Our study’s findings also translate into several practice implications for MNC managers. Subsidiary managers’ central position in MNC knowledge exchanges gives them a unique capacity to catalyze emergent knowledge flows. Our findings imply an increased need for subsidiary managers in operational units to become aware that their role in subsidiary knowledge inflows is broader than overseeing knowledge implementation. This involves being aware that non-routine problems can be critical opportunities to move beyond deliberate knowledge flows to initiating emergent knowledge flows, i.e. knowledge exchanges that are much more explorative and capable of introducing knowledge diversity. This awareness also needs to incorporate openness to exploring knowledge components from different functional units and across geographic space which might have significant potential to yield new recombination.

For MNC and subsidiary top management, the findings imply that certain competence impacting knowledge flows occur outside their direct influence and even beyond their notice, and that the MNC’s middle management layers are the locus of many (re-)combinative activities. While allocating competence creating mandates to certain subsidiaries distributes MNC resources efficiently, it is important to realize that all subsidiary managers (regardless of their unit affiliations) regularly face puzzles and new challenges, and that the extent to which they engage in emergent knowledge flows in response to such challenges influences the evolution of MNC competences. While subsidiaries chartered with the execution of business activities rather than new competence creation may not have the resources and capabilities to achieve significant leaps for the MNC’s competence base, they can also contribute with ‘playful’ and unexpected knowledge flows. These kinds of knowledge reuse and recombination are difficult for the more removed headquarters and top management to conceive. The decentralization of solution development, and the high specialization and distribution of MNC knowledge, can make it difficult for a MNC to know what it knows. Subsidiary managers can contribute here by continuously browsing organizational knowledge in their own ways to respond to unexpected problems they can discover novel uses for existing knowledge, also allowing subsidiary units, which may not be endowed with large or diverse knowledge bases, to create unique knowledge bundles to suit specific problems.

While top and headquarters management may be removed from many emergent knowledge flows, strong management influence is needed to support these activities. With regards to managing internal embeddedness, it seems important to allow for a diverse range of such interpersonal ties to provide channels for novel and unexpected knowledge mobilizations, so as to encourage subsidiary managers to browse the MNC’s diverse knowledge pools on their own initiative, and for context-specific reasons. Our findings also suggest that lateral and front-line interfaces are particularly helpful, implying that downward and horizontal embeddedness facilitates improved access to the tacit knowledge required to develop solutions.

* 1. *Conclusion*

Investigating in detail the actual practices and patterns of subsidiary managers’ knowledge mobilizations when they encounter non-routine problems and search solutions to these specific challenges, this article contributes to discussions on MNC knowledge flows by providing previously missing micro-level detail about strategic patterns of knowledge circulation within MNCs. We used our exploratory insights to develop the contrasting notions of deliberate and emergent knowledge flows, highlighting how the emergent, i.e. largely bottom up, horizontal and boundary spanning subsidiary knowledge inflows locally as well as internationally initiated by subsidiary management can provide vital competence development elements. This is particularly the case with the increasing structural complexity of MNCs, which are characterized by increasingly fine-sliced operations and correspondingly wide distribution and specialization of knowledge, and so rely more and more on their subsidiary managers to conceive and initiate novel patterns of knowledge inflows to realize the MNC’s knowledge combination advantages.

**Footnote**

1 As Michaliova and Mustaffa ([2012](#_ENREF_67)) offer a comprehensive and systematic review of over 60 articles to outline the main findings regarding subsidiary knowledge flows, we only outline and justify here the theoretical framing that was employed to investigate competence impacting knowledge inflows initiated by subsidiary managers.

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**References**

Almeida, P. & Phene, A. (2004). Subsidiaries and knowledge creation: The influence of the MNC and host country on innovation. *Strategic Management Journal*, 25, 847-864.

Ambos, T. C. & Ambos, B. (2009). The impact of distance on knowledge transfer effectiveness in multinational corporations. *Journal of International Management*, 15, 1-14.

Andersson, U., Forsgren, M. and Holm, U. (2001). Subsidiary embeddedness and competence development in MNCs: Multi-level analysis. *Organization Studies*, 22, 1013-1034.

Andersson, U., Forsgren, M. and Holm, U. (2002). The strategic impact of external networks: Subsidiary performance and competence development in the multinational corporation. *Strategic Management Journal*, 23, 979-997.

