

**Securing Access to Lower-Cost Talent Globally:  
The Dynamics of Active Embedding and Field Structuration**

**Stephan Manning**

University of Massachusetts Boston (UMB),  
College of Management  
100 Morrissey Boulevard, Boston MA 02125, USA

[Stephan.manning@umb.edu](mailto:Stephan.manning@umb.edu)

**Joerg Sydow**

Free University Berlin  
Institute of Management  
Boltzmannstrasse 20, 14195 Berlin, Germany

[Joerg.sydow@fu-berlin.de](mailto:Joerg.sydow@fu-berlin.de)

**Arnold Windeler**

Technical University Berlin  
Institute of Sociology  
Franklinstrasse 28/29, 10587 Berlin, Germany

[Arnold.windeler@tu-berlin.de](mailto:Arnold.windeler@tu-berlin.de)

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## **ABSTRACT**

This article examines how multinational corporations (MNCs) shape institutional conditions in emerging economies to secure access to high-skilled, yet lower-cost science and engineering talent. Based on two in-depth case studies of engineering offshoring projects of German automotive suppliers in Romania and China we analyze how MNCs engage in ‘active embedding’ by aligning local institutional conditions with global offshoring strategies and operational needs. MNCs thereby contribute to the structuration of field relations and practices of sourcing knowledge-intensive work from globally dispersed locations. Our findings stress the importance of institutional processes across geographic boundaries that regulate and get shaped by MNC activities.

**Keywords:** Offshoring, Global Services Sourcing, Knowledge Work, Science and Engineering Talent, Local Institutions, Structuration Theory

## INTRODUCTION

Western multinational corporations (MNCs) increasingly source technical and administrative tasks supporting domestic and global operations from abroad, in particular from emerging economies – a trend often called ‘offshoring’ (UNCTAD, 2005; DOH, 2005; LEWIN and COUTO, 2007). More recently, MNCs have increasingly offshored ‘knowledge work’, i.e. high-skilled symbolic-analytical tasks (DRUCKER, 1959; REICH, 2001), including engineering, product design, and software development. This trend has been driven by the commoditization of knowledge work, and the growing offshore availability of science and engineering (S&E) talent – highly qualified, yet often less costly, mostly young S&E professionals, in particular in emerging economies (KENNEY *et al.*, 2009; LEWIN *et al.*, 2009; MANNING *et al.*, 2008).

Yet, in their search for lower-cost S&E talent, Western MNCs face major challenges that often interfere with their strategic objectives. In particular in so-called ‘hotspot’ locations, such as Shanghai, MNCs face highly competitive local labor markets, wage inflation and high employee turnover (HEIJMEN *et al.*, 2009; LI *et al.*, 2011) – a result of what some scholars call ‘the global race for talent’ (LEWIN *et al.*, 2009). At the same time, MNCs continue to find it difficult to identify and recruit S&E graduates with appropriate qualifications (see FARRELL *et al.*, 2006). The growing number of offshoring studies has largely neglected these economic and institutional labor market challenges (MANNING *et al.*, 2008). Based on two in-depth cases of engineering offshoring projects in Romania and China, we seek to better understand how MNCs deal with these challenges to satisfy their demand for highly-skilled, yet lower-cost S&E talent.

Our empirical question connects with a larger debate in international business and economic geography. When facing economic and institutional constraints in foreign locations, e.g. availability of qualified personnel, previous research suggests, on the one hand, that MNCs

try to get embedded in local networks to gain better access to resources (e.g. ANDERSSON *et al.*, 2001, 2002). On the other hand, they engage in political and institutional strategies to change local conditions in their own interest (e.g. OLIVER and HOLZINGER, 2008; HADJIKHANI *et al.*, 2008; HILLMAN and WAN, 2005; MEYER, 2004). We contribute to this body of research, yet we develop a different theoretical perspective. Most studies on economic and institutional conditions in foreign countries focus on properties of local and national business systems (WHITLEY, 1999; KOSTOVA and ROTH, 2002; KOSTOVA *et al.*, 2008). Instead we look at conditions across geographic boundaries that affect MNC operations in particular contexts – in our case: offshoring of engineering work. More concretely, we develop the notion that MNCs often operate within organizational fields (DIMAGGIO and POWELL, 1983; see also PHILLIPS *et al.*, 2009) connecting MNCs with other firms and local institutions through context-specific collaborative and competitive practices that get adopted across locations and regions. As MNCs enter locations with particular needs – here: for lower-cost S&E talent – they engage in ‘active embedding’, i.e. the ongoing alignment of local institutional conditions with global MNC strategies and operational needs. Thereby they contribute to global-local ‘field structuration’, i.e. the establishment of collaborative and competitive field practices and relations with peer investors and local institutions that get adopted within and across locations.

Using structuration theory (GIDDENS, 1979, 1984) as a sensitizing device we analyze this dynamic, multi-level process based on two in-depth case studies of two German automotive suppliers implementing engineering offshoring projects in Romania and China respectively. Our findings contribute, on the one hand, to a more nuanced and dynamic understanding of institutional conditions and processes affecting foreign investment in specific domains: here sourcing of knowledge-intensive work from abroad (MALECKI, 2010; MANNING *et al.*, 2008;

LEWIN *et al.*, 2009). In particular, we propose a stronger focus on context-specific institutional processes across geographic levels and boundaries (PHILLIPS *et al.*, 2009). On the other hand, we extend the idea that MNCs get embedded within economic systems at multiple geographic levels – local, regional and global (DICKEN and MALMBERG, 2001; HESS, 2004; PECK, 2005), thereby linking locations and local partners to global value chains, production and innovation networks (HENDERSON *et al.*, 2002; HUMPHREY and SCHMITZ, 2002; ERNST, 2005; YEUNG, 2009). We argue that MNCs’ embedding activities involve the (re-) production of context-specific collaborative and competitive practices that impact how particular locations and local firms become part of these global production and innovation networks. We elaborate our contributions to these debates in the discussion section.

### **FACING LOCAL CONDITIONS IN SEARCH FOR LOWER-COST TALENT: AN ORGANIZATIONAL FIELD PERSPECTIVE**

The sourcing of business services from abroad, in particular from emerging economies, has become an established business practice (DOH, 2005; UNCTAD, 2005). MNCs thereby utilize both internal and external delivery models (LEWIN and COUTO, 2007; ANTRAS and HELPMAN, 2004). This trend increasingly includes the sourcing of technical and knowledge-intensive work, i.e. symbolic-analytical tasks requiring more or less specific technical skills to be performed (DRUCKER, 1959; REICH, 2001), such as engineering, product design, and software development (KENNEY *et al.*, 2009; MANNING *et al.*, 2008; LEWIN *et al.*, 2009). One major driver of this trend is the global search of Western MNCs for lower-cost S&E professionals and the increasing availability of such professionals abroad, in particular in emerging economies (MANNING *et al.*, 2008; LEWIN *et al.*, 2009). This trend has been facilitated by the increasing commoditization of

knowledge work (e.g. MUDAMBI, 2008; MANNING *et al.*, 2010), and emerging firm capabilities to modularize tasks and coordinate processes remotely, including the use of advanced ICT (APTE and MASON, 1995; METTERS and VERMA, 2008; MITHAS and WHITAKER, 2007; LEVINA and VAAST, 2008).

