

# **AMBIDEXTERITY IN MNC KNOWLEDGE SOURCING IN EMERGING ECONOMIES: A MICROFOUNDATIONAL PERSPECTIVE**

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# **AMBIDEXTERITY IN MNC KNOWLEDGE SOURCING IN EMERGING ECONOMIES: A MICROFOUNDATIONAL PERSPECTIVE**

## **ABSTRACT**

Innovation performance of multinational corporations (MNCs) derives from access to and utilization of a combination of explorative and exploitative knowledge across heterogeneous settings. These settings increasingly encompass flagship industries in emerging economies. There is limited research, however, that scrutinizes the processes of knowledge sourcing *within* such dynamic host environments, taking into account MNCs' differing location capabilities. We draw on the concept of ambidexterity - the combination of exploration and exploitation - and the microfoundations approach to study eleven MNCs in the Bulgarian software development industry by focusing on their local R&D projects. We extend the explanatory capacity of ambidexterity at the micro level and clarify the relationship between exploration and exploitation by identifying four types of ambidexterity: global knowledge differentiator, global-local knowledge integrator, emerging local-global integrator, and local knowledge integrator. Our typology is underpinned by three specific dimensions of R&D capabilities: technical know-how, scope of expertise, and market potential.

**KEYWORDS** Knowledge Sourcing, Microfoundations, Ambidexterity, Location Capability, Emerging Economy.

## INTRODUCTION

MNCs' sustainable competitiveness derives from access to and utilization of a combination of explorative and exploitative knowledge across heterogeneous locations (e.g. Almeida, 1996; Narula & Santangelo, 2012). Traditionally, given their more favourable institutional conditions, exploration ("i.e. activities such as search, variation, experimentation and discovery" (March, 1991:71)) was conducted predominantly in advanced economies. Emerging economies on the other hand were mainly considered as locations for knowledge exploitation (i.e. activities such as "refinement, efficiency, selection, and implementation" (March, 1991:71)). Thus, early studies reflected a rather dichotomous view of the two types of activities and their ideal locations. However, this notion has been increasingly challenged as growing evidence points to an unprecedented level of knowledge-intensive investment in emerging economies (UNCTAD, 2005; 2019). This is attributed to two external forces: one, the challenge of rising R&D costs and the shortage of R&D personnel both at home and in other advanced economies (Awate, Larsen & Mudambi, 2015); and two, the growing supply of R&D personnel and national efforts in R&D capability upgrading in emerging economies (Zhao, Tan, Papanastassiou & Harzing, 2020).

Prior research on MNC knowledge sourcing has predominantly focused on examining antecedents and determinants of location choices and performance outcomes by taking an aggregated, macro-organizational level of analysis (Morris, Hammond & Snell, 2014; Bustinza, Vendrell-Herrero & Gomes, 2020). Conceptually, these studies often treated the two distinct types of activities - exploration and exploitation - as either mutually exclusive (e.g. Zhang & Cantwell, 2011; Hsu, Lien & Chen, 2013; Qamar, Gardner, Buckley & Zhao, 2021) or requiring organizational learning trade-offs and performance sacrifices (e.g. McNamara & Baden-Fuller, 1999; Zhang, Jiang & Cantwell, 2015; Wang & Wang, 2021); both reflect a dichotomous view. However, as more recent studies (e.g. Zhang et al., 2015; Qamar et al., 2021; Zhou, Xu, Xu & Barnes, 2020) have signalled empirical evidence shedding light on whether these underlying assumptions hold true is limited.

Given the dynamic nature of many flagship industries in emerging economies wherein knowledge is highly location-specific (Li, Easterby-Smith, Lyles & Clark, 2016) and heterogeneous (Rodan & Galunic, 2004), the process by which MNCs generate value through knowledge sourcing in these locations might be equally dynamic (Li et al., 2016). Research on MNC location capability asserts that while resources available in a given host location are considered generic, MNCs are prone to different gains as their capabilities and strategies to recognize and utilize such resources vary (Zaheer & Nachum, 2011). The tendency to treat locations as suitable for either exploration or exploitation may therefore be inappropriate, and we need to look more closely at the micro-level knowledge seeking processes in individual locations (Simsek, 2009; Christofi, Vrontis & Cadogan, 2021; Evers & Andersson, 2021; Shamim, Zeng, Choksy & Shariq, 2020).

Our study thus draws on the location capability argument and the dynamic nature of emerging economies to address the question of whether and how MNCs seek explorative and exploitative knowledge differently within the same emerging economy. Many emerging economies, including transition economies in Central Eastern Europe (CEE), experience rapid advancement in local flagship industries. Bulgaria has been one of the fastest transitioning<sup>i</sup> emerging economies for inward R&D FDI, particularly into its well-developed 'flagship' software development industry (Questers, 2018). It thus represents an insightful

context for this study. Given the distinct nature of the software development industry, whereby the most important value-creating knowledge and its characteristics are predominantly reflected through R&D projects (Demirbag & Glaister, 2010; Awate et al., 2015), we apply a microfoundations approach (Foss & Pedersen, 2019) and focus our analytical effort at the project level.

Our study makes two distinct contributions. First, past research concerning knowledge sourcing and location choices has focused predominantly on the aggregated, macro-organizational level. Instead, we apply a microfoundational ambidexterity framework to investigate how MNCs generate value through the process of knowledge sourcing at the local project level. Our study of MNCs in the knowledge-intensive industry of software development in Bulgaria shows that their local knowledge sourcing processes differ along three R&D capability dimensions, namely technical know-how, scope of expertise, and market potential. Our study thus extends the explanatory capacity of ambidexterity at the micro-level by introducing these underlying dimensions. Second, our four different types of knowledge sourcing processes at the local project level - global knowledge differentiator, global-local knowledge integrator, emerging local-global integrator, and local knowledge integrator - shed light on the debate concerning the relationship between exploration and exploitation by elucidating their non-conflicting co-existing nature. Our exploratory study thus shows the usefulness of the ambidexterity concept and the microfoundations approach as an integrated analytical lens to uncover the heterogeneity in MNC knowledge sourcing processes in a given location. While the literature predominantly suggests that ambidexterity takes the form of *either* exploration or exploitation at the organizational unit or overall firm level, our novel approach to the studying and theorization of the MNC knowledge sourcing process identifies four different types of ambidexterity as well as three underlying conceptual dimensions at the project level inside an organizational unit. In doing so we extend the explanatory capacity of microfoundational ambidexterity.

In the remainder of this paper, we first review the literature on MNC knowledge sourcing and location capability theory and develop an analytical framework to guide this study. Then, we discuss our empirical context and methodology. This is followed by our findings and discussion of our contributions to theory, managerial implications, and recommendations for future research.

## **LITERATURE REVIEW**

### **MNC's Exploration and Exploitation**

Prior research on R&D internationalization suggests that MNCs conduct explorative and exploitative activities across heterogeneous locations to benefit from location- and firm-specific advantages (e.g. Almeida, 1996; Narula & Santangelo, 2012; Cano-Kollmann, Cantwell, Hannigan, Mudambi & Song, 2016). In previous decades, this saw MNCs locating value-adding activities in geographically dispersed spaces that created most value at that particular time. For high-value-adding activities, advanced economies have traditionally been viewed as the preferred location offering great opportunities for learning and capability development (Pearce, 1999). Subsidiaries or local partners in these locations are considered by MNCs as strategic value creators. They possess distinct competences that are useful for generating and sharing specialized new knowledge within the MNC's knowledge network (Rugman, Verbeke & Yuan, 2011; D'Agostino & Santangelo, 2012).