Argote, L. & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82, 150–169.

Argote, L., Ingram, P., Levine, J. M. and Moreland, R. L. (2000). Knowledge transfer in organizations: Learning from the experience of others. *Organizational Behavior & Human Decision Processes*, 82, 1-8.

Argote, L., McEvily, B. and Reagans, R. (2003). Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management Science*, 49, 571-582.

Bartlett, C. A. & Ghoshal, S. (1998). *Managing across borders: The transnational solution*. London: Random House Business Books.

Birkinshaw, J., Hood, N. and Jonsson, S. (1998). Building firm-specific advantages in multinational corporations: The role of subsidiary initiative. *Strategic Management Journal*, 19, 221-241.

Björkman, I., Barner-Rasmussen, W. and Li, L. (2004). Managing knowledge transfer in MNCs: The impact of headquarters control mechanisms. *Journal of International Business Studies*, 35, 443-455.

Bonache, J. & Zárraga-Oberty, C. (2008). Determinants of the success of international assignees as knowledge transferors: A theoretical framework. *International Journal of Human Resource Management*, 19, 1-18.

Buckley, P. J. (2009). Internalisation thinking: From the multinational enterprise to the global factory. *International Business Review*, 18, 224-235.

Cantwell, J. & Mudambi, R. (2005). MNE competence-creating subsidiary mandates. *Strategic Management Journal*, 26, 1109-1128.

Ciabuschi, F., Dellestrand, H. and Kappen, P. (2011). Exploring the effects of vertical and lateral mechanisms in international knowledge transfer projects. *Management International Review*, 51, 129-155.

Cross, R. & Sproull, L. (2004). More than an answer: Information relationships for actionable knowledge. *Organization Science*, 15, 446-462.

Crowne, K. (2009). Enhancing knowledge transfer during and after international assignments. *Journal of Knowledge Management*, 13, 134-147.

Cyert, R. M. & March, J. G. (1963). *Behavioral theory of the firm*. Englewood Cliffs, New Jersey: Prentice Hall Inc.

De Aiwis, G., Majid, S. and Sattar Chaudhry, A. (2006). Transformation in managers' information seeking behaviour: A review of the literature. *Journal of Information Science*, 32, 362-377.

Dickmann, M. & Harris, H. (2005). Developing career capital for global careers: The role of international assignments. *Journal of World Business*, 40, 399-408.

Dosi, G., Faillo, M. and Marengo, L. (2008). Organizational capabilities, patterns of knowledge accumulation and governance structures in business firms: An introduction. *Organization Studies*, 29, 1165-1185.

Doz, Y. (2006). Knowledge creation, knowledge sharing and organizational structures and processes in MNCs: A commentary on foss n. "Knowledge and organization in the theory of the MNC". *Journal of Management & Governance*, 10, 29-33.

Driffield, N., Love, J. H. and Menghinello, S. (2010). The multinational enterprise as a source of international knowledge flows: Direct evidence from italy. *Journal of International Business Studies*, 41, 350-359.

Eisenhardt, K. M. (1989). Building theory from case study research. *Academy of Management Review*, 14, 532-550.

Engelhard, J. & Nägele, J. (2003). Organizational learning in subsidiaries of multinational companies in Russia. *Journal of World Business*, 38, 262.

Felin, T. & Foss, N. J. (2005). Strategic organization: A field in search of micro-foundations. *Strategic Organization*, 3, 441-455.

Felin, T. & Hesterly, W. S. (2007). The knowledge-based view, nested heterogeneity, and new value creation: Philosophical considerations on the locus of knowledge. *Academy of Management Review*, 32, 195-218.

Felin, T., Zenger, T. R. and Tomsik, J. (2009). The knowledge economy: Emerging organizational forms, missing microfoundations, and key considerations for managing human capital. *Human Resource Management*, 48, 555-570.

Floyd, S. W. & Wooldridge, B. (1994). Dinosaurs or dynamos? Recognizing middle management's strategic role. *Academy of Management Executive*, 8, 47-57.

Floyd, S. W. & Wooldridge, B. (1999). Knowledge creation and social networks in corporate entrepreneurship: The renewal of organizational capability. *Entrepreneurship: Theory & Practice*, 23, 123-143.

Foss, N. (2006). Knowledge and organization in the theory of the multinational corporation: Some foundational issues. *Journal of Management & Governance*, 10, 3-20.