The recent trend of offshore sourcing of technical and knowledge-intensive services is an example for knowledge-seeking foreign investment (MALECKI, 2010; VON ZEDTWITZ, 2004; KUEMMERLE, 1999; FLORIDA, 1997; ERNST, 2005). Firms seeking such investment often locate their operations within geographic clusters of talent, supporting institutions, and peer firms with similar sourcing interests (PORTER, 2000). A number of studies have examined the emergence of such clusters – which are sometimes called ‘hotspots’ (POUDER and ST. JOHN, 1996) – in the context of offshore sourcing of knowledge services (e.g. ZAHEER *et al.*, 2009; MANNING *et al.*, 2010), Bangalore being a popular example (BRESNAHAN *et al.*, 2001). Hotspots attract MNCs because of large pools of S&E talent, universities producing S&E graduates, as well as specialized service providers. However, recent surveys also indicate that securing access to qualified, yet lower-cost personnel poses a serious challenge to MNCs (e.g. LEWIN and COUTO, 2007; HEIJMEN *et al.*, 2009). Reasons include increasing competition for talent, wage inflation and high employee turnover (e.g. LEWIN and COUTO, 2007). Related to this, some firms fear unintended flows of critical knowledge to competitors in particular in hotspots with high labor mobility (e.g. SONG *et al.*, 2003; ALMEIDA and KOGUT, 1999). These risks have led more firms in recent years to consider less developed and crowded ‘second-tier’ locations, e.g. in Eastern Europe and Latin America (MANNING *et al.*, 2010; GLOBALSERVICES, 2008). This strategy, however, often comes with other risks, such as uncertainties regarding the actual qualification of local graduates with S&E degrees (see in general, FARRELL *et al.*, 2006; GEREFFI *et al.*, 2008).

The situation is further complicated by the fact that MNCs entering a new location with a strategic agenda, e.g. employing lower-cost S&E professionals, typically lack local knowledge and are initially ill-prepared to operate effectively in the local environment (JOHANSON and VAHLNE, 1977, 2009) – a situation often described as ‘liability of foreignness’ (ZAHEER, 1995). In response to this uncertainty, MNCs often try to adapt to the local environment by learning local managerial practices (KOSTOVA and ROTH, 2002). In addition, or alternatively, they may take so-called ‘embedding’ or ‘political/institutional’ strategies. Because of their relevance for our study, we will discuss them in greater detail below. However, we will also point out limitations, in particular the neglect of activity domains and global business contexts. We then introduce our own concepts of ‘active embedding’ and ‘field structuration’.

One key condition for operating effectively in a foreign location – whether hotspot or second-tier – has been related to the degree to which MNC subsidiaries get embedded in local business networks (ANDERSSON *et al.*, 2001, 2002; BARTLETT and GHOSHAL, 1989). The main idea is that by establishing local ties with business actors, including suppliers, clients, and competitors, but also local institutions, MNCs will be able to establish access to resources, e.g. S&E talent, absorb local knowledge, and develop competencies that allow them to operate more effectively locally. This idea relates to GRANOVETTER’s (1985) notion that embeddedness of economic activities in social relations may promote reciprocity and trust, and hence facilitate but also constrain economic exchanges (see also GRABHER, 1993). Thereby, firms get embedded in multiple ways, e.g. economic, political, and social, which may put them in a position from which they can influence the networks they are embedded in (e.g. HALINEN and TÖRNROOS, 1998). However, the notion of local embedding has been criticized for neglecting multiple geographic levels of embeddedness, e.g. ‘local’ and ‘global’ ties between clients and suppliers (e.g. OINAS,

1997; HESS, 2004). Also, most studies overemphasize local network structures and neglect the institutional dimension of embeddedness (DACIN *et al.*, 1999; LOVERIDGE, 2006), i.e. the business practices, norms and regulations affecting local MNC operations.

In contrast, a number of studies focus on the political and institutional dimension of MNC operations in foreign countries (e.g. MUDAMBI and NAVARRA, 2002; KOSTOVA *et al.*, 2008; OLIVER and HOLZINGER, 2008; HADJIKHANI *et al.*, 2008). Some of these studies explicitly focus on challenges MNC face in emerging economies, e.g. intellectual property protection (e.g. CHILD and TSAI, 2005; MEYER, 2004; VON ZEDTWITZ, 2004). In response, some argue that MNCs avoid institutionally ‘risky’ countries in the first place (e.g. DOH *et al.*, 2009). Others have found that MNCs sometimes promote the development of more favorable institutional conditions, in particular at the local level. One example is the adoption of capability maturity model (CMM) certifications by software service providers in Indian clusters in response to client demands (e.g. ETHIRAJ *et al.*, 2005; ATHREYE, 2005). Many studies, however, overlook the importance of such norms, standards and taken-for-granted business practices, as they focus on formal institutions, e.g. laws and regulations, at the national level (WHITLEY, 1999). Also, similar to local embeddedness research, studies on institutional/political strategies often fail to account for the global context(s) within which MNCs operate. For example, CMM certification has become an important facilitating condition for sourcing software services not only in India, but in many other regions, e.g. Latin America (MANNING *et al.*, 2010).

We therefore take a different view on embedding and institutional conditions affecting foreign investment in particular contexts – here: offshore sourcing of engineering and other knowledge work. In a recent debate on the use of institutional theory in international business research (KOSTOVA *et al.*, 2008; PHILLIPS and TRACY, 2009; PHILLIPS *et al.*, 2009), PHILLIPS and



TRACY (2009) suggest to utilize the concept of organizational field (DIMAGGIO and POWELL, 1983) to better capture institutional processes spanning geographic levels and boundaries, and the role of MNC agency in affecting these processes (see also SYDOW *et al.*, 2010). DIMAGGIO and POWELL (1983) define organizational fields as

“...those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products [...]” (p.148)

The field concept captures the “totality of relevant actors [...] involved in a common enterprise” (p.148) including firms and supporting institutions. It incorporates time and space, and looks at both competitive and collaborative relationships and practices evolving between actors in a certain activity domain (LEBLEBICI *et al.*, 1991; HOFFMAN, 1999). From a field perspective, offshore sourcing of knowledge work is such a domain which has become a “recognized area of institutional life” involving MNCs, local administrations, head-hunters, training institutions, universities, and service providers that are related to each other through a common enterprise: the acquisition and provision of lower-cost talent and expertise for knowledge-intensive work.

A field perspective helps integrate an analysis of embedding and institutional processes by examining how field participants (re-) produce relations and field practices within and across particular geographic contexts, and how they thereby develop an awareness of their need to coordinate interactions of common interest, e.g. securing access to lower-cost S&E talent. DIMAGGIO and POWELL (1983) call this process ‘field structuration’, which is

“[a] process [that] consists of four parts: an increase in the extent of interaction among organizations in the field; the emergence of sharply defined interorganizational structures of domination and patterns of coalition; an increase in the information load with which organizations in a field must contend; and the development of a mutual awareness among participants in a set of organizations that they are involved in a common enterprise [...]” (p. 148).

In particular, we examine the role of MNCs in structuring the field as well as the effect of field structuration on MNC operations. Structuration theory (GIDDENS, 1979, 1984) serves as a sensitizing device to help us understand how the field gets structured both locally and globally. In particular, we examine what we call ‘active embedding’ practices of MNCs, by which we mean ongoing activities MNCs engage in to align local field conditions via institution-building or -shaping with global strategies and operational needs. This way we take on ideas from the local embedding literature, yet we look more closely at how – and based on what principles and practices – MNCs actually build up relationships within local administrations, universities and competitors to serve their strategic objectives, here in particular: the use of lower-cost talent to perform knowledge-intensive work offshore. We thereby apply the notion of embedding as the “contextualization of economic activity in on-going patterns of social relations” (DACIN *et al.*, 1999, p. 319; GRANOVETTER, 1985). This also helps us understand how local field relations and practices get integrated into a global context of sourcing knowledge work, and how this integration contributes to field structuration across locations. This may promote not only a better understanding of local conditions for offshoring, but of the emergence of new local hubs within global production networks (YEUNG, 2009; ERNST, 2005; LEVY, 2008).