These subsidiaries or local partners are concerned with knowledge exploration in distinct areas and are typically classified as knowledge contributors (Bartlett & Ghoshal, 2002) or specialized contributors (Birkinshaw & Morrison, 1995). Some of the subsidiaries located in advanced economies may also have a wider charter as they possess frontier knowledge and strategic capabilities, valuable for meeting global market needs (e.g. Lema, Quadros & Schmitz, 2015; Mudambi & Santangelo, 2015). These subsidiaries engage in knowledge *exploration* and are traditionally defined as having a world mandate (Birkinshaw & Morrison, 1995), or act as global innovators (Gupta & Govindarajan, 1991; Harzing & Noorderhaven, 2006). Low value-adding activities on the other hand were traditionally located in emerging economies (Gereffi, Humphrey & Sturgeon, 2005).

Connecting the two sets of locations required implementation of continuous processes for codifying and systematising tacit knowledge in order to turn new and creative ideas into standardized and repetitive activities (Cano-Kollman et al., 2016). Codified knowledge was then transferred from advanced economies to lower-cost locations to carry out various finely sliced low-skilled activities. These activities are commonly defined as knowledge *exploitation* (Bartlett & Ghoshal, 2002) and the accompanying local unit roles characterized as knowledge implementers or adaptors (Gupta & Govindarajan, 1991; Harzing & Noorderhaven, 2006). It describes a subsidiary or local partner of low competence, located in a region which offers limited opportunities for capability upgrading, performing routine tasks in fulfilment of a limited charter. Although they are not considered to be sources of reverse knowledge transfer, they are not viewed as a failure since dynamic capabilities are not part of their mission (Bartlett & Ghoshal 2002; Harzing, 2000; Rugman et al., 2011).

Two observations can be made from this stream of literature. First, it makes a clear distinction between advanced and emerging economies in terms of their position in MNCs' global knowledge sourcing network. Past research has suggested a fairly consistent view about emerging economies being the ideal location for knowledge exploitation given their underdeveloped national R&D capability, and advanced economies being the ideal location for knowledge exploration due to their well-developed institutions for innovation. However, there is growing evidence highlighting the rise of emerging economies as a new location for R&D. This is attributed to the fact that market and institutional conditions in emerging economies have improved substantially, including a growing supply of qualified R&D personnel, an upgrading of R&D capabilities, government support, preferential policies, emergence of regional innovation systems, and an increasingly sophisticated consumer demand (Demirbag, Tatoglu & Glaister, 2008; Demirbag, McGuinness & Altay, 2010; Liu, Simon, Sun, & Cao, 2011). These forces have brought a wave of new locations for knowledge exploration and exploitation (Andersson, Dasí, Mudambi & Pedersen, 2016; Aulakh, Kundu & Lahiri, 2016). In particular, there is a shift in innovation locus towards increasingly dispersed locations, encompassing emerging economies (Jha, Dhanaraj & Krishnan, 2018; D'Agostino & Santangelo, 2012; Haakonsson & Ujjual, 2015; Zhao, Papanastassiou, Pearce & Iguchi, 2020). Recent R&D FDI data shows that much of the knowledge-intensive FDI to emerging economies has been injected into the flagship industries (i.e. major national technological industries or innovation clusters) of emerging economies (UNCTAD, 2005; 2019) to ensure their rapid upgrading of R&D capabilities. This raises new questions concerning the position of emerging economies in MNCs' global knowledge sourcing network.

Second, it suggests a dichotomous relationship between knowledge exploration and exploitation. Past research has highlighted that knowledge exploration and knowledge exploitation are both important for MNCs for different strategic reasons (Zhang & Cantwell, 2011; Narula & Santangelo, 2012; Cano-Kollmann et al., 2016). However, research thus far has focused predominantly on the antecedents and determinants of MNC knowledge sourcing location choices at the aggregated level and has often taken an exclusive focus on individual locations for either exploration or exploitation. When a subsidiary or a local partner conducts both exploration and exploitation, they are found to be more prone to conflicts because of the fundamentally divergent goals and dissimilar operating processes and contexts for these activities (March, 1991; McGill, Slocum & Lei, 1992; Hsu et al., 2013). Although more recent IB studies (e.g. Zhang et al., 2015; Qamar et al., 2021; Zhou et al., 2020) offer renewed insights that such conflicts may not always present themselves in individual MNCs, thus far empirical evidence is sparse.

### **MNCs' Location Capability**

The topic of MNC FDI location choice has been extensively studied; its focus has predominantly been on examining the antecedents and determinants as well as outcomes of firms choosing particular locations. The underlying assumption of this stream of research is treating host-country location resources as generic and available to all firms (Caves & Caves, 1996; Dunning and Lundan, 2008). More recently, a related stream of literature has challenged this assumption and posited that resources in a given host location may not always offer the same value for all MNCs (Zaheer & Nachum, 2011). These location resources differ from other resources in that they tend to be tied to particular locations and usually cannot be fully owned and appropriated by any one firm. This thus means that for MNCs to create firm-specific assets from these resources, a good understanding of the location and efforts to engage, transform, and appropriate these resources become important. This view thus differs from the traditional MNC location choice literature by positing that, for instance, acquisition of ownership rights to generic location resources alone is not likely to be sufficient to lead to value creation to the MNC. Instead of viewing MNCs as "passive beneficiaries" of location resources, it stresses the importance of MNC's recognition, decisions and actions concerning a given host location as the key determinant of its distinct value to the firm (Zaheer & Nachum, 2011).

Specifically, drawing on an integrated conceptual lens of human geography research (Tuan, 1977; Malpas, 1999) and the resource-based view (Barney, 1991), Zaheer and Nachum (2011) put forward the argument that any given host location can represent distinct opportunities that are often perceived differently by decision makers. This can be explained by the notion of 'a sense of place' (Zaheer, Schomaker & Nachum, 2012) whereby MNCs can assign different meanings to a given host location and, as a result, may have a distinct recognition of the potential of local resources and a unique sense of the opportunities embedded. Thus, the associated analytical focus moves away from assessing generic resources in a location to how individual MNCs leverage its potential (Zaheer & Nachum, 2011). A different sense of the location can subsequently lead to different types of decisions and actions to turn the potential of local generic resources into firm-specific assets. These decisions and actions include, for instance, how they engage with the resources or resource-providers of the location and transform these generic opportunities into distinct sources of value for appropriation. Given that these cognitive and action aspects are expected to be

inherently varied across MNCs, one MNC's ability to extract value from a particular location can be quite different from the others in the same location, reflecting variation in MNC location capability.

The sources of MNC location capabilities (and thus their variation) can derive from several factors, such as their distinct histories, administrative heritage, corporate strategies, and abilities to embed in the local networks (Gulati, Nohria, & Zaheer, 2000; Zaheer & Natchum, 2011). Location capability variation also implies that location advantages should not be considered as exogenous to MNCs but are created endogenously by MNC themselves, subject to their cognitive and action considerations allocated to any host location. Moreover, given that MNCs operate across many heterogeneous locations, they are presented with distinct location resources which can bring an abundance of value creation opportunities. However, the heterogeneous locations and distinct locational resources can also present MNCs with unique challenges. For example, it is inherently difficult to develop location capabilities that are effective across all host locations. This is because MNCs are not likely to have an equally developed sense of place for every host location, nor might they be capable or strategically prepared to make extensive investments to extract full value from locational resources in every country (Andersson et al., 2016). In a nutshell, there are inherent differences among MNCs and thus their takes on the same locations.