Foss, N. J. (2007). The emerging knowledge governance approach: Challenges and characteristics. *Organization*, 14, 29-52.

Foss, N. J., Husted, K. and Michailova, S. (2010). Governing knowledge sharing in organizations: Levels of analysis, governance mechanisms, and research directions. *Journal of Management Studies*, 47, 455-482.

Foss, N. J. & Pedersen, T. (2002). Transferring knowledge in MNCs: The role of sources of subsidiary knowledge and organizational context. *Journal of International Management*, 8, 49-68.

Foss, N. J. & Pedersen, T. (2004). Organizing knowledge processes in the multinational corporation: An introduction. *Journal of International Business Studies*, 35, 340-349.

Galunic, C. D. & Rodan, S. (1998). Resource recombinations in the firm: Knowledge structures and the potential for schumpeterian innovation. *Strategic Management Journal*, 19, 1193-1201.

Ghoshal, S. & Bartlett, C. A. (1988). Creation, adoption, and diffusion of innovations by subsidiaries of multinational corporations. *Journal of International Business Studies*, 19, 365-88.

Ghoshal, S. & Bartlett, C. A. (1990). The multinational corporation as an interorganizational network. *Academy of Management Review*, 15, 603-625.

Ghoshal, S., Korine, H. and Szulanski, G. (1994). Interunit communication in multinational corporations. *Management Science*, 40, 96-110.

Gnyawali, D. R., Singal, M. and Mu, S. C. (2009). Knowledge ties among subsidiaries in MNCs: A multi-level conceptual model. *Journal of International Management*, 15, 387-400.

Gupta, A. K. & Govindarajan, V. (1991). Knowledge flows and the structure of control within multinational corporations. *Academy of Management Review*, 16, 768-792.

Gupta, A. K. & Govindarajan, V. (2000). Knowledge flows within multinational corporations. *Strategic Management Journal*, 21, 473-496.

Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44, 82-111.

Hansen, M. T. & Løvås, B. (2004). How do multinationals leverage technological competencies? Moving from single to interdependent explanations. *Strategic Management Journal*, 25, 801-22.

Hargadon, A. B. & Bechky, B. A. (2006). When collections of creatives become creative collectives: A field study of problem solving at work. *Organization Science*, 17, 484-500.

Hedlund, G. (1994). A model of knowledge management and the n-form corporation. *Strategic Management Journal*, 15, 73-90.

Henderson, R. M. & Clark, K. B. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35, 9-30.

Hocking, J. B., Brown, M. and Harzing, A.-W. (2004). A knowledge transfer perspective of strategic assignment purposes and their path-dependent outcomes. *International Journal of Human Resource Management*, 15, 565-586.

Hocking, J. B., Brown, M. and Harzing, A.-W. (2007). Balancing global and local strategic contexts: Expatriate knowledge transfer, applications, and learning within a transnational organization. *Human Resource Management*, 46, 513-533.

Hong, J. F. L., Snell, R. S. and Easterby-Smith, M. (2009). Knowledge flow and boundary crossing at the periphery of a MNC. *International Business Review*, 18, 539-554.

Huber, G. P. & Power, D. J. (1985). Retrospective reports of strategic-level managers: Guidelines for increasing their accuracy. *Strategic Management Journal*, 6, 171-180.

Inkpen, A. C. & Tsang, E. W. K. (2005). Social capital, networks, and knowledge transfer. *Academy of Management Review*, 30, 146-165.

Kanter, R. M. (1982). The middle manager as innovator. *Harvard Business Review*, 60, 95-105.

King, W. R. & Lekse, W. J. (2006). Deriving managerial benefit from knowledge search: A paradigm shift? *Information & Management*, 43, 874-883.

Kogut, B. & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3, 383-397.

Kogut, B. & Zander, U. (1993). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 24, 625-645.

Kostova, T. (1999). Transnational transfer of strategic organizational practices: A contextual perspective. *Academy of Management Review*, 24, 308-324.

Kostova, T. & Roth, K. (2002). Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects. *Academy of Management Journal*, 45, 215-233.

Kostova, T. & Roth, K. (2003). Social capital in multinational corporations and a micro-macro model of its formation. *Academy of Management Review*, 28, 297-317.