## **METHODOLOGY AND CASE SELECTION**

We adopt an inductive qualitative case study approach (YIN, 2003) to examine how MNCs secure access to lower-cost technical talent – here in particular: young engineering professionals – and thereby engage in active embedding and structuring the field of global sourcing of knowledge-intensive work. More concretely, we investigate two in-depth cases of recent MNC engineering offshoring projects in Shanghai, China, and Carpati<sup>(Endnote: 1)</sup>, Romania, respectively.

Qualitative case studies are appropriate if the empirical phenomenon is multi-faceted and complex, and if – like in our study – the emphasis is on social processes and practices (YIN, 2003). We use this multiple case study to construct and inter-relate theoretical constructs for future research (EISENHARDT, 1989; SIGGELKOW, 2007).

The selection of locations is based on the observation that nowadays MNCs and the offshoring-related literature categorize sourcing locations as either hotspot or second-tier (e.g. DELOITTE, 2004; GLOBALSERVICES, 2008). Hotspots – here: Shanghai – are typically associated with highly developed, competitive local labor markets, and sophisticated supporting institutions (POUDER and ST. JOHN, 1996), whereas second-tier locations – here: Carpati – are typically smaller, often less developed and less competitive (e.g. MANNING *et al.*, 2010). As we show below, this distinction impacts the rationale of MNCs for choosing a location as well as their local strategies. The aim thereby is not to generalize findings statistically. Rather, our cases are polar cases (EISENHARDT and GRAEBNER, 2007) – of securing access to talent in a hotspot vs. a second-tier location – aimed at ‘analytical generalization’ (YIN, 2003). Based on our analysis we construct a general process model of field structuration and active embedding. Following PRATT’s (2009) advice, we use Figure 1 to illustrate our analytical approach.

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To control for extraneous variation (EISENHARDT, 1989), we selected two similar offshoring projects involving the hiring of engineers for software simulation and testing initiated by two different German automotive suppliers (see Figure 1). The two companies – ASC Electronic Systems and BSC Axle & Chassis Systems – are leading system suppliers producing electronic,

axle and chassis systems respectively for premium car manufacturers. ASC has sales, production and R&D facilities in 20 countries, employing 27,000 FTEs; BSC has subsidiaries in 27 countries with over 60,000 FTEs total. Both firms have traditionally recruited engineers from technical universities and training institutions in Germany, whose strong links between firms, professional associations, universities and training institutions have been a source of competitive advantage for many German engineering-oriented firms (see also MURMANN, 2003). However, driven by increasing cost pressure, new market opportunities and the increasing commoditization of product development work, ASC and BSC have started offshoring engineering work to emerging economies, in particular Eastern Europe and China – a trend they share with many manufacturing firms in the automotive sector in particular (see e.g. SADLER, 1999; HELPER and KHAMBETE, 2005; STURGEON et al., 2008).

Almost simultaneously, ASC and BSC decided in 2005 to launch engineering offshoring projects. Prior to these projects, both firms had primarily offshored manufacturing. For both firms, therefore, these two projects were early experiments in offshoring engineering work. For this purpose, the two MNCs selected very different locations: ASC launched its project in the little developed second-tier location Carpati, Romania. Planning a headcount of initially 500 (later 250) engineers, ASC entered Carpati as an important pioneer investor. For its smaller-scale project involving 50 engineers, BSC chose the much more sophisticated and competitive hotspot Shanghai, China, thereby entering as one of many latecomers. We now examine how these firms enacted the two locations as ‘hotspot’ vs. ‘second-tier location’ for offshoring engineering work. We then analyze similarities and differences in strategies these firms applied to secure access to engineering talent, and how their strategies have contributed to the local-global structuration of

field conditions for sourcing engineering – and other knowledge – work globally, focusing on collaborative and competitive practices between firms and local institutions (see Figure 1).

### **DATA COLLECTION AND ANALYSIS**

We collected empirical material from multiple sources of evidence (YIN, 2003): semi-structured interviews, press releases and archival documents. To understand the challenges ASC and BSC faced when trying to secure access to engineers, their strategies and the impact of their activities on the field context, we interviewed various informed individuals inside the firms and locations (see Table 1): HR and R&D managers in Germany, Carpati and Shanghai, local engineers, investment agencies and local administrations, chambers of commerce, and local universities. Investment agencies also provided us with archival documents about local investment conditions and activities. Table 1 provides an overview of interview partners, by company and location.

Interviews were conducted in two rounds. The initial round in 2006 focused on the location decisions and the process of finding engineers in Carpati and Shanghai. The interviews were conducted about one year after the projects had been launched. Interviews with local players, e.g. local universities, focused on links between the MNC’s recruiting strategy and local conditions. In 2007, we conducted a second round of interviews with ASC focusing on ASC’s recruiting strategy and practices worldwide. In particular, we were interested in how the experience of ASC in Carpati has influenced its practices of finding and retaining lower-cost engineers globally. Unfortunately, we did not have the opportunity to interview BSC again. Overall, we conducted 36 interviews with 54 hours of data material (see Table 1). We transcribed, tabulated and discussed interview data within our team to increase reliability.

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We used summary tables to compare local challenges and practices in Carpati and Shanghai. To facilitate the analysis and to balance the need for rich description and theorizing (PRATT, 2009), we employed structuration theory as a sensitizing device (GIDDENS, 1984; POZZEBON and PINSONNEAULT, 2005). Structuration theory conceives agency and structure as a duality. It focuses on social practices, in terms of recurrent activities social actors engage in by enacting social structures as sets of norms, rules and resources of power in their interactions. In so doing, actors help reproduce, but also change the structures they enact. Agency is structured and structuring, shaped by contexts and shaping contexts at the same time. Its focus on social processes makes structuration theory a suitable lens to examine the dynamic interplay between active embedding and field structuration. It is broad enough to stimulate the generation of new mid-range theories from empirical data, yet specific enough to guide theorizing processes.

Towards this end, GIDDENS (1979, 1984) suggests combining an institutional analysis with an analysis of strategic conduct. An institutional analysis is concerned with the enactment and reproduction of structural properties of social systems, e.g. organizational field contexts; a complementary analysis of strategic conduct looks at how social actors in their agency refer to sets of rules and resources and thereby reproduce and transform structures within these systemic contexts (GIDDENS, 1979: 80). Accordingly, we first apply an institutional analysis to discuss how the MNCs have enacted properties of Carpati and Shanghai as sourcing locations. Then, we examine and compare practices of active embedding and field structuration within these particular locations through an analysis of strategic conduct. Based on this analysis, we finally construct a process model of active embedding and field structuration (see Figure 1).

## ENACTING LOCAL CONDITIONS IN SEARCH FOR LOWER-COST ENGINEERS

As indicated above, MNCs typically make a distinction between 'hotspots' and 'second-tier locations' as offshoring destinations. These are dynamic categories standing for particular sourcing opportunities and challenges at a particular time. We examine them based on ASC's and BSC's rationales for setting up engineering centers in Carpati, Romania, and Shanghai, China. Table 2 provides additional information on sourcing conditions in these two locations.

