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RESEARCH NOTE

# Catching up by hiring: The case of Huawei

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**Abstract**

Hiring experts in centers of state-of-the-art technology is an important way in which a multinational enterprise (MNE) can gain competitive advantage, and yet use of this mechanism remains under-researched. This study uses the case of a Chinese MNE that recently achieved a leading position in the telecommunications market: Huawei Technologies. Taking the perspective of Huawei's offshore hires, I find that greenfield investments contributed to overcoming liabilities of origin and outsidership in the global telecommunications industry. Nevertheless, even now that Huawei has caught up with industry incumbents, its output capabilities remain dependent on the innovation capabilities of its offshore experts.

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## INTRODUCTION

Latecomer companies, especially those in knowledge-intensive and innovative industries, have become more visible in the last decade through their global R&D activities (Awate, Larsen, & Mudambi, 2015; Di Minin, Zhang, & Gammeltoft, 2012; Papanastassiou, Pearce & Zanfei 2019). To reduce the gap between themselves and incumbents (Mathews, 2002; Mudambi, 2008), latecomers are increasingly investing in international centers of innovation as springboards to global competitiveness (Luo & Tung, 2007). Although some latecomers have been able to build the capabilities needed to catch up with (and even surpass) more established competitors (Luo & Zhang, 2016), we still do not fully understand the mechanisms that allow them to gain a place among global players.

A particularly promising, but as of yet under-researched mechanism, is the hiring of experts at offshore locations (Almeida & Kogut, 1999; Song, Almeida, & Wu, 2003). I investigate how the establishment of foreign greenfield R&D subsidiaries can be a low-profile alternative to the better-researched catch-up mechanism of acquiring foreign high-tech firms and also how the experts at those subsidiaries can contribute to global competitiveness beyond providing access to knowledge.

I carry out an in-depth case study of the Chinese telecommunications equipment manufacturer Huawei Technologies Co. Ltd.

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(Huawei), which is known for strategically hiring R&D experts outside its home country, earning it a reputation for intense knowledge sourcing. Huawei stands out because of the rapidity with which it caught up with the industry leaders in telecommunications, surpassing them in terms of annual revenue and patent applications at the World Intellectual Property Organization (WIPO) (Lee, Joo, & Oh, 2016). In fact, Huawei was a technological leader in China but had little left to learn in its home country so it turned abroad to access state-of-the-art knowledge (Boutellier, Gassmann, & Zedtwitz, 2008; Fan, 2011). In order to hire senior experts, it set up R&D units close to competitors, a strategy used previously by Korean MNEs (Lee & Lim, 2001). Huawei's reliance on offshore hiring to catch up makes it an ideal subject for a case study exploring how hiring offshore experts can provide competitive advantages. To identify the micro mechanisms of its catch-up process, I explicitly take the perspective of the offshore experts in over 40 qualitative interviews at eight different R&D locations. I identified potential interviewees using an original Huawei patent and scientific publication dataset, which I also used to analyze the timeline of Huawei's global R&D activities. I concentrated on the period leading up to Huawei's global breakthrough to show how the company achieved competitive advantage from a latecomer position.

I contribute to the literature on R&D internationalization and entry modes by investigating mechanisms of a latecomer's greenfield investments. Catching up by hiring goes beyond learning-by-hiring. To catch up, firms must overcome liabilities of origin and of industry outsidership, and they can do that with offshore hires embedded both in the firm and in industry networks. I also uncover the strong connection between Huawei's output capabilities and the innovation capability of its offshore experts.

## THEORETICAL BACKGROUND

### Literature

I build on the Luo and Tung (2007, 2018) notion that outward foreign direct investment (FDI) serves as a springboard for latecomer companies attempting to build competitive advantage and overcome latecomer disadvantages. Jumping off the springboard allows latecomers to leverage home-country competences and to make use of new opportunities abroad at the same time, which is in line with the dynamic

capability argument (Grøgaard, Colman, & Stensaker, 2019; Luo & Tung, 2007; Teece, Pisano, & Shuen, 1997). Competitive advantage can be built by combining already-existing advantages, such as Huawei's low labor costs and reputation for outstanding customer service, with new capabilities like technical and innovative skills.