Kotabe, M., Dunlap-Hinkler, D., Parente, R. and Mishra, H. A. (2007). Determinants of cross-national knowledge transfer and its effect on firm innovation. *Journal of International Business Studies*, 38, 259-282.

Lazarova, M. & Tarique, I. (2005). Knowledge transfer upon repatriation. *Journal of World Business*, 40, 361-373.

Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Mäkelä, K., Andersson, U. and Seppälä, T. (2011). Interpersonal similarity and knowledge sharing within multinational organizations. *International Business Review*, doi:10.1016/j.ibusrev.2011.05.003.

Mäkelä, K., Andersson, U. and Seppälä, T. (2012). Interpersonal similarity and knowledge sharing within multinational organizations. *International Business Review*, 21, 439-451.

Mäkelä, K. & Brewster, C. (2009). Interunit interaction contexts, interpersonal social capital, and the differing levels of knowledge sharing. *Human Resource Management*, 48, 591-613.

Meyer, K. E., Mudambi, R. and Narula, R. (2011). Multinational enterprises and local contexts: The opportunities and challenges of multiple embeddedness. *Journal of Management Studies*, 48, 235-252.

Michailova, S. & Mustaffa, Z. (2012). Subsidiary knowledge flows in multinational corporations: Research accomplishments, gaps, and opportunities. *Journal of World Business*, 47, 383-396.

Miles, M. B. & Huberman, M. A. (1994). *Qualitative data analysis: An expanded sourcebook*. London: Sage.

Miller, C. C., Cardinal, L. B. and Glick, W. H. (1997). Retrospective reports in organizational research: A reexamination of recent evidence. *Academy of Management Journal*, 40, 189-204.

Minbaeva, D., Foss, N. and Snell, S. (2009). Bringing the knowledge perspective into hrm. *Human Resource Management*, 48, 477-483.

Minbaeva, D. B., Mäkelä, K. and Rabbiosi, L. (2012). Linking hrm and knowledge transfer via individual-level mechanisms. *Human Resource Management*, 51, 387-405.

Mintzberg, H. & Waters, J. A. (1985). Of strategies, deliberate and emergent. *Strategic Management Journal*, 6, 257-272.

Mom, T. J. M., Van Den Bosch, F. A. J. and Volberda, H. W. (2007). Investigating managers' exploration and exploitation activities: The influence of top-down, bottom-up, and horizontal knowledge inflows. *Journal of Management Studies*, 44, 910-931.

Monteiro, F., Arvidsson, N. and Birkinshaw, J. (2008). Knowledge flows within multinational corporations: Explaining subsidiary isolation and its performance implications. *Organization Science*, 19, 90-107.

Mors, M. L. (2010). Innovation in a global consulting firm: When the problem is too much diversity. *Strategic Management Journal*, 31, 841-872.

Mudambi, R. (2002). Knowledge management in multinational firms. *Journal of International Management*, 8, 1.

Mudambi, R. & Swift, T. (2009). Professional guilds, tension and knowledge management. *Research Policy*, 38, 736-745.

Mudambi, R. & Swift, T. (2011). Leveraging knowledge and competencies across space: The next frontier in international business. *Journal of International Management*, 17, 186-189.

Nickerson, J. A. & Zenger, T. R. (2004). A knowledge-based theory of the firm: The problem-solving perspective. *Organization Science*, 15, 617-632.

Nonaka, I. (1988). Toward middle-up-down management: Accelerating information creation. *Sloan Management Review*, 29, 9-18.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5, 14-37.

Noorderhaven, N. & Harzing, A.-W. (2009). Knowledge-sharing and social interaction within MNEs. *Journal of International Business Studies*, 40, 719-741.

O'Donnell, S. (2000). Managing foreign subsidiaries: Agents of headquarters, or an interdependent network? *Strategic Management Journal*, 21, 525-548.

Pauwels, P. & Matthyssens, P. (2004). The architecture of multiple case study research in international business. In R. Marschan-Piekkari & C. Welch, *Handbook of qualitative research methods for international business* (pp. 125-143). Cheltenham, UK: Edward Elgar Publishing.

Phene, A. & Almeida, P. (2008). Innovation in multinational subsidiaries: The role of knowledge assimilation and subsidiary capabilities. *Journal of International Business Studies*, 39, 901-919.

Polanyi, M. (1966). *The tacit dimension*. Garden City, New York: Doubleday and Co.