This theoretical perspective is particularly relevant for the study of MNCs in locations that are very dynamic and diverse, such as emerging economies. For example, given the rapid upgrade in industry-based innovation capabilities in emerging economies and increasing MNC investment in these locations (Jha et al., 2019; Zhao et al., 2020; Zhao et al., 2020), it raises the question whether and how MNCs' behaviour may vary when investing in the same flagship industry of an emerging economy for the purpose of value creation. Building on the MNC knowledge seeking and the location capability literatures, we thus argue that a closer look at MNCs operating within a narrowly defined context is likely to provide new insights into their different processes of leveraging local resources. To do so, we next discuss the concept of ambidexterity and the microfoundations approach in order to develop an analytical framework to investigate the aforementioned question.

### **An Analytical Framework**

The concept of ambidexterity in the Management and Strategy literature is typically used to describe the broad activities of exploration and exploitation (Duncan, 1976; Tushman & O'Reilly, 1996). Earlier Management and Strategy research often treated the trade-offs between these two activities as "insurmountable" (Raisch, Birkinshaw, Probst & Tushman, 2009:685), but more recent studies show that ambidextrous organizations can indeed simultaneously execute explorative and exploitative activities across the organization. Thus, what is different about the concept of ambidexterity in the Management and Strategy literature, compared to the knowledge exploration and exploitation dichotomy in the MNC R&D internationalization literature, is that it asserts exploration and exploitation are by no means independent of each other (March, 1991; Raisch et al., 2009; Simsek, 2009). This line of enquiry argues that firms should engage in exploitation to ensure the organization's current viability and simultaneously devote energy to exploration to ensure the firm's future viability (Levinthal & March, 1993; March, 1991; Hsu et al., 2013). This combined effort found in ambidextrous firms can generate superior performance as they experience a synergistic effect between exploration and exploitation (Gibson & Birkinshaw, 2004; He & Wong, 2004).

Moreover, ambidexterity suggests the combined effort can take place at either the firm or the unit level (Simsek, 2009; Raisch et al., 2009). At the overall firm level, exploitative and explorative activities are conducted at separate organizational units - *differentiated ambidexterity*. At the unit level, exploitative and explorative activities are conducted within the same unit - *integrated ambidexterity*. While the former echoes much of the exploration and exploitation research in the MNC knowledge sourcing literature whereby subsidiaries or local partners are chartered accordingly to their distinct exploitative or explorative capabilities, less is known about a combination of these activities inside individual units. This may be attributed to two research-related limitations: 1) the complex nature and conceptual ambiguity of measuring knowledge at the local, micro-level (Raisch et al., 2009); 2) the traditional IB approach to examine phenomena at the aggregated, macro-organizational level and the general tendency to neglect micro-level processes (Li et al., 2016; Foss & Pedersen, 2019).

Microfoundations has been a much-discussed approach in the Strategy literature recently (Foss & Pedersen, 2016). It is considered crucial for understanding the 'deeper structures' of a broad, macro-level phenomenon through examining lower-level phenomena (Foss, 2010). Instead of making 'causal claims' based on macro-variable (i.e. aggregated concepts and constructs) interactions at the organizational level (Foss & Pederson, 2019) it is argued that to explain a broad phenomenon, theorization and empirical explanations need to be reduced to the 'constituent components' of the phenomenon (Abell, Felin & Foss, 2008). Furthermore, micro-foundations are considered particularly useful in understanding the organization's transfer of knowledge and building of capabilities (Foss, 2010; Morris et al., 2014; Foss & Pederson, 2019). For instance, Morris et al. (2014:406) posit that "microfoundations represent the actions taken by individuals and groups within the firm to shape capabilities that may lead to superior firm performance (Felin & Foss, 2005)". Thus, rather than being broad-brushed, the microfoundations approach enables the lower-level, deeper understanding of MNC behaviors by focusing on projects, teams, or/and individuals.

Drawing on the concept of ambidexterity and the microfoundations approach, we develop an analytical framework of microfoundational ambidexterity to guide this study. It emphasizes the micro-level analytical focus of ambidexterity in MNCs (Balarezo & Nielsen, 2020; Christofi et al., 2021). More specifically, we delineate the conceptualization of ambidexterity into two types of knowledge sourcing activities at the micro level in light of the exploration and exploration dichotomy. The first type, namely local differentiated ambidexterity, is defined as an individual subsidiary or local partner undertaking *either* exploratory or exploitative activities; and the second type, namely local integrated ambidexterity, is defined as an individual subsidiary or local partner undertaking *both* exploratory and exploitative activities. We summarize these conceptual distinctions in the analytical framework below (Figure 1) to guide the empirical analysis and discussion in the subsequent sections.

Given that location capability theory posits that MNCs may vary in their value-creating behaviour in the same host location, we apply this analytical framework to investigate the processes through which different MNCs leverage local resources in a given emerging economy.



Type of knowledge sourcing activity at individual (local/sub) unit level	Knowledge exploration	Knowledge <i>exploitation</i>
Knowledge <i>exploration</i>	<b><i>Differentiated</i></b> ambidexterity	<b><i>Integrated</i></b> ambidexterity
Knowledge <i>exploitation</i>	<b><i>Integrated</i></b> ambidexterity	<b><i>Differentiated</i></b> ambidexterity

Figure 1. Type of ambidexterity at the local level

## EMPIRICAL CONTEXT AND METHODOLOGY

### The Research Context

Bulgaria and its flagship industry of software development make a valuable and insightful empirical context for this study. The Bulgarian economy has undergone a significant transition, moving away from its historically centrally planned system to a more market-oriented economy. The history of the Bulgarian computer industry can be traced back to the communist era during which time Bulgaria produced and supplied computers to all former socialist countries in Central and Eastern Europe (CEE) and parts of Asia. Much of its earlier success was attributed to the strong orientation of its national education system towards science and engineering, whereby Bulgaria was known for outstanding skills in fundamental research and mathematics. At the start of its transition to a market economy in 1989, the software market was underdeveloped (compared to the hardware market) and widely supplied with illegal copies of branded software products.

However, the legacy of the communist regime remained in the form of a well-educated and skilful labour force, ready to commit for a fraction of the salaries paid in advanced economies to similarly qualified specialists (Economist Intelligence Unit, 2005). In these early days, companies such as Oracle, IBM, and SAP began activities in the Bulgarian market through establishing facilities and entering partnerships with local software companies. Over the following two decades a growing number of foreign MNCs established facilities in Bulgaria or partnered with Bulgarian software companies, e.g. Tumbleweed, Microsoft, Nemetschek AG, Siemens, Nokia, Datecs, Jonson Controls. According to Bulgarian Association of Software Companies (The BASSCOM, 2018), more than eighty percent of the revenues of its members in 2006 came from contracts with European and US partners.