Latecomer companies are under pressure to compete globally while simultaneously defending their home market against established rivals (Hsu, Lien, & Chen, 2015; Luo & Tung, 2007). A common strategy for latecomers is to try to move from lower to higher value-added activities in global value chains by acquiring state-of-the-art technology from incumbents (Mathews, 2002; Mudambi, 2008), saving themselves the time it took others to develop those technologies (Chen, 2004). Asian companies are especially known for strategically gaining expertise from abroad (Child & Rodriguez, 2005; Poon, Hsu, & Jeongwook, 2006). Earlier studies have looked at Korean and Taiwanese latecomers who caught up in the 1970s, Samsung and LG Electronics for example (Cho, Kim, & Rhee, 1998; Lee & Lim, 2001; Miao, Song, Lee, & Jin, 2018). I analyze a company from China as a more recently emerging economy, and specifically focus on its "emerging phase" in an effort to detect capabilities that latecomers need in order to create competitive advantage (Hernandez & Guillén, 2018).

Global incumbents benefit from international networks that have historically evolved (Meyer, Mudambi, & Narula, 2011). Latecomers, on the other hand, need to find ways to enter these despite their lack of connections and global industry embeddedness (Cantwell & Mudambi, 2011; Johanson & Vahlne, 2009). I propose that one strategy that can help overcome such restrictions is to leverage the inherent embeddedness of locations where employees, companies, and stakeholders are already integrated in global industry networks. Here, the offshore expert dual embeddedness can provide the firm that hires them with not only an entrée into the local context, but more importantly a way into the global industry network.

Latecomers may also suffer from liabilities of origin. Emerging market firms in particular often have to contend with stereotypes that stem from the behavior of other home-country actors, including other firms and governments (Asmussen, 2009; Fiaschi, Guilian, & Nieri, 2017). Being an industry outsider from China added to Huawei's struggle to enter the global telecommunications industry. Not only industry incumbents attempted to block it,

but some Western governments such as the US did as well (Chung & Mascitelli 2015). Given the additional obstacles it faced, the question is how Huawei managed to become a global technology leader.

According to the springboard perspective, the acquisition of foreign firms is the main means of accessing state-of-the-art knowledge (Luo & Tung, 2007), but there have been recent calls in the literature to shift the focus on other investment modes such as greenfield investments (Kumar, Singh, Purkayastha, Popil, & Gaur, 2019; Luo & Tung, 2018). Many scholars have assumed that acquisitions are made to obtain strategic assets such as technology and brands and that they can offer fast access to the business network of an acquired firm, while greenfield investments, which entail building facilities from scratch, have thus far been mainly ascribed to market-seeking motives (Anderson & Sutherland, 2015; Rui & Yip, 2008; Klossek, Linke, & Nippa, 2012). In this regard, Huawei is an atypical case, as it pursues knowledge-seeking strategies through the establishment of greenfield R&D subsidiaries, thus the analysis contributes to closing a gap in our understanding of mechanisms of greenfield investments in knowledge-seeking R&D internationalization (Anderson & Sutherland, 2015).

Instead of acquiring firms for their knowledge, Huawei hires offshore experts, who are experienced technical experts from technologically advanced competitors or research institutions at Huawei's offshore locations, in order to tap their experience and technical know-how. The extant literature recognizes the hiring of offshore experts as a way to obtain state-of-the-art knowledge; ergo, learning-by-hiring (Almeida & Kogut, 1999; Song et al., 2003). Those experts have tacit and complex knowledge that is not easily codifiable, which can be used to build up the company's knowledge stock (Argote & Ingram, 2000). Incumbents on the other hand are eager to preserve their competitiveness and attempt to reduce the inter-firm mobility of highly qualified employees through non-compete contracts and the threat of patent litigations (Campbell, Ganco, Franco, & Agarwal, 2012; Ganco, Ziedonis, & Agarwal, 2015). In order to better understand the value of offshore experts for Huawei, in this study I do not, as some have, focus solely on learning mechanisms, but adopt a broader perspective, analyzing the eclectic role of experts in creating competitive advantage. I achieved this by conducting interviews using an exploratory

approach leveraging the experts' point of view in order to allow for new insights into catching up by hiring. I was able thus to go beyond learning-by-hiring and show how offshore experts improve Huawei's embeddedness in global telecommunications industry networks.