Poppo, L. (2003). The visible hands of hierarchy within the m-form: An empirical test of corporate parenting of internal product exchanges. *Journal of Management Studies*, 40, 403-430.

Regner, P. & Zander, U. (2011). Knowledge and strategy creation in multinational companies. *Management International Review*, 51, 821-850.

Rugman, A. M. & Verbeke, A. (2001). Subsidiary-specific advantages in multinational enterprises. *Strategic Management Journal*, 22, 237-251.

Rugman, A. M., Verbeke, A. and Wenlong, Y. (2011). Re-conceptualizing bartlett and ghoshal's classification of national subsidiary roles in the multinational enterprise. *Journal of Management Studies*, 48, 253-277.

Saka-Helmhout, A. (2009). Agency-based view of learning within the multinational corporation. *Management Learning*, 40, 258-274.

Saka-Helmhout, A. (2010). Organizational learning as a situated routine-based activity in international settings. *Journal of World Business*, 45, 41-48.

Schulz, M. (2001). The uncertainty of relevance of newness: Organizational learning and knowledge flows. *Academy of Management Journal*, 44, 661-681.

Schulz, M. (2003). Pathways of relevance: Exploring inflows of knowledge into subunits of multinational corporations. *Organization Science*, 14, 440-459.

Simon, H. A. (1962). The architecture of complexity. *Proceedings of the American Philosophical Society*, 106, 467-482.

Sunaoshi, Y., Kotabe, M. and Murray, J. Y. (2005). How technology transfer really occurs on the factory floor: A case of a major japanese automotive die manufacturer in the united states. *Journal of World Business*, 40, 57-70.

Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17, 27-43.

Szulanski, G. (2000). Appropriability and the challenge of scope: Banc one routinizes replication. In G. Dozi, R. R. Nelson & S. G. Winter, *The nature and dynamics of organizational capabilities* (pp. 69-98). New York: Oxford University Press.

Szulanski, G. & Jensen, R. J. (2006). Presumptive adaptation and the effectiveness of knowledge transfer. *Strategic Management Journal*, 27, 937-957.

Tallman, S. & Chacar, A. S. (2011a). Communities, alliances, networks and knowledge in multinational firms: A micro-analytic framework. *Journal of International Management*, 17, 201-210.

Tallman, S. & Chacar, A. S. (2011b). Knowledge accumulation and dissemination in MNEs: A practice-based framework. *Journal of Management Studies*, 48, 278-304.

Taylor, A. & Helfat, C. E. (2009). Organizational linkages for surviving technological change: Complementary assets, middle management, and ambidexterity. *Organization Science*, 20, 718-739.

Teigland, R. & Wasko, M. (2009). Knowledge transfer in MNCs: Examining how intrinsic motivations and knowledge sourcing impact individual centrality and performance. *Journal of International Management*, 15, 15-31.

Tippmann, E., Mangematin, V. and Sharkey Scott, P. (2013). The two faces of knowledge search: New solutions and capability development. *Organization Studies*, doi: 10.1177/0170840613485846.

Tippmann, E., Sharkey Scott, P. and Mangematin, V. (2012). Problem solving in MNCs: How local and global solutions are (and are not) created. *Journal of International Business Studies*, 43, 746–771.

Tippmann, E., Sharkey Scott, P. and Mangematin, V. (in press). Stimulating knowledge search routines and architecture competences: The role of organizational context and middle management *Long Range Planning*,

Tsai, W. (2000). Social capital, strategic relatedness and the formation of intraorganizational linkages. *Strategic Management Journal*, 21, 925.

Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44, 996-1004.

Tsai, W. (2002). Social structure of "coopetition" within a multiunit organization: Coordination, competition, and intraorganizational knowledge sharing. *Organization Science*, 13, 179-190.

Tsai, W. & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41, 464-476.

van Wijk, R., Jansen, J. J. P. and Lyles, M. A. (2008). Inter- and intra-organizational knowledge transfer: A meta-analytic review and assessment of its antecedents and consequences. *Journal of Management Studies*, 45, 830-853.

Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, 24, 991-995.

Wooldridge, B., Schmid, T. and Floyd, S. W. (2008). The middle management perspective on strategy process: Contributions, synthesis, and future research. *Journal of Management*, 34, 1190-1221.

Yamin, M., Tsai, H.-J. S. and Holm, U. (2011). The performance effects of headquarters' involvement in lateral innovation transfers in multinational corporations. *Management International Review*, 51, 157-177.