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ASC selected Carpati as a typical second-tier location for setting up its engineering center. For many German firms, including ASC, Eastern Europe is an important sourcing region due to its geographical and cultural proximity (see e.g. LEWIN and COUTO, 2007; DELOITTE, 2004). Over years, some Eastern European countries, e.g. Hungary and Czech Republic, have become hotspots offering a highly qualified, partly German-speaking workforce (see Table 2). Yet, because of increasing competition for talent in these countries and driven by the imperative to further cut labor costs, ASC selected Romania as a lower-cost second-tier location at that time (see for wage information, Table 2). ASC's R&D Manager remembers:

“To put it bluntly, the whole idea of doing engineering offshore is cost-driven. [...] We initially suggested to the board to locate this new engineering test center in Hungary where we already had an IT facility. However, the board reasoned that Hungary has gotten too expensive. Romania was much more preferable because of low labor costs.”

Beside costs, access to qualified engineers was crucial. To account for this, ASC only considered locations with an existing technical university. In the eyes of ASC management, the city of Carpati best satisfied these two selection criteria – low cost and availability of engineers:

“Carpati has a technical university. [...] [City 2] also has a university, but we would be in a bad position because the local labor market is very attractive for young people. [...] The same is true for [City 3]. In [City 3] salary expectations are also very different, because [City 3] is much more expensive than Carpati.” (ASC Subsidiary Manager)

However, despite the potential availability of engineers as well as the cultural and institutional affinity of Carpati with Germany (see Table 2), the city was ill-prepared for higher-skilled foreign investment. Engineering graduates from Carpati's technical university, for example, would typically leave the city after graduating rather than seeking a job locally. Also, technical standards at the university were below ASC's requirements. An R&D manager explains:

“What we take for granted in our [German] universities, is a huge problem here. [...] There is a lack of equipment [and] you barely find assistant research staff like in our [universities]. [...] People who might know about new technologies and processes are gone. Who remain are the old professors, and this is of course a bad condition for further development.”

In more general, when ASC entered Carpati, the location was lacking typical field properties of established locations for sourcing engineering work, including an immediate availability of qualified engineers, a professional community, and supporting institutions, such as universities serving MNC demands. As a well-known German company, ASC hence took the role of a pioneer and provided a potential role model for follower investors in Carpati (see Table 2). This position helped ASC transform Carpati into a recognized sourcing destination (see below).

By contrast, BSC selected Shanghai as an already established sourcing hotspot. In order to serve a potentially expanding consumer market, many Western OEMs have established facilities in China, and now expect their system suppliers to follow them and develop products using low-cost Chinese sub-suppliers and engineers (see Table 2). BSC chose Shanghai because it attracts both highly qualified engineering talent and OEM clients:

“We need development resources in China, because beside Western OEMs, there are an increasing number of local suppliers you have to be in contact with. But we are also forced, from a cost point of view, to have resources in China, because a Chinese engineer



still costs only a third of a German engineer. [...] And Chinese engineers rather go to Shanghai than to Changchun.” (BSC Head of Engineering)

As a hotspot location, Shanghai has established a rather sophisticated economic and institutional system serving Western firms. For example, universities in Shanghai produce large numbers of engineering graduates (see Table 2), specifically for foreign MNCs. Some even specialize in serving German investors by providing German language programs and internships:

“There are three universities in Shanghai [that serve our needs]. [...] They provide German language training for one year and produce students who are very well qualified. [...] We noticed that [...] through their contacts with German professors they also learn about German mentality.” (Local BSC Subsidiary Manager)

Related to this, universities and business associations have developed collaborative practices with local subsidiaries of MNCs, sometimes even their headquarters, which, in turn, have learned how to use these institutions as field resources. At the same time, increasing competition for talent has generated considerable challenges in particular for newcomers. Being able to participate in this local system of sourcing practices and to compete for highly qualified, yet lower-cost engineers was BSC’s primary objective as one of many latecomers.

### **ACTIVE EMBEDDING AND FIELD STRUCTURATION**

In order to secure access to engineers in Carpati and Shanghai respectively, ASC and BSC engaged in what we call *active embedding*: a set of activities aligning local institutional conditions with global strategies and operational needs. The MNCs were concerned not only with initial hiring, but also with retention, employee turnover and wage inflation. As the MNCs engaged in active embedding from their particular positions as pioneer (ASC) in Carpati and latecomer in Shanghai (BSC), they not only shaped local conditions for accessing engineers but also contributed to global-local *field structuration*: the establishment of collaborative and

competitive practices between firms, universities, and local administrations in particular, that get adopted not only within but also across local contexts. We examine this process in detail next.

### **ASC in Carpati: Securing Access to Engineers in a Second-Tier Location**

When entering Carpati, ASC faced the following dilemma: Though the Romanian city provided a local pool of potentially qualified low-cost engineering graduates through the local university, this resource was not readily available for ASC's envisioned engineering center:

“The central problem was to bring the local engineers to a level that we can provide them with engineering tasks from Germany. [...] If we could, we would relocate as many tasks as possible.” (ASC R&D Manager)

Facing this uncertainty, ASC's headquarter (HQ) in Germany appointed an entrepreneurial expatriate subsidiary manager to assess the local situation and, based on this assessment, make investments needed to fulfill the subsidiary mandate.

“Once you are there [in Carpati], and especially with a relatively special agenda, you need to have a few pioneers who can explore the whole thing.” (HR Manager, ASC)

The critical role of expatriate managers for embedding MNC subsidiaries in local contexts has been recognized previously (e.g. LOVERIDGE, 2006; OLIVER and HOLZINGER, 2008). In ASC's case, the manager's main concern was HQ's strategic imperative to establish access to a large number of sufficiently skilled, yet lower-cost engineers. The manager considered two main strategic options. The first option was to set up special training programs internally for fresh local engineering graduates. This, however, would have violated HQ's cost directive, as it involves high travel costs as well as internal training resources. The manager therefore opted for an 'external' solution, by setting up a joint training program with the local university:

“We launched a rather big collaboration with the university, and they, in fact, have massively adapted their curricula. We set up a lab [...] and we have been offering internships for students. We coach diploma papers and employ students. ” (ASC Subsidiary Manager)

ASC's collaborative experiences with German universities partly served as a role model for this project. In order to bring Carpati university professors up to ASC's standards, ASC sent them to German professors to have them learn how to structure courses, deliver knowledge, and use laboratories in the 'German' way:

“During the first visit in Germany it was important to establish contacts and to give those professors an impression of how labs and universities look like in Germany. On the second trip two professors from the ASC locations came to Germany to get trained for our systems. [...] We have invited professors from the university to come to us [...], and I remember the particular case when we did an entire training workshop at the local university for the professors in which two of our people took part.” (Subsidiary Manager, ASC)

As a consequence, ASC has helped transform the local university into a 'field institution' producing 'customized' engineering graduates for foreign MNCs with local engineering operations. Thereby, ASC's way of collaborating with the local university has served as a role model that is now being adopted by other foreign, in particular German, MNC subsidiaries:

“I say ASC but equally other companies, they have engineering centers. Not huge centers like ASC but there are some developing centers here and they have production lines and we are prepared to provide to our – let's say customers – a good raw material, meaning students, the graduates.” (Local University Professor, Carpati)

Figure 2 (Marker [1]) shows how the local university (top) now serves multiple foreign firms (right side) as a field institution (collaborative ties are indicated by arrows). Similar figures have been used in previous studies to illustrate how MNC subsidiaries establish relationships in local economic and institutional contexts (see e.g. MCCANN and MUDAMBI, 2005). We use Figure 2 accordingly to illustrate the interplay of emerging local field relations and practices.