### Context and Development

When Huawei was founded in the late 1980s, global players from Western countries such as Ericsson, Siemens, Nokia, Motorola, Alcatel, Nortel, and Lucent dominated the telecommunications industry. In the early 2000s, the bursting of the IT bubble started a wave of consolidations that created Alcatel-Lucent and Nokia-Siemens-Networks, and eventually led to Nortel's bankruptcy in 2009 (Lee et al., 2016). This was an important factor in the development of Huawei, China's own telecommunications market was another. When the Deng Xiaoping Open Door Policy began in 1984, Chinese telecommunications technology lagged behind that of the West by some 20 years. By the time Huawei was founded, there was huge pent up demand, especially in rural areas (Mu & Lee, 2005). It first sold cheaper low-end telecommunications infrastructure equipment in the countryside, which allowed it to avoid head-to-head competition with more technologically advanced foreign competitors, which were instead concentrating on large urban areas (Lee et al., 2016; Li & Cheong, 2016). Once its domestic market reached a certain degree of saturation, Huawei expanded sales to other emerging markets, India and Russia, and a number of countries in Africa and Latin America (Lee et al., 2016; Micheli & Carrillo, 2016). Leveraging its low prices, familiarity with rapidly changing political conditions, and the political ties between its home country and host countries, Huawei's strategy was to become big by first winning emerging markets (Cooke, 2012; Li & Cheong, 2016; Micheli & Carrillo, 2016). Again Huawei avoided direct competition with global players while it built expertise and grew.

The next step was to tackle the low quality of its products. In the mid-2000s, it started to expand its R&D activities to global innovation centers outside China. Today, Huawei does its most impactful R&D offshore, as shown by the fact that its higher-quality patents are created by its offshore in contrast to domestic employees (Schaefer & Liefner, 2017). Geographic, cultural, and institutional distance had little impact on the sequence of Huawei's R&D investments, as the company entered Western



technology centers such as Silicon Valley early on in 1993 (Fan, 2011). Huawei's disregard for cultural and institutional distance was a result of the company following the location choice of global industry leaders, but this proved a major hurdle for the company for gaining legitimacy. Still now, Huawei's strategy prioritizes internal innovations over acquired ones, thus it locates close to competitors in order to hire technological experts (Chang et al., 2017). Cooke (2012) observes that Huawei's offshore subsidiaries usually start out with a small team of Chinese expatriates who then hire local employees. Huawei also upgraded its technological capability through strategic foreign R&D cooperation—for example, it formed alliances with Texas Instruments, Sun, and Intel (Lee et al., 2016), and in the early phase of internationalization pursued fast and unidirectional knowledge absorption from university collaborations (Liefner, Si, & Schaefer, 2019).

As a privately owned firm, Huawei did not receive financial incentives from the China Development Bank as did its state-owned competitors. This did not change until the mid-2000s when the Chinese government helped it in its efforts to internationalize as part of the Going Global Policy. That support enabled the company to expand its sales to established markets, which it again did by initially selling products at very low prices in order to build a customer base (Cooke, 2012; Micheli & Carrillo, 2016; Nolan, 2014). Unlike its experience in emerging markets, in the West Huawei came up against a hostile political climate, the US even accusing Huawei of espionage, an accusation some see as directed at the Chinese government (Cooke, 2012; Chung & Mascitelli, 2015). Just as it had stymied state-owned Chinese companies previously, the US government stood in the way of Huawei making acquisitions and barred it from bidding for national network projects, causing Huawei to focus on European, Canadian, and Australian markets (Anderson & Sutherland, 2015; Chung & Mascitelli, 2015; Nolan, 2014). Despite these roadblocks, by 2008 Huawei became the number one patent applicant at WIPO and in 2012 surpassed industry leader Ericsson in annual revenue (Lee et al., 2016). Huawei was a late entrant in the standardization process for the fourth generation of wireless systems (4G), but it became a main contributor to the fifth (5G).

When making generalizations from case studies, one needs to take into account its specificities (Brinkmann & Kvale, 2018; Yin, 2014). In Huawei's

case, this includes government-provided advantages (Gaur, Ma, & Ding, 2018) such as access to cheap capital, which allows the company to take greater risks, a bad reputation in the West, even in comparison to other Chinese companies, and geopolitical risk, as the latest developments in the trade dispute between the US and China demonstrate.