Although the size of the Bulgarian software industry is considered small when compared to other CEE countries (Barry and Curran, 2004; Gefen and Carmel, 2008), the revenue of the software industry in Bulgaria has more than tripled in the past decade (N, 2012; Quester, 2018), attributed largely to the country's increasingly highly skilled workforce, possessing a combination of software and hardware skills necessary for a full development life cycle of core software products (InvestBulgaria Agency, 2013; Questers, 2018). The low cost of software development in Bulgaria is seen as a temporary gain, whereas the high quality of the developed products is considered as the real advantage of this location in an industry increasingly interested in specialized value-added products. It has also been ranked in the top-20 most attractive offshoring locations worldwide (Forbes, 2016; InvestSofia, 2017).

## Data Collection

To investigate the characteristics of explorative and exploitative activities within local operations of MNCs in the local software industry of Bulgaria, we apply a qualitative, case study approach (e.g. Awate et al. 2015; Jha et al. 2018). The case study is “a research strategy which focuses on understanding the dynamics present within single settings” (Eisenhardt, 1989:34). We used face-to-face semi-structured interviews. To explore the two types of activities at the local level, an interview guideline was developed with a focus on the primary indicator of R&D capability in the software industry: local software development *projects*, most useful for uncovering characteristics of knowledge utilized within each responding firm whilst less prone to the conceptual and methodological issues when wider organization knowledge is measured (Demirbag & Glaister, 2010; Birkinshaw, Brannen & Tung, 2011; Awate et al., 2015).

A combination of purposeful sampling and snowball sampling was deployed for the selection of respondents. The website of the InvestBulgaria Agency was consulted to identify offices of foreign software development firms located in Sofia. The selected potential respondents were contacted by post and email, including the interview guideline and explaining the purpose of the study and intended use of the data. This resulted in the recruitment of eight firms, with three more firms subsequently recruited via snowball sampling. A total of eleven interviews had been conducted when the saturation stage was reached (Bryman & Bell, 2003), i.e. no further categories emerged from the data and therefore collecting more data would not materially change the results (Morse, 2004).

Table 1 provides an overview of the participating firms and the respective respondents' positions. The distribution in terms of company size and ownership type is relatively well-balanced (Fan, Cui, Li & Zhu, 2016), consisting of one large (with over 200 employees), three medium (employees between 50 and 200), and seven small firms (fewer than 50 employees); six fully owned subsidiaries, three joint ventures, and two local SMEs. Drawing on the definition of knowledgeable informants (Huber & Power, 1985), senior managers and senior software engineers responsible for operations management and software development in the Bulgarian subsidiaries and local partner firms were selected. The distribution of respondents was as follows: four subsidiary managers, two local Bulgarian firm owners, four senior software engineers, and one software programme manager. These respondents were chosen for their extensive knowledge and experience as the interviews concerned projects and products of their respective companies and not their own activities. The data collection took place in Sofia, Bulgaria, and was completed over a two-month period in 2012 with interviews ranging between one and three hours.

**Table 1. Sample Firm Background**

<b>ID</b>	<b>Ownership</b>	<b>Size</b>	<b>Country of origin</b>	<b>Respondent position</b>	<b>Main products and services</b>
<b>C1</b>	Subsidiary	170 employees	Part of US-based MNC	Senior software engineer	Technical architecture, server infrastructure, middleware software, and online services
<b>C2</b>	Subsidiary	45 employees	Part of Austria-based MNC	Subsidiary manager	Integrated consulting and systems integration and IT services
<b>C3</b>	Joint venture	40 employees	Joint venture between US MNC and Bulgarian firm	Senior software engineer	Graphics processing, computing chips
<b>C4</b>	Subsidiary	70 employees	Part of US-based MNC	Subsidiary manager	User interface development tools
<b>C5</b>	SME	26 employees	Local Bulgarian firm	Firm owner and manager	Systems integration and consultancy
<b>C6</b>	Subsidiary	30 employees	Part of Germany-based MNC	Subsidiary manager	Bioinformatics, algorithmic analysis and text mining, database integration
<b>C7</b>	SME	200 employees	Local Bulgarian firm	Firm owner and manager	Enterprise Resource Planning systems, Customer Relationship Management Systems, business analytics
<b>C8</b>	Joint venture	25 employees	Joint venture between US MNC and Bulgarian firm	Senior software engineer	Web tools
<b>C9</b>	Subsidiary	830 employees	Part of Germany-based MNC	Software programme manager	Enterprise Resource Planning systems
<b>C10</b>	Subsidiary	40 employees	Part of Netherlands-based MNC	Subsidiary manager	Enterprise Resource Planning systems
<b>C11</b>	Join venture	30 employees	Joint venture between German MNC and Bulgaria firm	Senior software engineer	Management systems, websites

## **Data Analysis**

In line with a theory-building approach (Tavallaei & Talib, 2010), data collection and analysis were performed iteratively (Dubois & Gadde, 2002) and followed the constant comparative method (Glaser, 1965; Bernard, Wutich & Ryan, 2016). We first coded the interview data concerning the companies' R&D projects. Next, we identified second-order themes by aggregating first-order codes into themes and comparing the themes with relevant literature. At the same time, we also searched for any similarities or patterns among the themes and aggregated them into categories. We identified the two following themes: explorative and exploitative capabilities, underpinned by three dimensions - technical know-how, scope of expertise, and market potential. Lastly, we compared the first-order codes and second-order themes across the respondents and grouped them into the following categories: global knowledge differentiator, global-local knowledge integrator, emerging local-global integrator, and local knowledge integrator. The coding schemes and illustrative interview quotes, as well as the categories are presented in Tables 4 and 5 in the Findings section.

## **Reliability and Validity**

To ensure reliability of the findings, all interviews were carried out in Bulgaria to ensure first-hand information regarding local operations. Interviews were conducted in Bulgarian by one of the authors, who is a native speaker of the language. All interviews and consequent comments were tape-recorded, transcribed, and translated to English. One of the authors, who is of Bulgarian origin, checked the truthfulness of the translation. Moreover, we drew on Gibbert and Ruigrok (2010)'s suggestion of strategies, principles and coding rules. Four validity and reliability criteria, namely internal validity, construct validity, external validity, and reliability, were considered as the 'primary reports' (Cook & Campbell, 1979). Research measures for each corresponding criterion were taken as the 'secondary reports' (Yin, 2014). Table 2 provides an overview of the rigor of testing related to the two reports.

**Table 2. Primary and secondary reports considered**

		Primary Reports				
		Internal validity	Construct validity	External validity	Reliability	
		Requirement and actions taken:	Requirement and actions taken:	Requirement and actions taken:	Requirement and actions taken:	
<u>Secondary Reports</u>	✓	Literature-informed research framework (see 'literature review' section)	✓	Cross checks of multiple publicly available sources were made to ensure data validity	✓	Interviews at local level to obtain first-hand information. All information was tape-recorded, transcribed and translated to English
	✓	Pattern matching with other works (see 'discussion' section)	✓	Review of drafts by multiple non-authoring academics	✓	Case study database (see the 'findings' section and Table 3 and 4)
	✓	Theoretical triangulation for the conceptualization and interpretation of findings (see 'literature review' and 'discussion' sections)			✓	Case study protocol (see 'data analysis' section)

(Source: Cook & Campbell, 1979; Gibbert & Ruigrok, 2010; Yin, 2014; Zhao, Tan, Papanastassiou & Harzing, 2020)

## FINDINGS

In this section, we report our findings on MNC knowledge sourcing processes in the software development industry of Bulgaria. We first analyse and present our coding scheme and empirical evidence in Table 3 followed by discussion of the overall findings in Table 4 by means of a cross-case comparison.