Yin, R. K. (2009). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.

Zander, U. & Kogut, B. (1995). Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test. *Organization Science*, 6, 76-92.

Zellmer-Bruhn, M. E. (2003). Interruptive events and team knowledge acquisition. *Management Science*, 49, 514-528.

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

**Table 1**

Characteristics of sample organizations

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Organization** | **Principal sub-domain in ICT industry** | **Approximate size of MNC**(total no. employees at end 2010) | **Positioning of focal subsidiary in international operations** (structure of international operations, scope of mandate, autonomy) | **Approximate size of focal subsidiary** (total no. employees at end 2010) | **Units located at focal subsidiary**(end of 2010) | **Units used for data collection** (to select middle managers) |
| **Epsilon** | ICT solutions and related services | 50,000 – 100,000 | * Other subsidiaries reporting to focal subsidiary
* Global responsibilities
* High autonomy
 | >1,500 | * R&D
* Services

(two separate units) | * R&D
 |
| **Gamma** | ICT services | <50,000 | * One of three sister subsidiaries, regional headquarter
* Local and regional responsibilities
* High autonomy
 | <1,500 | * Sales

(two separate units) | * Sales
 |
| **Omega** | Hardware, software, solutions and related services | >100,000 | * Similar sister units in other locations, structural interdependencies
* Regional and global responsibilities
* Moderate autonomy
 | >1,500 | * Operations
* Sales
* Services
* R&D

(four separate units) | * Operations
* R&D
 |
| **Sigma** | Software solutions and related services | 50,000 – 100,000 | * Part of tightly integrated and interdependent network
* Local, regional and global responsibilities
* Low autonomy
 | <1,500 | * Sales
* Services & Support
* R&D

(over 15 separate units) | * Sales
* Services & Support
 |

**Table 2**

Characteristics of sample non-routine problems

|  |  |  |
| --- | --- | --- |
| **Subsidiary, case** | **Non-routine problem** | **No. of knowledge components mobilized** |
| Epsilon |  |  |
| Case 1 | Difficulties transferring an unusually complex technology | 1 |
| Case 2 | Challenge in improving internal process | 6 |
| Case 3 | Issues with outsourcing operations | 3 |
| Case 4 | Issues with internal process | 0 |
| Case 5 | Issues with outsourcing operations | 3 |
| Case 6 | Difficulties with practices of managing virtual teams | 2 |
| Case 7 | Issues with practices for governing outsourced operations | 1 |
| Case 8 | Difficulties transferring an unusually complex technology  | 2 |
| Gamma |  |  |
| Case 1 | Incidence in people management | 4 |
| Case 2 | Issue with sales practices | 2 |
| Case 3 | Incidence in people management | 3 |
| Case 4 | Challenges in developing sales business in emerging market | 2 |
| Case 5 | Challenges in developing integration with another sales unit | 2 |
| Case 6 | Challenge in designing processes for a newly set up team | 3 |
| Case 7 | Challenge in developing processes and practices for new organizational structure  | 3 |
| Case 8 | Issue in optimizing and automating current sales processes  | 2 |
| Case 9 | Challenge in designing processes and structures for new organizational structure  | 5 |
| Case 10 | Challenges in dealing with increase in business demand and associated design of outsourcing operations | 8 |
| Case 11 | Challenge in developing processes and practices for new organizational structure | 7 |
| Case 12 | Issue with customer loyalty  | 8 |
| Case 13 | Challenge in optimizing and automating operations | 10 |
| Omega |  |  |
| Case 1 | Issue in managing large-scale R&D program | 5 |
| Case 2 | Difficulties with operations of production line | 4 |
| Case 3 | Challenges in setting up processes for a new team  | 1 |
| Case 4 | Challenge in reshaping practices of a unit | 0 |
| Case 5 | Difficulties with efficiency of process | 2 |
| Case 6 | Challenge in developing processes and technology for product change | 4 |
| Case 7 | Resolve serious technical escalation  | 9 |
| Case 8 | Challenges in optimizing the operations for higher volume capacity  | 6 |
| Case 9 | Resolve particularly difficult technical escalation | 7 |
| Sigma  |  |  |
| Case 1 | Challenge in people management | 1 |
| Case 2 | Issues in designing structures and processes for a new unit | 6 |
| Case 3 | Difficulties with processes and practices of acquired unit  | 3 |
| Case 4 | Challenges in optimizing the current operations to deal with sudden increase in demand  | 4 |
| Case 5 | Challenge in improving efficiency of operations | 1 |
| Case 6 | Difficulties in designing new processes for changes organizational structure  | 2 |
| Case 7 | Issue in improving quality of operations and finding an automated solution | 4 |
| Case 8 | Difficulties in rolling out processes and practices  | 4 |
| Case 9 | Challenge in tracing product quality issue | 3 |
| Case 10 | Issue in resolving product quality issue with seriously negative business impact | 3 |
| **40 cases** |  | **146 knowledge components** |