## METHODS

### Research Design

To answer “how” using the among Chinese MNEs uncommon strategy of hiring offshore experts instead of acquisitions helps Huawei to create competitive advantage on a global scale, a case study design was deemed most appropriate because of the high complexity of the phenomenon (Birkinshaw, Brannen, & Tung, 2011; Ghauri, 2004; Marschan-Piekkari & Welch, 2004; Yin, 2014). This research design makes it possible to unbundle interrelated and consecutive processes; for instance, experts at offshore locations using their contacts to approach further potential employees, which starts a self-reinforcing spiral that helps the business unit and its network to grow. Previous research has identified a lack of qualitative studies when it comes to knowledge-seeking subsidiaries, leading to a lack of in-depth understanding of the phenomenon (Michailova & Mustaffa, 2012). Doz (2011:587) argues that a qualitative study can make a crucial contribution as it “allows a conceptualization from the standpoint of the actors at work”. The research design I adopted for this case study allows me to tap into the perspective of offshore experts in order to uncover their role in the company's catch up. In order to capture variations between locations, I interviewed experts at Huawei's major patent- or scientific publication-producing offshore R&D labs (Birkinshaw et al., 2011), hence the R&D subsidiaries form the meso-level of analysis. The aggregated level of analysis is the company itself, and the goal is the big picture, Huawei's R&D internationalization. The case is embedded in the context of the global telecommunications industry, as the interviewees all have profound knowledge of the industry and are able to situate their experience within the context of the industry, providing both an insider's and an outsider's perspective on the company. This means that the study has features of an embedded case study method as well as a multiple case study design (Yin, 2014).



Some interviewees were current Huawei employees, others former ones. Another feature of the study design intended to ensure critical distance from the company is that I did not ask managers about their aims, but instead asked engineers about their practical tasks. This provided a check on the kind of one-sided company-created narratives Tokatli (2015) warns are the 'dark side' of firm-centric case studies. In line with this, I adopted an exploratory approach with mainly inductive category building to stay open to new interpretations of the offshore expert role in generating competitive advantages (Doz, 2011; Flick, 2018).

### Data and Analysis

The main findings of my qualitative analysis are drawn from semi-structured interviews. I identified potential interviewees and obtain a broader picture of the company's R&D activity using three databases, PatentsView for data from the United States Patent and Trademark Office (USPTO), PATSTAT for the European Patent Office (EPO), and Elsevier's Scopus for publication data. The experts I selected to ask for an interview were either at the time or previously employed at an offshore location of Huawei Technologies or at Huawei Device, Futurewei or HiSilicon, Huawei subsidiaries. As the inventors listed on patent applications filed by Huawei are not necessarily employed by Huawei (Ge, Huang, & Png, 2016), I used online social media platforms such as LinkedIn and ResearchGate to investigate which experts were, or had been, employed by the company. There is a clear break point in the number of patents and scientific publications per location, eight of them being far and away the most active: Munich, Stockholm, Dallas, San Jose, San Diego, Bridgewater, Chicago, and Ottawa. Together they account for more than 90% of Huawei's offshore patents filed with the USPTO and 88% with the EPO, as well as 73% of all offshore scientific publication activity. I contacted 233 inventors using LinkedIn and e-mail and was able to do 42 interviews. I carried out interviews between February and September 2017, some in person, others via Skype or telephone; in one case I conducted a follow-up interview. I decided against inclusion in the analysis of one interview simply for lack of usable information. Twenty-four of the remaining 40 interviewees were located in the US and Canada, 14 others in Europe. Two interviewees did not have a fixed location.

The majority of interviewees were offshore experts, that is, they were experienced technical

experts whom Huawei hired from technologically advanced competitors or research institutions outside of China and two interviewees were Chinese expats, educated in China and previously employed by Huawei China. In addition to their professional experience, all of the offshore experts had a tertiary education at one of the universities located in Western hotspots of the global telecommunications industry. Four of the interviewees had a Chinese university undergraduate education before getting a higher degree or taking an academic position abroad. These interviewees were able to provide a cultural insider's perspective. Many of those interviewed in the US and in Canada were from India or a country in South America, the Middle East, North Africa, or East Europe, but all of them had had some education in North America or had worked there before Huawei hired them. Those interviewed in Europe were mostly from within Europe. The interviewees without exception were males. This is reflective of the industry as I was able to identify less than 0.1% females among the offshore inventors and none agreed to an interview. Finally, across the board, former employees were more open to sharing insights than current ones, the latter were also reluctant to share negative experiences.