### R&D capability: explorative and exploitative capability

With regard to R&D capability, two main themes arose from the data coding process: explorative capability (i.e. search for new knowledge) and exploitative capability (i.e. existing knowledge implementation), underpinned by technical know-how (i.e., new product development and existing product development), scope of expertise (i.e. broad and narrow technical expertise scope), and market potential (i.e. for global and local market). The coding schemes and empirical evidence are provided in Table 3.

**TABLE 3.**  
**R&D capability: Coding scheme and empirical evidence**

<b>Second-order themes</b>	<b>First-order codes</b>	<b>Illustrative Interview Quotes</b>
<b>Explorative capability</b>	<i>New products developed with broad technical know-how for global market</i>	<p><i>"Although we develop customized solutions, [...]we have no intellectual property rights of the solutions we develop.... The headquarters reach out to the clients [worldwide] with these solutions" (C3)</i></p> <p><i>"They [headquarters] provided the projects, which had to be developed here. Marketing and consulting and such things were conducted by them. The Bulgarian branch is a corporate developing department, R&amp;D. Things were different with every different project" (C6)</i></p> <p><i>"I need to tell you about our structure first. Basically, each branch is relatively independent. Depending on the market in the country we are free to work on different types of solutions. For example - Romania is a far bigger market than Bulgaria and they work more on the ERP systems. They have a separate department dealing with ERP implementation. The situation is the same in Hungary and so on. It's very hard in our market. There are only few big companies that need such ERP solutions. So, we are actually working with big companies such as the mobile operators. The same is done also in Romania but the partners we work with are different." (C10)</i></p> <p><i>"We cover almost the entire spectrum of IT services and system software integration [of the entire MNC] ... For example, we take the product Microsoft SharePoint Server and based on that Microsoft product solution we make a</i></p>

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	<p><i>specific solution for the relevant client. For each client we have to come up with an individual solution” (C10)</i></p> <p><i>“They develop the market. They sell a product that is ours - the bigger the product the higher our autonomy. But they define the financial frame. Globally everything is set by the parent company - logistics, structure - but the management here is Bulgarian and we have full autonomy of the local decision-making.” (C1)</i></p>
<p><i>New products developed with broad technical know-how for local market</i></p>	<p><i>“For example, a little while ago there was a project about the electronic government, in which we participated with a development of [project name] as a [MNC]’s subcontractor. The project was won by [MNC], which then began to offer services, for which - when these services included unique system developments.” (C5)</i></p> <p><i>“When a large company wins a public procurement contract, it usually turns to a Bulgarian subcontractor. ... It makes no sense to keep people here, who may or may not have work once every two years or bring people from abroad at outrageous prices when their representative office has partners here which can do the same job.” (C5)</i></p> <p><i>“For instance, we work for a large pharmaceutical company. We started about 5 years ago when we developed a system for them with their specifications. This system has been used in their branches in 26 countries as well as in their computation centre in London. Every year, the board of this company meets up and they make orders for new functionalities, which we develop.” (C5)</i></p> <p><i>“The biggest projects here have been awarded to [a large western MNC], like [refers to a number of large state contracts]. [The large western MNC] have no teams here to implement even half of the projects but they subcontract and use various schemes. They give one fifth for the project, one fifth goes for ‘other expenses’ and the remainder is profit.” (C7)</i></p> <p><i>“One is the development of software made to order of big clients like the National bank, other big commercial banks and different ministries. The other line of business is one of our own products, our intellectual property, which is related to human resources management and has very good positions.” (C7)</i></p>
<p><i>New products (co-)developed with narrow technical know-how for global market</i></p>	<p><i>“Part of that product is developed in Bulgaria; another part of it is developed in Uruguay. In a few words, our branches work under the same program and each one of us develops a part of the whole product, which will be released on the market. The clients are mainly large corporations. We do not have any marketing office here,</i></p>

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any at all. We are not responsible for marketing. We are not responsible for product distribution and sale. We only and solely help the production of the product itself .... We are a part of the company's R&D, which is located in Bulgaria." (C4)

"When necessary we participate in complex projects, where for example we have know-how for one type of product, the Romanians for another, the Poles for something else and so on. Many of the competences in the different offices overlap. The business simply requires that, because I cannot rely on the Romanians to come and help me with a problem that needs to be fixed [for a Bulgarian client] within four hours. But when a more complex project needs to be implemented the company uses know-how from different countries." (C2)

"Actually, there is no product developed in one location only. [...] According to the corporate policy, the product is developed at an approved location. To determine the right location, the experience and resources of each one of them is taken into account... Once ready, the product is sold worldwide." (C9)

"The German partner provides the projects, which are developed here. [...] The Bulgarian side runs the project. [...] Things are different with every project. There was a project, a system for postal service, for tracking post parcels. [...] We had to make it for some German company and we developed it, not like a design, but like a project, like a structure." (C11)

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**Exploitative capability**

Existing products developed with narrow technical know-how for local market

"For every product which is released on the market, we provide support, including problem solutions, elimination of defects, development and upgrade of additional functionalities, consultations about the installations, performance improvements, enhancement of the system technologies, etc." (C9)

"They [MNCs] have some ready-to-use solution, they must have someone here who can implement. And with them, roughly speaking, it wouldn't be profitable to keep [MNC own] people for such an incidental job, for something that can be performed locally. On the other hand, they serve as a guarantee for the client because, in case the circumstances require it, they can always mobilize a certain resource to solve a problem the client may have." (C5)

"We choose specific modules from different producers, which could be integrated with new technologies. They are already available, and we get an integrated system specifically made for the needs of our clients." (C7)

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*"[...] introduction of private business software – ERP systems, CRM systems, project management, business analysis, business process modelling and business intelligence [...] where we introduce somebody else's software, consultant services take the biggest part. We have a few developers there, but mostly consultants."*  
(C7)

*"Then in another project, we implemented a system for hospital management."* (C11)

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*Explorative capability.* Three differentiated types of explorative activities were identified from the data coding process: 1) *New product development with broad technical know-how for global markets*; 2) *New product development with broad technical know-how for local markets*; 3) *New product co-development with narrow technical know-how for global markets*. Each of these types is further elaborated here: In terms of the first type, local project teams in Bulgaria have developed expertise which enables them to independently develop customized new products that meet individual client requirements. These clients are predominantly located abroad. Customization requirement can vary widely and the fact that these project teams work on different projects and requests indicate that they possess strong and broad technical know-how valuable for the MNC and the global market. Additionally, when the market is abroad, the MNC headquarters acts as a mediator between the market and the project teams as the latter do not possess the necessary sales channels. This implies a high degree of dependency on the MNC headquarters and limited decision-making autonomy within the project team in terms of marketing, finance and strategic development.

In terms of the second type, local teams in Bulgaria are capable of developing and delivering customized products required by different local clients. Similar to the first type, they can be considered to possess strong and broad technical know-how valuable for targeting the local Bulgarian market. These teams may not possess capabilities that are as broad as those in the first type in terms of global reach, however the advantages of these teams rest in their strengths in addressing specific local market requirement. These teams are considered to be fairly independent, with a high degree of autonomy to choose the local market segments or clients they wish to work with, implying a low level of interference from their MNC headquarters. Whilst the teams in the first type are completely dependent on the MNC headquarters for functional decisions and resources, the teams in the second type possess some degree of functional autonomy apart from their project decision making autonomy. A more direct relationship with clients is evident.