**Table 3**

Representative supporting data for each knowledge component theme

|  |  |  |
| --- | --- | --- |
|  | **Knowledge flow theme** | **Representative supporting data** |
| *Explicit* | Declarative knowledge |  *“A lot of background knowledge and numbers. A lot of additional details: the number of incoming messages in each location, the number of messages affected. Targets.” (Sigma, case 4)* |
|  | Practice – process embedded in document, tools, technology | *“It would be documented in different documents or in power point slides. It can be pulled together … there would be documents here, here, here, and here of each of the individual subcomponents within the overall process.” (Epsilon, case 2)* |
| *Tacit* | Practice – understanding of practice  | *“Really just questioning them on what information they could provide on how they worked, how they renewed to their customers, and how they sold to their customers.” (Sigma, case 3)* |
|  | Experience, advice  | *“So you just go to the team and say: ‘Listen, we are observing this, why do you think this is happening?’ This is the informal, very practical experience.” (Gamma, case 12)* |
|  | Specialist expertise, competence | *“We were trying to have knowledge, for example, from one specialist team. It is the Sales Management team.” (Gamma, case 12)* |

**Table 4**

Summary of frequency of knowledge flow data

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Knowledge component theme** | **No. of cases mentioned (of 40)** | **No. of knowledge components (of 146)** |
| *Explicit* | Declarative knowledge | 16 | 18 |
|  | Practice – process embedded in document, tools, technology | 15 | 23 |
| *Tacit* | Practice – understanding of practice  | 14 | 18 |
|  | Experience, advice  | 22 | 34 |
|  | Specialist expertise, competence | 22 | 53 |
|  | **Analysis of knowledge diversity** | **No. of cases mentioned (of 40)** | **No. of exchanges (of 122)** |
|   | Internal: within-function | 35 | 54 |
|  | Internal: cross-function | 28 | 51 |
|  | External | 10 | 17 |

**Table 5**

Comparison of perspectives on MNC knowledge flows

|  |  |  |
| --- | --- | --- |
|  | **Deliberate knowledge flow**Top-down | **Emergent knowledge flow**Bottom up and lateral |
| **MNC (Top) management** | Helicopter perspective on MNC capability composition and capability distribution  |
|  | * Direct *knowledge inflow / replication*
* *Initiation* of or *influence* over of knowledge inflow to subsidiary
 | * Legitimize and support diverse *knowledge flows* and *competence development*
* Facilitate adaptability and renewal
 |
| **Subsidiary (Middle) management** | * Implementer: oversee implementation of knowledge, enforce adoption
 | * *Initiation* of knowledge inflow
* Search for existing practice (functional and cross-functional) plus other, often tacit knowledge components
* Opportunity for *boundary spanning* / cross-functional knowledge mobilization. Important locus of *(re-) combinative activities.*
 |
| **Front-line** | * Implementation and internalization
* Adaptations – knowing in practice Risk of minimal and ceremonial adoption
 | * Assist solution seeking by providing understanding of practice, specialist skill / competence, experience / advice
 |
| **Dominant forces** | * Within business unit (within function, leverage best practices)
* Convergence / uniformity (global integration in that units should operate similar practices)
 | * Within and across business unit (within and cross functional).
* Divergence (competence development, questions existing routines)
* Potential for innovative and creative solutions
 |

**Figure 1**

Summary of mobilized knowledge components from a subsidiary management perspectivea



a The frequencies were classified as low if the data set included 3-5 occurrences, medium if the dataset included 6 – 10 occurrences, high if the dataset included 11 – 15 occurrences. As this analysis was concerned with overall patterns, arrows representing less than 3 occurrences are not presented.