The main questions posed in the semi-structured interviews are provided in the "Appendix". There are three blocks of questions, the first about previous employment, coming to work at Huawei, and the particular lab joined, the second about external contacts and influence, and the third about their tasks and role within Huawei. The professional background responses provide information about the kind of knowledge and contacts Huawei is able to access abroad. Responses to the second set of questions provide information about the extent of external contacts and how they might be used, as well as the possibility of external barriers to Huawei's operations. Finally, responses to questions about tasks and work partners within the company throw light on the internal role of experts. I employed qualitative analysis software using MaxQDA. Coding the text helped me to identify general patterns as well as complex interrelationships. The main codes follow the guidelines of the semi-structured interviews and therefore are based on theoretical considerations. All of the sublevel categories evolve from open coding, using an exploratory research approach to generate findings from the micro-level (Gibbs, 2018). I compared the interviewees' responses using cross tables that

**Table 1** Interviewee variables

Name of thematic set	Variables	Number of interviewees
Location: city level	Dallas/San Jose/San Diego/Bridgewater/Chicago/Ottawa	24
	Munich/Stockholm	14
	Undefined	2
	USA/Canada	26
Location: regional level	Europe	14
	Current	16
Employment status	Former	24
	Former	24
Employment length	< 4 years	16
	4–7 years	15
	> 7 years	9
Former employer	Academia	12
	Competitor	26
	Huawei China	2
Cultural background	Chinese	6
	Non-Chinese	34
Position	R&D	35
	Management	2
	Sales	3
Huawei's R&D internationalization	Early activities (< 2009)	15
	Rapid expansion (2009–2013)	34
	Take-over (> 2013)	22
	Take-over (> 2013)	22

split the material along variables used to process background information on the interviewees. Table 1 shows the interviewee variables by theme and the number of interviewees per category. This is not intended to quantify the qualitative data or imply that the interviews can be weighed in anyway against one another, but to give a more transparent overview of the material.

To preserve confidentiality, I coded the material alone in two iterations at different points in time in order to bolster coding reliability and to ensure analysis quality. I shared my findings with one of the interviewees who I found had provided exceptionally broad insights and used his feedback to critically review the results (Brinkmann & Kvale, 2018).

A limitation of the data is that it only shows the parts of Huawei's R&D that resulted in patents and scientific publications. Nevertheless, Huawei is known to encourage patenting and strongly incentivizes employees to do so. This is why the data is a good proxy for the company's R&D activity in Western markets. Another limitation is that the perspective of offshore experts does not reflect the

intentions of the company's management. This means that it is difficult to know if management decisions were made deliberately or in response to circumstances.

Further, a review of print media on the topics of Huawei appointing foreign retired officials and politicians to local boards and hiring lobbyists shows its efforts to obtain political expertise. I searched Google News under "Huawei" with keywords "lobby\*", "board", "board member\*", "hire/hiring", and "official\*". Table 2 in the "Appendix" gives an overview of 17 articles appearing between 2010 and 2015 in Australia, the UK and the US.