In terms of the third type, Bulgarian project teams possess narrow but advanced technical know-how. This is because they have the headquarter-designated role to co-develop new products with other teams in the MNC network. They engage in new group product co-development of packaged software but, similar to the first type, they have no responsibility to take the product to market. Each project team involved in the product co-development can offer expertise in a narrowly defined technical area, which is valuable to the completion of the overall project. Their technical autonomy is also more restricted than the first type because product development decisions need to be coordinated to ensure

compatibility with other teams in the MNC network. The specialized knowledge output for each part of the project is then 'assembled' at the MNC headquarters which then sells to corporate clients worldwide. Subsidiaries thus provide specialized knowledge as part of the global knowledge base of the MNC. Similar to the first type, these teams have limited autonomy and high headquarter-dependency.

*Exploitative capability.* The coding process only identified one type of exploitative capability: *Existing products development, with narrow technical know-how, for local markets.* Here, the project teams' main role is adapting MNC products to the Bulgarian market. The headquarters plays the role of developing and selling complex products to major clients. The Bulgarian project teams are part of the corporate implementation network and are integrated into complex global project implementation by localizing their part of the project and providing after-sales support. On some occasions, the teams are found to extend system functionality by developing new products on the basis of the existing corporate system. Thus, project teams have strong technical knowledge for corporate product localization and secondary development based on existing products. This suggests that some project teams have a clearly chartered responsibility for playing the headquarter-designated product-localization role. These teams are considered to possess low-cost technical and market knowledge directed at localized product implementation and secondary product extension.

### **Cross-Case Comparison**

In this section, we compared data across the eleven cases along the first- and second-order coding schemes identified above. We compared their similarities and differences to reveal patterns. Four types of R&D activities were identified as a result and discussed next. We mapped out (Table 4) the four types along our three underpinning dimensions: technical know-how, scope of expertise, and market potential. We labelled each type of knowledge sourcing by first checking similar concepts in the past literature and where not available we developed a new label in the light of our differentiated and integrated ambidexterity conceptualization. We ended up with the following four labels: global knowledge differentiator, global-local knowledge integrator, emerging local-global integrator, and local knowledge integrator.

Table 4. Ambidexterity at the local level

		<b>TYPE AND CORRESPONDING CASES</b>			
<div style="text-align: center;"><i>Type</i></div> <div style="text-align: center;"><i>Dimension</i></div>		<b>Ambidexterity Type:</b> <b>Differentiated ambidexterity</b> <b>Label 1:</b> <b>Global knowledge differentiator</b> <b>C1, C3, C6, C11</b>	<b>Ambidexterity Type:</b> <b>Integrated ambidexterity</b> <b>Label 2:</b> <b>Global-local knowledge integrator</b> <b>C4, C8, C9</b>	<b>Ambidexterity Type:</b> <b>Integrated ambidexterity</b> <b>Label 3:</b> <b>Emerging local-global knowledge integrator</b> <b>C2, C10</b>	<b>Ambidexterity Type:</b> <b>Integrated ambidexterity</b> <b>Label 4:</b> <b>Local knowledge integrator</b> <b>C5, C7</b>
<b>TECHNICAL KNOW-HOW</b>	<b><i>New product development</i></b>	<ul style="list-style-type: none"> <li>• Clear responsibility for independent development of new products for global market</li> </ul>	<ul style="list-style-type: none"> <li>• Clear responsibility for co-developing new products for global market</li> </ul>	<ul style="list-style-type: none"> <li>• Clear responsibility for independent development of new products for local market</li> <li>• <i>No clear</i> responsibility but capable of secondary product new extension development for global market</li> </ul>	<ul style="list-style-type: none"> <li>• Clear responsibility for developing new products for local market</li> </ul>
	<b><i>Existing product development</i></b>		<ul style="list-style-type: none"> <li>• Clear responsibility for local implementation of corporate products</li> </ul>	<ul style="list-style-type: none"> <li>• Clear responsibility for local implementation of corporate products</li> </ul>	<ul style="list-style-type: none"> <li>• Clear responsibility for local implementation of corporate products</li> </ul>
<b>SCOPE OF EXPERTISE</b>	<b><i>Broad</i></b>	<ul style="list-style-type: none"> <li>• Possess broad expertise for global product development</li> </ul>		<ul style="list-style-type: none"> <li>• Possess broad expertise for local product development</li> </ul>	<ul style="list-style-type: none"> <li>• Possess broad expertise for local product development</li> </ul>
	<b><i>Specialized</i></b>		<ul style="list-style-type: none"> <li>• Possess specialized expertise for product development</li> <li>• Possess specialized expertise for product implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Possess specialized expertise for product implementation</li> <li>• <i>Emerging</i> specialized expertise for product development</li> </ul>	<ul style="list-style-type: none"> <li>• Possess specialized expertise for product implementation</li> </ul>
<b>MARKET POTENTIAL</b>	<b><i>Global</i></b>	<ul style="list-style-type: none"> <li>• Clients are global</li> </ul>	<ul style="list-style-type: none"> <li>• Clients are global</li> </ul>	<ul style="list-style-type: none"> <li>• Clients are (potentially) global</li> </ul>	
	<b><i>Local</i></b>		<ul style="list-style-type: none"> <li>• Clients are local</li> </ul>	<ul style="list-style-type: none"> <li>• Clients are local</li> </ul>	<ul style="list-style-type: none"> <li>• Clients are local</li> </ul>

*Type 1: Global Knowledge Differentiator.* C1, C3, C6, C11 represent *differentiated* ambidexterity - each subsidiary undertakes only exploratory activities. Specifically, they have strong R&D capabilities for developing customized new products that meet individual client requirements globally. The headquarters acts as a mediator between the clients and subsidiaries. The headquarters is essentially a market gatekeeper whereby the local project teams have technical knowledge albeit no resources (e.g. financial, marketing) to access the market. Customization requests are passed on by headquarters to the Bulgarian subsidiaries where programmers work individually or in teams on each project. In all cases, clients are located outside of Bulgaria. Developed solutions are passed back to the headquarters who interacts with the clients. The fact that individual client requirements can vary widely indicates that these subsidiaries possess strong technical expertise for addressing the global market. This finding corresponds to prior literature on knowledge exploration and the role of global innovators or world mandate (Cantwell, 2005; Harzing & Noorderhaven, 2006; Enright & Subramanian, 2007). Any solutions developed by the subsidiaries do not remain their intellectual property, instead the knowledge is transferred to the headquarters who then address specific client requirements. This may imply a reverse process of transfer of knowledge associated with the new products from Bulgaria back to the MNC headquarters.

*Type 2: Global-local Knowledge integrator.* C4, C8 and C9 represent *integrated* ambidexterity - each subsidiary undertakes both exploratory and exploitative activities. Specifically, they operate as centres for R&D in narrowly-defined technical areas. They have a clearly defined specialization within the MNC knowledge network and are chartered to work on specific global projects along with other specialized centres located outside of Bulgaria. They engage in group new product development of packaged software but have no responsibility to take the product to market. Each subsidiary involved in the product development can offer expertise in specific areas, which is then transferred to the headquarters. All subsidiary output is typically 'assembled' at the headquarters who then sell to clients worldwide. Subsidiaries provide specialized knowledge as part of the global knowledge base of the MNC. This relates to the works of Birkinshaw and Morrison (1995) and Haakonsen and Ujjual, (2015) in that this type of subsidiaries is recognized by headquarters as an important knowledge contributor to MNC sustainable competitiveness. Meanwhile, our analysis shows that these subsidiaries also have a secondary responsibility, which is local product implementation. Thus, the differences between these subsidiaries and those in Type 1 can be explained along several dimensions: 1) these subsidiaries have narrowly-defined expertise that is dependent on the rest of the MNC knowledge network for the completion of projects; 2) they are thus highly dependent and less autonomous in their project or client selection; 3) these subsidiaries simultaneously possess two sets of clearly defined capabilities: a primary focus on specialized knowledge development and a secondary focus on local product implementation.