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Importantly, ASC did not simply ‘transfer’ collaborative field practices from Germany. Rather, ASC acted upon its understanding of Carpati as a second-tier low-cost sourcing location. For example, unlike in Germany where ASC’s collaborations with universities typically involve both training and research, ASC’s collaboration in Carpati only focuses on the delivery of low-cost engineers. Recent attempts by the local university to set up research partnerships with ASC, following the example of German universities, have not been followed up by ASC. This shows how the strategic imperative set by ASC’s HQ – offshoring of engineering work to lower costs – has served both as an enabling and constraining principle by which field relations between ASC and the local university in Carpati have been established.

Over time, however, ASC had to deal with another challenge: increasing competition for talent from incoming MNCs. Previous studies suggest that lack of internal career opportunities plus external opportunities of switching to better paid or more interesting jobs increase employee turnover (SAXENIAN, 1994), which may not only drive up wages and result in sunk training costs, but may also lead to an unintended flow of knowledge (ALMEIDA and KOGUT, 1999). ASC therefore took several measures to prevent engineers from switching. Offering career paths was a limited option, as it contradicted with the cost-saving objective. However, ASC arranged for convenient housing and transport to make working for ASC more attractive. To implement this measure, ASC again relied on external support. ASC persuaded the local mayor of Carpati to serve this particular need. This way, the mayor would become another supporting local field institution for ASC as a pioneer foreign investor in Carpati (see also Figure 2: [2]):

“When somebody comes and wants to do something here, the mayor takes care of it himself. [...] It happens that a bus line is extended by three miles so that ASC can unload their workforce right at the door. [...] [This] is about tailoring conditions for those who come here and want to do something.” (Head of German Consulate, Carpati)

In addition, ASC took initiative in establishing a regular meeting with other foreign, in particular German, firms setting up operations in Carpati (Figure 2: [3]). This meeting soon became an important informal institution for sharing views and norms and for coordinating business activities. In particular, participants have agreed not to hire personnel from each other, to keep fluctuation and wage levels down:

“They feel the need to meet more often, they are buddies. [...] They have common problems and interests such as recruitment. [...] They gamble together... [...] They have discussions for example on wage levels and the like.” (Head of German Consulate, Carpati)

Again, ASC has contributed to the creation of an important field institution. By chairing this meeting, ASC has helped regulate competition for talent in Carpati to some extent and to reduce uncertainty resulting from the behavior of competitors. This meeting serves to further align local business practices by establishing ‘codes of conduct’ based on which players can make use of local talent pools and other business opportunities.

One key factor in ASC’s success in transforming local business conditions has been its role as pioneer investor and role model for other MNCs. The German Consulate in Carpati and Carpati’s mayor, who coordinate regional business promotion in particular targeting German firms, have made use of ASC as a promoter of the region. Every time newcomers, in particular from Germany, express an interest in the region by contacting the mayor or the Consulate, the latter would refer to ASC as first contact (Figure 2: [4]). From the mayor’s point of view, ASC has not only been an important employer, but also a resource for further regional development. This position, in turn, has given ASC the chance to control market entries and to inform newcomers about local ‘rules of the game’. Carpati’s mayor explains:

“I have no interest in attracting competitors of ASC to come to Carpati at any price. This would be unfair. [...] I always tell them that we have ASC in town. [...] These are people one can talk to, people with experience at this location which one can rely on. [...] That is

why I have sent a number of investors to ASC so that they can talk without the need for my presence.”

As a result, ASC, on the one hand, has helped establish Carpati as a recognizable second-tier location for setting up low-cost engineering centers. Prior to ASC’s arrival, to most MNCs Carpati was not even ‘on the map’ when it comes to selecting a potential sourcing location. Now, Carpati belongs to a group of locations sharing certain properties – qualified talent pools and institutional support, provided by a local university, the local administration and pre-competitive arrangements between foreign MNCs. However, it is likely that some time in the future Carpati will become a more competitive hotspot as more MNCs enter the location. On the other hand, ASC has contributed to the diffusion of sourcing practices and institutional arrangements *across* second-tier locations. Not only does ASC ‘educate’ other incoming MNCs about local practices of using engineers. ASC has also taken similar strategies in other second-tier locations, in line with the firm’s low-cost imperative for sourcing engineering work globally:

“Because we primarily make investments in the boonies [‘in der Pampa’], we have set up these collaborations with local universities to facilitate local recruiting. [...] We do not have standardized criteria for our collaborations. This is a pragmatic process, geared towards serving the needs of local subsidiaries.” (Manager ASC Recruiting Center, Head of HR Development)

### **BSC in Shanghai: Securing Access to Engineers in a Hotspot**

Unlike ASC in Carpati, BSC entered an already established hotspot as a latecomer. A number of universities and headhunters have served MNCs coming to Shanghai for many years. To quickly learn about local conditions, the BSC headquarter hired a subsidiary manager with local experience – a common practice for Western MNCs entering China (see e.g. BOUTELLIER *et al.*, 2008; VON ZEDTWITZ, 2004). Unlike ASC’s subsidiary manager whose mandate was to ‘explore’

and ‘transform’ the local environment, BSC’s subsidiary manager was hired to align BSC’s sourcing practices with established local conditions.

Almost ten years before BSC entered Shanghai, pioneer investors, very much like ASC in Carpati, started setting up collaborative programs with universities in Shanghai. For example, ThyssenKrupp set up a professorship for mechanical engineering at TongJi University in 1998. Since then, students at TongJi have been given opportunities to do internships at ThyssenKrupp. Siemens also embarked on a partnership with the same university. Over time, universities like TongJi have established a range of collaborative arrangements with foreign investors, in particular from Germany. Today, they actively promote their programs and offerings through fairs, the German chamber of commerce and other media (Figure 3: [1]).

“Usually, firms approach us, because they learn about us through the Internet or referrals. We also use multiple ways to market our programs. [...] [Ways of collaborating with us] are manifold. Some companies collaborate with us very intensively as sponsors.” (Representative of TongJi University, Shanghai)

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Insert Figure 3 here

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Over time, however, university hiring and sponsoring have become more competitive. BSC’s subsidiary manager therefore considered multiple recruiting channels, including the Internet, local headhunters and a number of technical universities:

“BSC came to us for informal talks. [...] But they have not become a sponsor yet, maybe because they did not want to make the investment. [...] BSC has also established links with other universities in Shanghai. I know that. For example, the Technology Center [name changed] where they also graduate engineering students.” (Representative of TongJi University, Shanghai)

BSC’s approach to hiring resembles an increasingly common pattern in hotspot locations. As particular recruiting channels have become more competitive, MNCs limit their investment in

any one particular option. By doing so, they differentiate recruiting practices, thereby utilizing multiple sources for finding engineers (Figure 3: [2a], [2b]).

BSC's subsidiary manager further realized that a number of MNCs in Shanghai actively engage in hiring personnel from competitors (Figure 3: [3]). Like in other hotspots, 'poaching' has become an important local practice giving firms access to external experience and skills, as well as to critical knowledge of technology, business domains and products (LI *et al.*, 2011; ALMEIDA and KOGUT, 1999). As SONG *et al.* (2003) point out, firms are more likely to benefit from new knowledge coming in through industry hires if their internal knowledge base is little idiosyncratic and path-dependent. In particular Chinese firms have been known for learning through copying rather than mere internal learning, which would increase their interest in industry hires. However, Western MNCs have also adopted and thereby reproduced poaching practices in China to satisfy their need for highly skilled S&E professionals, thereby taking advantage of the willingness of employees to switch companies for higher salaries.