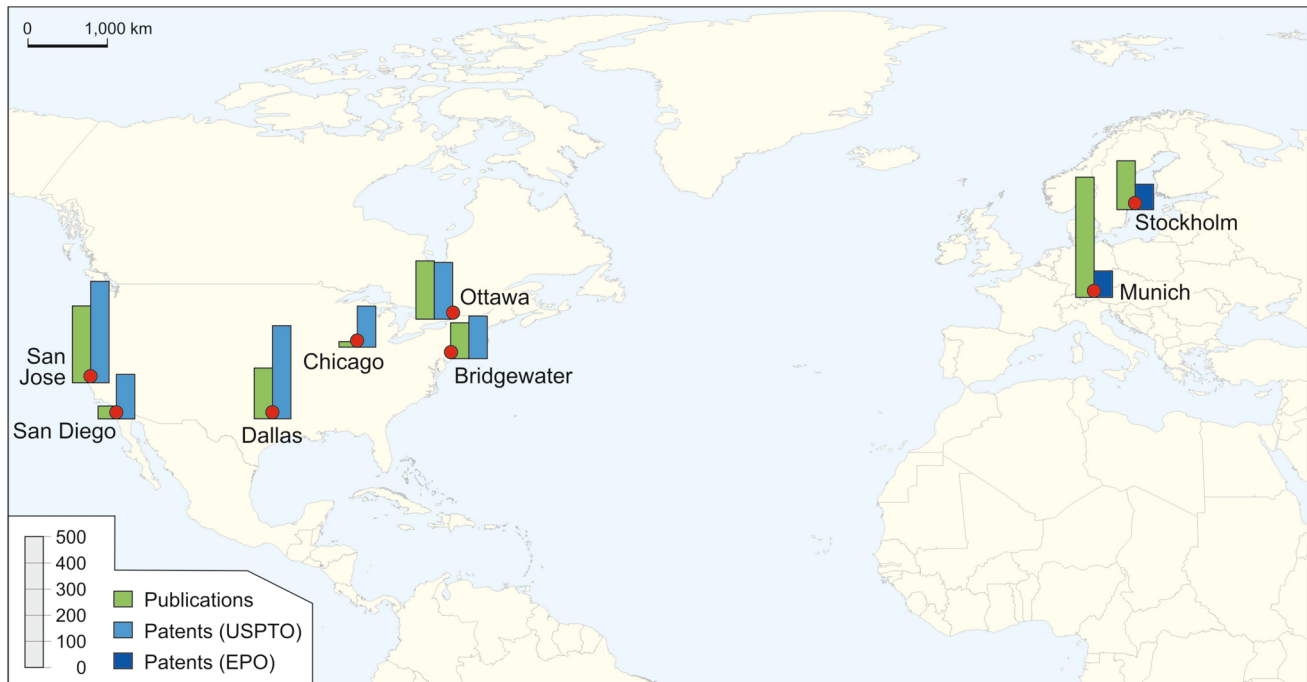
## RESULTS AND DISCUSSION

### Huawei's Offshore R&D in the Global Context

The publicly available data on Huawei's offshore R&D is neither detailed nor consistent, therefore I use patent and scientific publication data to track the company's activity. Figure 1 provides an overview of activity at Huawei's main offshore locations. Differences in patent regulations between the USPTO and the EPO make it impossible to directly compare the number of patents filed between them, although I am able to illustrate in the figure Huawei's intense R&D output, especially in the US, which is remarkable given that the company has very few sales in that market.

The interviews make clear that Huawei's R&D location choices abroad often followed the location of competitors. The downsizing of a rival could mean an opportunity for Huawei to hire experts without running into non-compete agreement problems. The company targeted Ericsson experts and set up its own facilities in Stockholm and San Diego when the Swedish firm downsized in those cities. Huawei also appears to have been motivated by the bankruptcy of Nortel to open a facility in Ottawa where it was able to hire entire teams that lost their jobs.

Moreover, following the location of competitors provides access to established infrastructure for a particular technology at a given location, such as university departments focusing on technology in which Huawei was interested in the case of Ottawa and Munich. In San Diego and Dallas Huawei was able to tap into supplier and customer networks. Hiring from competitors is not uncommon in the industry, but interviewees emphasized the extent to which Huawei used them was unusual. In some cases, Huawei located offices only meters from



Locations with  $\geq 5$  scientific publications and  $> 1$  patent or  $\geq 10$  patents per year, number of scientific publications and patents per location  
Data: Scopus / EPO / USPTO, map design by Stephan Pohl

**Figure 1** R&D output of Huawei's offshore locations.

competitors. That was seen by some in the industry as being aggressive, but many employees welcomed the job option at Huawei after losing their previous job. Depending on the shortage of local alternatives, such as in Ottawa compared to the many opportunities in San Jose, many of them did not have to relocate because of the job at Huawei. This is not to say that all experts were “pushed” to work for Huawei. Huawei was offering higher salaries and a range of perks including more professional freedom.

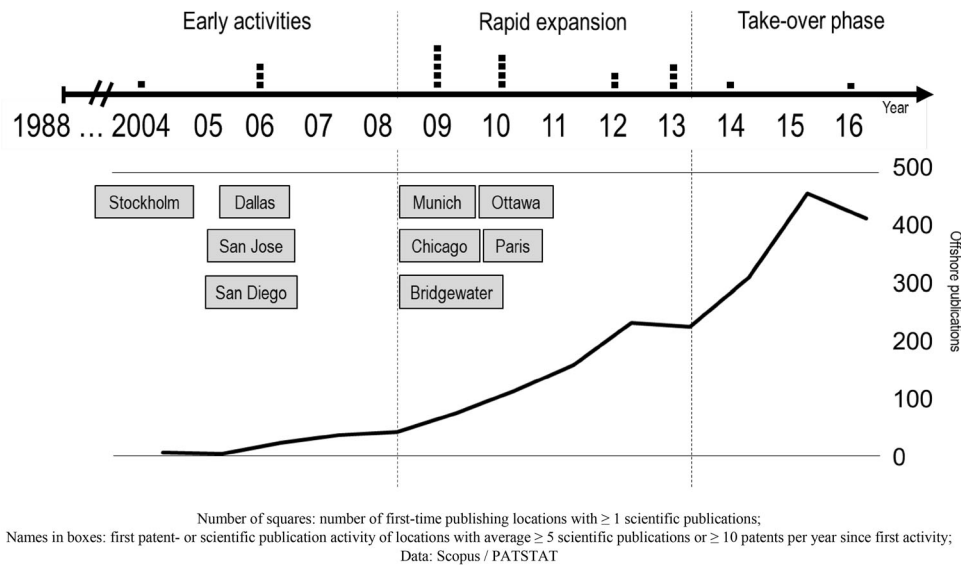
Each of Huawei's offshore labs specializes in a different portfolio of technologies. As it follows the competition, those portfolios are driven by the focus of competitors and by extension by the key personnel Huawei might be able to hire. In other words, Huawei's offshore experts influence the company's local specialization. For example, in Dallas, the primary focus is on telecommunications, whereas in Silicon Valley it is on Internet products. Likewise, in some locations there is more cooperation with universities than in others that tend, for instance, to concentrate on work in standardization.