*Type 3: Local-global Knowledge Integrator.* C2 and C10 show clear signs of *integrated* ambidexterity - each subsidiary undertakes both explorative and exploitative activities - though their primary role reflects *differentiated* ambidexterity - each undertakes exploitative activities. Specifically, they are MNC subsidiaries, responsible for the adaptation of MNC products to the Bulgarian market. The headquarters plays the role of developing and selling complex products to major clients who may have operations across many locations including Bulgaria. As part of the corporate implementation network, they are thus

integrated into complex global project implementation networks, responsible for localizing their part of the project and providing after-sale support to clients' Bulgarian sites. This concurs with existing literature on MNCs' execution of exploitative activities to meet local market needs (Luo, 2002). However, in addition to having strong implementation capabilities for corporate product localization (which relates to knowledge exploitation), these subsidiaries also occasionally extend system functionality by developing new products on the basis of the existing corporate system. Although they are found to have near-complete independence in terms of market-related decisions, the size of the Bulgarian market is small as compared to other European countries, with few local or regional clients who can afford and make use of such products. In contrast to past studies (e.g. Zhang et al., 2015; Li et al., 2016), this suggests that these subsidiaries are not only playing the headquarter-designated product-implementation role, but have also developed locally-driven capabilities that can lead to more value creation for the MNC (which relates to knowledge exploration). Thus, we find two sets of technical expertise, with the established capability relating to knowledge exploitation and the *emerging* capability relating to exploration, reflecting a shift from *differentiated* to *integrated* ambidexterity, i.e. at the local level, exploitative and explorative activities take place within the same local unit. This also implies these Bulgarian subsidiaries have untapped potential, which could be leveraged by the MNCs for greater value creation.

*Type 4: Local Knowledge Integrator.* Both C5 and C7 represent *integrated* ambidexterity – each subsidiary undertakes both explorative and exploitative activities. However, we find the R&D capability dimensions of Type 4 to differ from Type 2. Specifically, they are local SMEs in Bulgaria, with subcontracting agreements with MNCs. Due to MNCs' lack of interest in establishing their own presence in Bulgaria to accommodate new local projects, they resort to local SMEs for readily available technical knowledge. MNCs' need for partnering with local firms is rooted both in the specifics and in the size of the market. In terms of the specifics of the market, Bulgaria is considered to be a distinct market which means local responsiveness is important. However, the size of the market is considered small and developing only slowly; availability of major new projects in Bulgaria is rather limited and ad hoc (e.g. government procurement, mobile phone operators). As a result, there is insufficient rationale to justify the high cost of establishing a fully operational subsidiary including employing or importing permanent qualified staff. With these projects, MNCs subdivide and subcontract to Bulgarian SME partners who deliver (part of) the project for a fraction of the price that MNCs have contracted with the government. MNCs are thus interested in the lower-cost industry expertise on offer and consider the domestic market of Bulgaria to be secondary to other markets. SMEs can thus offer cheaper but qualified expertise, sufficient for product implementation projects. However, they also have strong technical knowledge for product development, which MNCs consider of value for the local market. These two sets of combined capabilities thus reflect some degree of *integrated* ambidexterity. While this finding generally concurs with past research in that MNCs resort to local partners for completing R&D projects (Strange & Humphrey, 2019), what is new and interesting is the combined capabilities displayed by the SME partners. Rather than the typical undertaking of local-centric exploitative activities (similar to Type 2 and 3), we find that, given their extensive market-specific knowledge, this type can also provide MNCs with new knowledge valuable in developing new products for local markets.

## DISCUSSION

Our exploratory study of eleven MNCs in Bulgaria’s software development industry reveals four different types of MNC knowledge sourcing processes (global knowledge differentiator, global-local knowledge integrator, emerging local-global integrator, and local knowledge integrator), underpinned by three R&D capability dimensions (technical know-how, scope of expertise, and market potential). In light of the analytical framework of micro-foundational ambidexterity, we summarize our empirical findings in Figure 2.