“Sadly enough, poaching is daily business in the German community of companies in Shanghai. On the other hand, there are by now over 500,000 foreign companies in China, and 3,000 of them are German. Competition [for talent] is therefore not only a German problem.” (Local Manager, BSC)

BSC was initially ill-prepared to deal with this situation: On the one hand, most engineers at BSC in Germany are typically hired as apprentices and trained for longer term internal careers; on the other hand, the idea of paying more for industry hires would endanger the low-cost imperative of hiring engineers offshore. The subsidiary manager explains:

“It is difficult to poach people from other companies whose salary structure is similar to ours. In other words, in order to entice them away, we would need to raise salaries, which would further drive wage inflation, and this is something we don't want to do.”

Similar to ASC, BSC thought about reducing the risk of employee turnover by making informal agreements with other German firms. This has been done for example in the supplier community



of a German OEM in Shenyang, China. However, the BSC manager realized that such a strategy could not be implemented easily in Shanghai, because BSC, like other competitors, lacks the economic power to engage in and maintain such agreements in a hotspot like Shanghai:

“In Shenyang, suppliers of one OEM have organized themselves in such a way. Other OEMs are very active in this circle also. Shenyang is considerably smaller than Shanghai. [...] For two years now, it has been the rule that every Friday the Germans meet in a particular hotel [to discuss these issues].” (Head of Engineering, BSC)

Instead, BSC gradually established market hiring as an option. Also, BSC started developing new internal training policies promoting longer-term commitment, e.g. by having employees partially pay for training if they decide to leave. These internal responses not only helped BSC align its hiring practices with local conditions, but also contributed to a further sophistication of local sourcing practices. The diffusion of such practices is promoted by regular events organized by the German Chamber of Commerce that are designed to discuss issues of wage inflation and employee turnover (Figure 3: [4]). Similar to ASC’s regular meetings in Carpati, these events provide a local knowledge base for local MNCs and help them align hiring and retention practices with changing local labor market conditions.

## **DISCUSSION AND LIMITATIONS**

In this paper, we have examined, based on two in-depth cases of engineering sourcing projects by German automotive suppliers in Carpati, Romania, and Shanghai, China, how MNCs engage in *active embedding* to secure access to lower-cost science and engineering (S&E) talent. Active embedding means that MNCs try to explore and then to transform or to align local institutional conditions with global strategic objectives and operational needs, e.g. for lower-cost S&E talent. Thereby, MNCs contribute to the *structuration* of organizational *fields* – here: of sourcing

knowledge work – by (re-) producing domain-specific collaborative and competitive relations and practices with local institutions and peer investors across locations.

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Insert Figure 4 around here

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Using structuration theory as a sensitizing device (GIDDENS, 1984), we now develop a general process model relating field structuration and active embedding based on our empirical findings (Figure 4). Aiming for analytical generalization (YIN, 2003), we link the model to the cases and to the context of sourcing knowledge work, but also discuss its wider theoretical impact.

Our cases suggest that the increasing trend of sourcing engineering and other knowledge work from emerging economies has led to the emergence of an *organizational field* – a ‘recognized area of institutional life’ (DIMAGGIO and POWELL, 1983) – connecting MNCs, local administrations and universities, through collaborative and competitive sourcing relations and practices. According to DIMAGGIO and POWELL (1983) fields become institutionalized over time as the extent of interaction between participating organizations increases; as patterns of collaboration emerge; and as participants become mutually aware of their involvement in a common enterprise – here: the use of high-skilled, yet lower-cost S&E talent. In this context, field structuration happens both locally and globally (see Figure 4). At the local level, firms and local institutions become mutually aware and interconnected as ‘clients’ and ‘providers’ of talent through more or less location-specific hiring and retention practices. Yet, the field also develops a global dimension as certain principles and patterns of accessing talent become institutionalized and adopted across locations. Furthermore, locations themselves become field ‘participants’ at a

global level as they get recognized as ‘hotspot’ or ‘second-tier’ locations for sourcing knowledge work, which, in turn, impacts local structuration processes (see Figure 4).

This interlinked process of local and global field structuration is promoted by what we have called *active embedding* strategies of MNCs. As MNCs search for lower-cost S&E talent offshore to perform knowledge work, they follow certain principles or imperatives, in particular the principle that high-skilled talent needs to be recruited and retained at relatively low costs, while avoiding wage inflation and employee turnover (see Figure 4; see also LEWIN and COUTO, 2007; HEIJMEN et al., 2009). Our two firms ASC and BSC act upon this principle when entering and embedding themselves in Carpati and Shanghai. By doing so, they help reproduce – along with other MNCs – this principle across locations. Based on this principle, both ASC and BSC engage in collaborative practices with universities and peer investors to secure access to engineers, while facing competition from other MNCs with similar interests. For example, we show how ASC and BSC collaborate with local universities to secure access to engineers while keeping internal training costs low. Also, they participate in regular meetings with other MNCs to discuss issues of wage inflation and employee turnover. Thereby, they transform or align local collaborative practices, norms, and field resources, as shown in the case of the reorientation of local universities as ‘talent providers’. As MNCs engage in these practices of transforming and aligning local field structures, they help institutionalize these practices ‘globally’ along with principles of applying them (see also GIDDENS, 1990).

However, our cases also indicate that, while becoming similar across locations to some extent, hiring and retention practices also become differentiated by type of location – in particular ‘hotspot’ and ‘second-tier’ (see Figure 4). Also, while following similar principles, MNC responses to local conditions may differ depending on their position within local contexts.

We focused on two typical situations: one MNC entering a second-tier location as a pioneer (ASC in Carpati), and another entering a hotspot as a latecomer (BSC in Shanghai). As a pioneer in Carpati, ASC transformed the local context to better serve its sourcing interests: ASC introduced collaborative practices that are common across locations, such as sponsored university programs. Also, ASC made non-poaching agreements with other, particularly German MNCs to keep wage inflation down and to contain the risk of unintended knowledge flows to competitors (ALMEIDA and KOGUT, 1999; SONG *et al.*, 2003). Our findings suggest that such agreements are typical for second-tier locations, and hence helped Carpati to get recognized as such. By contrast, BSC acted upon its much weaker position as latecomer in Shanghai by adopting local practices. For example, BSC refrained from non-poaching agreements with peers which seemed little effective in a hotspot like Shanghai, and instead increased industry hires and adjusted training policies to reduce perceived risks of employee turnover. By doing so, BSC helped reproduce hotspot-specific sourcing practices. Our study finally suggests that second-tier locations, such as Carpati, may develop ‘hotspot’-like sourcing conditions over time as more MNCs enter the location (see Figure 4; see also POUDEUR and ST. JOHN, 1996). As a result local fields are becoming more or less tightly interrelated and positioned in sets of fields constituting a more or less global field of activities, here: offshoring of knowledge work.

With our findings we promote a more embedded and dynamic understanding of institutional processes affecting MNC foreign investment. First, we suggest that MNC activities may be affected not only by institutional conditions at the level of national business systems (WHITLEY, 1999; KOSTOVA and ROTH, 2002; DOH *et al.*, 2009), but by properties of sets of organizational fields at the sub-national level that often span geographic boundaries (see also PHILLIPS *et al.*, 2009). Such field structures may be relevant e.g. in the context of global sourcing

of raw materials, intermediate goods and business services. To understand these field structures, future research needs to shift attention from institutional distances between countries (e.g. KOSTOVA, 1999; XU and SHENKAR, 2002), to distances between local field structures and expectations of field conditions within globally embedded field contexts. Second, we suggest that MNCs often do not face local institutional conditions as ‘given’ facilitators or constraints of local engagements (see e.g. DOH *et al.*, 2009; KOSTOVA *et al.*, 2009; MUDAMBI and NAVARRA, 2002), but that MNCs, on the contrary, may act as ‘institutional entrepreneurs’ upon relevant field dimensions at the local and global level in order to promote institutional changes serving their own strategic interests (e.g. DIMAGGIO, 1988; GARUD *et al.*, 2002; PHILLIPS *et al.*, 2009; PATIBANDLA and PETERSEN, 2002).