Figure 2 distinguishes between three different phases in Huawei offshore R&D output, starting

with the first from the Stockholm lab in 2004 followed by smaller labs in Dallas, San Jose, and San Diego in 2006. Interviewees from Stockholm explained that Huawei started there under the name Atelier Telecom to avoid attracting attention; it was renamed Huawei in 2004. The oldest locations in the US are Dallas, San Diego, and some minor activities in Silicon Valley. Between 2009 and 2013, Huawei started to expand its offshore R&D more rapidly and, early in this phase, major locations in Munich, Chicago, Bridgewater, and Ottawa started generating output. In addition, Huawei's labs in Silicon Valley became more active around 2011. After Huawei overtook its competitors in terms of revenue in 2014 (the take-over phase in Figure 2), there was another surge in output, but fewer new locations. This coincides with heavy recruiting by Huawei to take advantage of some industry incumbents cutting back as the fourth generation of wireless systems (4G) was at the end of its technological life cycle and the fifth (5G) not yet ready for the market.

Very early in its R&D internationalization process, Huawei emphasized patenting to increase its portfolio and improve its position in negotiations for license fees. The company filed a tremendous





**Figure 2** Development of Huawei's offshore R&D.

number of them, primarily to signal technological competence. Recently, Huawei has changed course, not concentrating on their quantity, but filing patents for high-quality ones.

### The Role of Offshore Experts

The role of the offshore experts during Huawei's entrée in the global industry fall into five categories: contacts, perceptions of reliability and reputation, experience, technical knowledge and language. The first two of the five are related to embeddedness while the latter three correspond to skills. Table 3 in the Appendix provides a detailed overview, while Figure 3 gives an overall picture.

Hiring embedded offshore experts contributed to overcome the vicious circle of barriers, such as lack of skills, reputation and contacts, that blocked it from competing in the industry and contributed to reverse this process. Figure 3 shows how hiring those experts started a recurrent process, similar to the upward spiral of the springboard perspective (Luo & Tung, 2018), that gradually helped Huawei to improve its position in the global telecommunications industry.

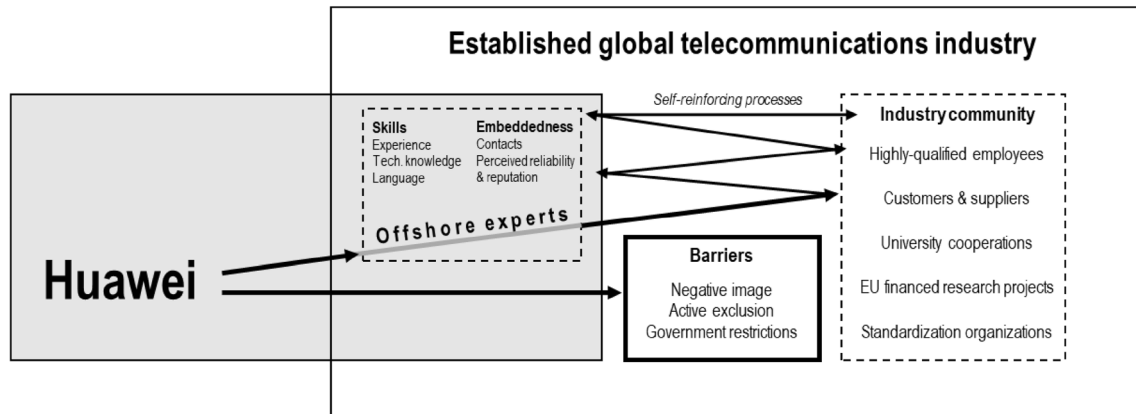
The figure displays the dual embeddedness of the offshore hires by visually embedding them into the context of Huawei at the same time as in the context of the established global telecommunications industry. The two arrows represent Huawei's access to qualified employees, customers, universities, research projects, and standardization organizations: One is interrupted by barriers, such as a negative image, exclusion and government