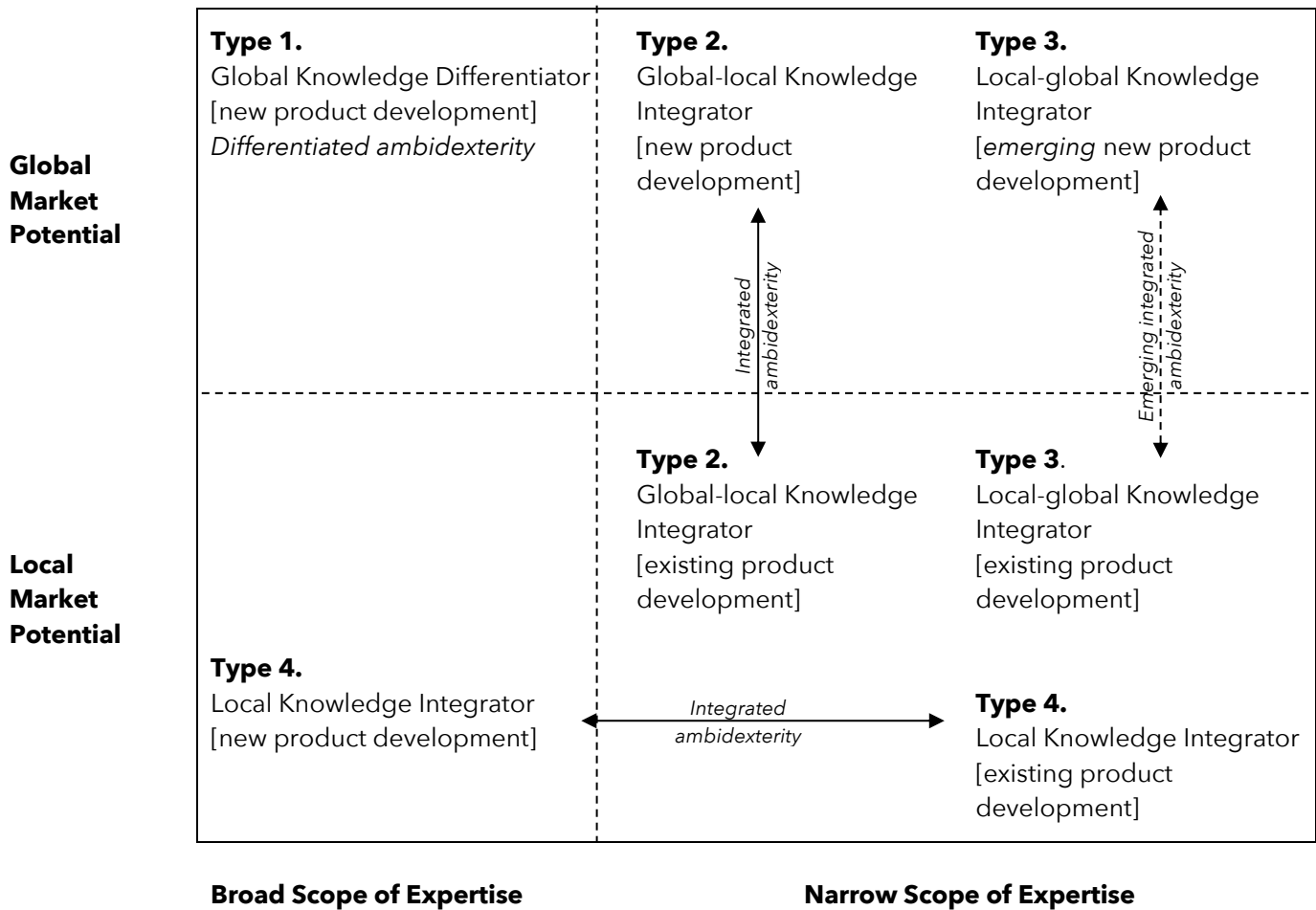


Figure 2. Ambidexterity in MNC knowledge sourcing in an emerging economy

↔ indicates combined R&D capabilities of a given type

Specifically, we find Type 1 companies to fit in the global differentiated ambidexterity conceptualization (exploration-type), whereby the MNCs draw on new knowledge developed in Bulgaria. On the other hand, we did not find exploitation-type differentiated ambidexterity across the sample companies. This implies the perceived importance of Bulgaria by the top management team as a useful location for value creation. Types 2, 3 and 4 companies all have combined expertise in knowledge exploration and exploitation (integrated ambidexterity). However, their combined expertise varies noticeably. Type 2 companies have a clear dual responsibility of contributing new knowledge to the MNC and implementing products to local specifications, and Type 4 companies possess broad technical area for local market in term of both new production development and existing

product implementation. Noticeably, Type 3 companies (apart from their local implementation capability) show *emerging* explorative capabilities in narrowly defined technical area with potential for global market, albeit not formally recognised by the MNCs in question. As a result, it may be argued that some of these MNCs are missing the opportunity to better leverage local resources and greater value creation that brings important value to themselves. These findings unearth the diversity in MNC knowledge sourcing in a dynamic location such as Bulgaria.

### **Theoretical Contributions**

Drawing on the theoretical concept of ambidexterity whereby firms can simultaneously undertake exploration and exploitation in the form of differentiation or integration, our study applied a microfoundations approach to explore knowledge sourcing activities of eleven MNCs in the software development industry of Bulgaria. We find MNCs to differ in their interest in and recognition of the same host location in terms of potential for value creation, and thus their decisions and actions to 'extract' value from the location varied considerably. This variation is categorizable into four types, which are underpinned by three R&D capability dimensions.

Against this background, our study makes two distinct contributions. First, past research with regard to knowledge sourcing and location choices has focused predominantly on the macro-organizational or aggregated level. Given the complex nature of knowledge and differences in location capability of MNCs, our study drew on the theoretical insight of ambidexterity and applied a microfoundations approach to explore MNC knowledge sourcing processes at the local project level. Our findings illustrate that not only are MNC knowledge sourcing activities in emerging economies highly diverse, complex, and dynamic when examined at the micro level, but MNCs' decisions and actions concerning a particular host location can also be highly heterogeneous. In other words, research that focuses on FDI location choice at the aggregated macro-organizational level may not be able to capture single-location variations across MNCs, which may offer one source of explanation of why and how some MNCs are found to perform better than others in the same location. Our findings thus enrich the concept of ambidexterity in two ways. First, our study extends its usefulness to the understanding of MNC behaviour in a given host location and demonstrates how it can be used as a more fine-grained analytical lens for other studies that intend to examine the ambidexterity of MNCs across different locations.

Second, by applying the analytical lens of ambidexterity at the local level, we uncover that MNC local R&D activities can take the single form of knowledge exploration or a combined form of exploration and exploitation. Four types of ambidexterity are identified (Table 4 and Figure 2): global knowledge differentiator, global-local knowledge integrator, emerging local-global integrator, and local knowledge integrator. These contribute to the MNC knowledge sourcing literature, and in particular extend the exploration and exploitation dichotomy by establishing that, in certain industries, the two set of activities can often be complementary forces rather than sources of conflict. By providing some clarity to the debate on the nature of the relationship between exploration and exploitation, we have provided a platform for future studies to draw on and to pay greater attention to how these two sets of activities co-exist and co-develop within subsidiaries. For instance, for the latter three types that cut across both exploration and exploitation, we find their activities to be divided in primary and secondary foci, rather than being more balanced. Furthermore, we

find that in the case of the emerging local-global integrator, their secondary focus of exploration is locally driven, implying that the mandate to which a local unit is assigned may not always fully reflect its capabilities or potential. Our study evidences the usefulness of the concept of ambidexterity and the microfoundations approach as an integrated analytical lens to disentangle the complex micro-level processes of exploration and exploitation and unfold the diversity in MNC knowledge sourcing at the local level.

### **Managerial Implications**

Our study also has a number of managerial implications. First, the fact that all eleven MNCs have sourced knowledge in Bulgaria highlights the low-cost knowledge potential of small emerging economies. Thus, an important lesson to be learned by other MNCs who have yet to consider transition economies such as Bulgaria is to start assessing the value of these locations for R&D activities. Second, these economies tend to develop technological strength in particular industries. For instance, the case of Bulgaria illustrates the country's strength in the software development industry and shows it to be an attractive and strategically sound choice for MNCs in this industry. Third, our study also shows that MNCs should pay more strategic and long-term attention to such locations as a source for both explorative and exploitative activities. To do so, MNCs should closely monitor the (changing) potential of local knowledge teams in dynamic host locations so that greater value can be generated.

### **Limitations and Recommendations**

Despite its important contributions, our study has several limitations that suggest avenues for future research. First, there are some common concerns associated with our case study design. Despite following a methodological approach found in other studies (e.g. Awate et al., 2015; Jha et al., 2018; Zhao et al., 2020), the case study method has the limitation that it reflects the characteristics of the cases studied and therefore should always be very carefully considered in relation to others (Child, 2012). It is the quality of the theoretical inferences developed out of qualitative data that is crucial to the assessment of generalizability (Mitchell, 1983). Our study provides a framework which can serve as a springboard for future confirmatory research, as well as for studies employing a comparative approach to examine the topic across different institutional settings. Furthermore, to extend our understanding of MNC knowledge sourcing in emerging economies, it would be useful if future research could examine the performance effects of the different types of R&D activities.

### **CONCLUSION**

By exploring R&D activities of eleven MNCs in the Bulgarian software development industry, we developed a four-fold typology (global knowledge differentiator, global-local knowledge integrator, emerging local-global integrator, and local knowledge integrator), which is underpinned by two categories of R&D capability: explorative and exploitative. These are characterized by three R&D capability dimensions: technical know-how, scope of expertise, and market potential. Our exploratory study unfolds new insights into the complexity and heterogeneity in MNC knowledge sourcing within the dynamic context of an emerging economy flagship industry. We extend the explanatory capacity of the ambidexterity concept and provide further nuances to the exploration and exploitation dichotomy for understanding and theorizing the phenomenon of knowledge sourcing in emerging economies.



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<sup>i</sup> Transition economies are defined as those “offer many major business opportunities but due to the transitional nature of their economies, these are highly complex and fraught with the socialist cultural disposition” (Kiessling, Richey, Meng & Dabic, 2009:421).