Our findings also add to our understanding of MNC embedding in local and global value chains and production and innovation networks, and their role in connecting these networks. Prior research has looked at the role of MNCs in integrating local exchanges within global value chains (HENDERSON *et al.*, 2002; HUMPHREY and SCHMITZ, 2002; ENRIGHT, 2000; YEUNG, 2009). More recently, research suggests that as MNCs increasingly globalize innovation activities (e.g. KENNEY *et al.*, 2009) they have also contributed to the emergence of global innovation networks, by connecting local clusters of captive operations and specialized suppliers (ERNST, 2005; SYDOW *et al.*, 2010). Our findings show how MNCs shape these networks by engaging in certain collaborative practices which condition local exchanges and influence the way in which local clusters participate in global value chains. For example, the case of ASC in Carpati illustrates how this firm’s low-cost imperative has driven collaborative efforts with the local university for talent supply, but has also limited opportunities for research collaborations. With other MNCs following ASC’s example, Carpati is likely to take a position as second-tier

low-cost location rather than ‘research hub’ within global production and innovation networks. Future research needs to further investigate how strategic interests and resulting local engagements of MNCs influence the positioning of clusters within global value chains and networks. Also, more than in this study, future research needs to focus on the increasing role of global service providers in developing and positioning local hubs of service delivery in the context of knowledge services sourcing (COUTO *et al.*, 2008).

This study also has some limitations which need to be addressed in future research. First, our data does not allow us to examine in detail the processes leading to institutional changes within and across locations. For example, we know that the transformation of Carpati’s technical university into an MNC talent provider has taken only a few years. However, other studies are needed to understand under what conditions such processes take more or less time. Second, our study focuses on the empirical example of German MNC subsidiaries and their embedding activities. Comparative studies are needed to understand to what extent challenges, e.g. wage inflation, and strategic responses are specific to MNCs from certain countries rather than others. Our findings do indicate that national origin of MNCs matters when it comes to establishing collaborative practices with universities (see similar DEPNER and BATHELT, 2005), as well as for coordinating local labor markets. In both our cases, German MNC subsidiaries along with local ‘German institutions’ seem to form national ‘enclaves’ within the organizational field. Other research has similarly shown how ethnic ties, e.g. of Chinese and Indian entrepreneurs, may impact the development of local clusters (e.g. BRESNAHAN *et al.*, 2001; ZAHEER *et al.*, 2009). More research is needed to understand the relevance of national and ethnic ties in structuring and differentiating local and global organizational fields. Finally, the dynamics of field structuration and active embedding needs to be studied in other business contexts, beyond the sourcing of

knowledge work, as well as for other cases of foreign investment, beyond pioneers in ‘second-tier’ locations and latecomers in ‘hotspots’, to promote a ‘generalization in small steps’ (DIESING, 1971) and to elaborate theoretical constructs (EISENHARDT, 1989).

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## ENDNOTES

- 1 Name of city changed.

## TABLES AND FIGURES

Table 1: Interviews Conducted (Grouped by Location and Organization)

Location/ Organization	Germany	Carpati/Romania	Shanghai/China	Total
<b>ASC Electronic Systems</b>	Initial study: HR director, HR manager, head of engineering  Subsequent study at ASC: head of business unit, R&D managers, HR director and managers	Subsidiary manager, engineering managers, local HR manager and assistant, three local engineers	Local HR manager	11 initial interviews, approx. 17 hrs + 13 additional related interviews approx. 16 hrs
<b>BSC Axle &amp; Chassis Systems</b>	Head of engineering, engineering manager, supply manager	-	Subsidiary managers, two engineers	5 interviews approx. 10 hrs
<b>Local Institutions</b>	-	Mayor, head of German business club, head of German council, local town representative, two professors at local university	Chamber of commerce representative, one university professor, one university representative	7 interviews approx. 11 hrs.
<b>Total</b>	6 initial interviews, 11 hrs + 13 additional interviews, 16hrs	11 interviews, 15 hrs	6 interviews, 12 hrs	36 interviews approx. 54 hrs.

Table 2: Characterization of National and Local Context Conditions

<b>National Context Conditions</b>	
<b>Romania</b>	<b>China</b>
<p><i>Factors important to ASC:</i> low wage levels on average (average gross weekly private sector earnings: €66) = 10% of German average wages and less than half of Czech, Hungarian or Polish wages (FEDEE 2006); well-educated, partly German-speaking S&amp;E workforce; nearshore location for German companies</p> <p><i>Challenges perceived by ASC:</i> Limited supply of S&amp;E professionals; risk of high employee turnover and wage inflation over time</p>	<p><i>Factors important to BSC:</i> relatively low wage (weekly pay of urban workers: €34, FEDEE 2006); large, well-educated S&amp;E workforce (GEREFFI et al., 2008); access to potential market; Western OEMs present since 1980s (CAE&amp;NRC, 2003; HOLWEG et al., 2004)</p> <p><i>Challenges perceived by BSC:</i> Intellectual property protection, limited English/German language capabilities, wage inflation and high employee turnover at hotspot locations</p>
<b>Local Context Conditions</b>	
<b>ASC in Carpati</b>	<b>BSC in Shanghai</b>
<p><i>Size:</i> Midsize city, low number of competitors at time of entry</p> <p><i>Supply of Engineers:</i> Technical University producing engineers with basic qualification (Number of S&amp;E students: 1,500)</p> <p><i>Other relevant location factors:</i> nearshore location for ASC (Northwestern part of Romania - Siebenbuergen); cultural proximity through ancestors of early German settlers (12<sup>th</sup> century); ‘German’ institutions: German consulate, mayor from German minority (‘Transylvanian saxxons’), German business club, perceived “German working mentality”</p> <p><i>Degree of sophistication of field practices and institutions:</i> Relatively low; no experience with higher-skilled offshore investments in general and engineering in particular; university curricula outdated, most graduates leave after graduating</p> <p><i>ASC’s position at time of entry:</i> Powerful pioneer investor; important role model for followers from Germany in particular</p>	<p><i>Size:</i> Large city, high number of competitors at time of entry</p> <p><i>Supply of Engineers:</i> several technical universities with specialized faculties, German language courses (Est. number of S&amp;E students enrolled at top three schools: &gt;50,000)</p> <p><i>Other relevant location factors:</i> one of China’s big automotive clusters, beside Changchun, and Guangzhou (see also HOLWEG et al., 2004; LIU and DICKEN, 2006). Headquarters of major automotive OEMs, hotspot location, attractive place for engineers and expatriates, available suppliers and headhunters</p> <p><i>Degree of sophistication of field practices and institutions:</i> Relatively high; many years of experience with higher-skilled offshore investments in general and engineering in particular; local institutions (e.g. universities) provide services to Western MNCs</p> <p><i>BSC’s position at time of entry:</i> One of many latecomers; limited power as individual investor</p>

Figure 1: Case selection, analysis, and interpretation

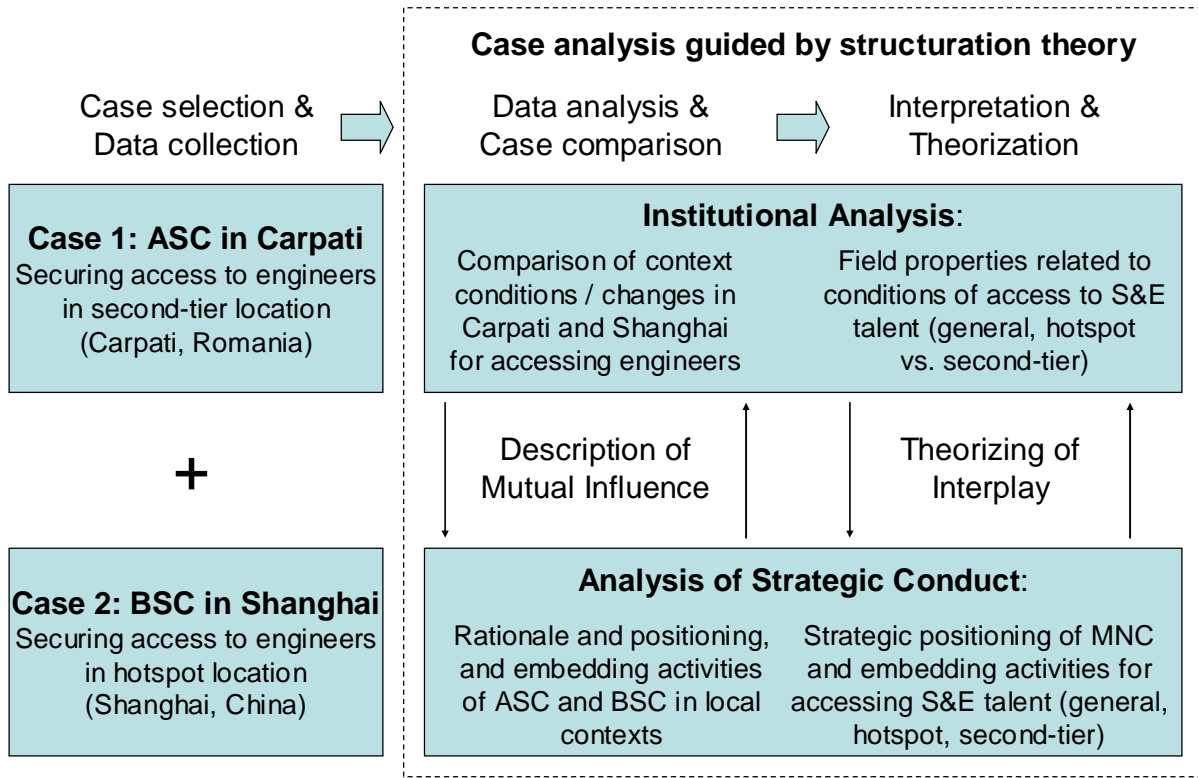


Figure 2: Local Practices of Securing Access to Engineers in Carpati

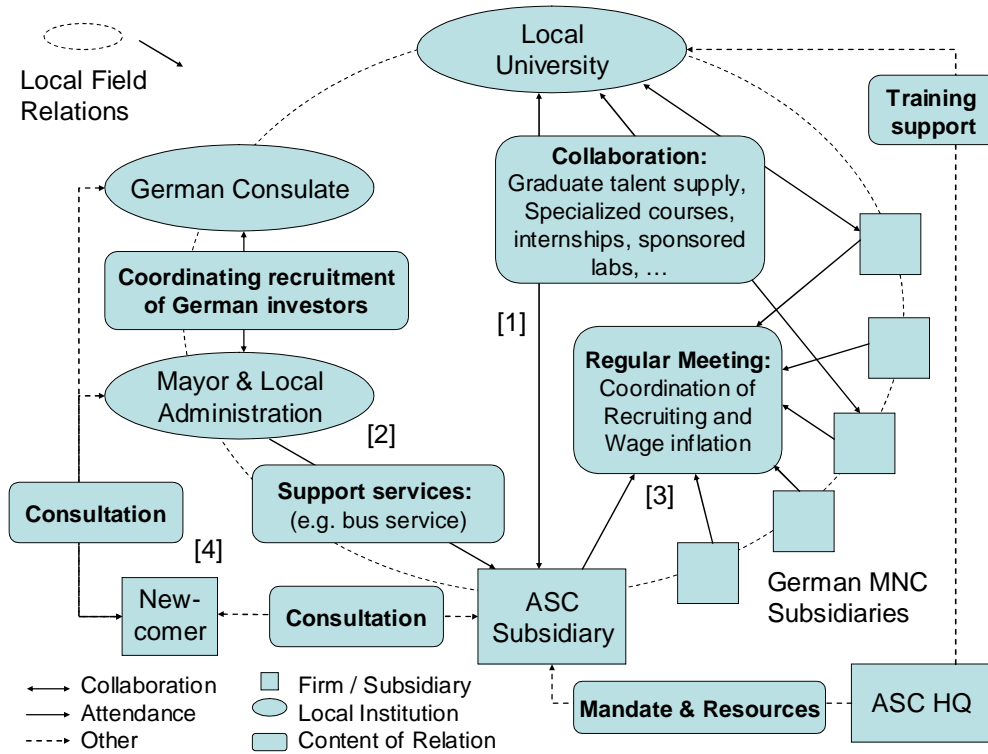


Figure 3: Local Practices of Securing Access to Engineers in Shanghai

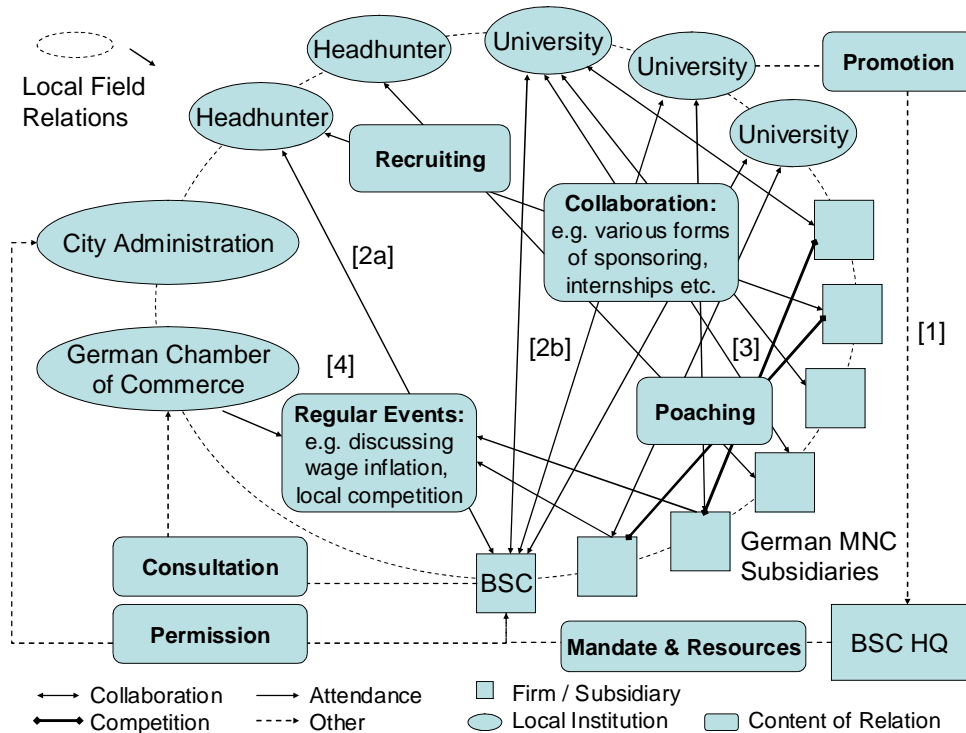


Figure 4: The Dynamics of Active Embedding and Field Structuration