restrictions, symbolizing the difficulties of gaining access; the other arrow shows how offshore experts helped to overcome these barriers with their skills and embeddedness. The dynamic of the model is shown by the arrows that build upon each other and bounce back and forth between Huawei and its offshore experts and the industry, in a recurrent process that facilitates more and more access with every iteration. For example, hiring highly skilled employees provides state-of-the-art knowledge used to create new technology, which can be patented and become part of standards, and thus improve Huawei's reputation and attractiveness for potential new highly skilled employees. Therefore, the need to bridge disadvantages through offshore experts decreases over time as the company builds its own network and reputation abroad, catches up on technical skills, and gains more global experience.

Overall, Huawei seeks technology as well as legitimacy by hiring skilled and embedded experts abroad. Even if most offshore experts fulfill both roles, it makes sense to distinguish between these two hiring motivations.

### The Role of Skills

Huawei hires senior experts with experience in the industry or with doctoral degrees from foreign universities. The company is unusual in that it does not provide skills development opportunities for experts outside of China, which is unusual, compared to other employers. In contrast, Huawei hires at home mostly young university graduates,



**Figure 3** The role of offshore experts in Huawei's catch up.

who are described as very smart but still inexperienced by some of the interviewees. Offshore experts are implicitly tasked to share their experience with young hires as they work on joint projects, for instance attending together standardization meetings during which those with more experience might tutor those with little on how to negotiate successfully. However, offshore experts, from Canada and the US in particular, emphasized that they are not allowed to share restricted technologies, for instance those with military relevance, with their Chinese colleagues.

I list in Table 2 print media about foreign retired officials and politicians working for or with Huawei. The company seeks political expertise about host markets, in particular for its market-seeking offshore activities in Australia and the UK, mostly from individuals who have a background in the areas of trade and investment, IT technology, foreign or domestic policy, and defense or cyber security. They have helped Huawei with strategic issues and with bidding for government contracts.

In a similar way, technical offshore experts have used the skills they have honed through longstanding experience in the industry to help Huawei's catch up by facilitating the company's participation in standardization committees and in EU-financed research projects. In short, Huawei has been able to make use of its experts' knowledge about informal industry policies and customers technological requirements. Offshore experts have also helped make up for a lack of English fluency, which is an industry requirement that many Chinese engineers cannot meet in spite of English being the official language of the company. Offshore experts have also brought to bear their technical knowledge, by which I mean the kind of

knowledge gained through university education, to generate patents, and state-of-the-art technical solutions for customers, represent the company at conferences, and contribute to industry standard-setting committees. Each of these was important in bridging the knowledge gap between Huawei's domestic R&D and that of global industry competitors. Nonetheless, interviewees report that while that gap is rapidly closing, Huawei remains behind when it comes to innovative skills. Thus, one of the main tasks for offshore employees is to create novel product ideas—ones that can be developed and produced by a larger and less costly workforce in China. Locating the more work-intensive task of development in China not only saves costs but allows for better alignment of development and production. Such division of tasks enables Huawei to make better use of its competitive advantage, but on the negative side, it exposes the company to knowledge spillovers, loss of information in the transfer process, and political risk in host countries.

Putting these findings in the context of the literature, the interviews confirm that leveraging the experience and the product knowledge that offshore experts gained while working for top competitors enables Huawei to produce state-of-the-art products without having to first learn how to create them itself. The extant literature holds that while companies can gain output capabilities by acquiring technologies directly related to a specific product, experience and knowledge of the overall technology is needed for innovation capabilities (Awate, Larsen & Mudambi, 2012). Singh and Agrawal (2011) also challenge the idea of learning-by-hiring, as they find that companies use their newly hired employees' knowledge



directly instead of integrating it. At the same time, it may be more attractive for firms to invest in output capabilities in the early stages of internationalization because that is likely to provide quicker returns than the longer-term process of acquiring innovation capabilities by integrating the knowledge of experts. Huawei relies on the innovative ideas of its foreign experts and uses them to bridge its own lack of innovation capabilities.

**Proposition 1:** Hiring experienced and knowledgeable offshore experts can be a means of directly accessing the innovative input needed for developing state-of-the-art products—even before the rest of the company has caught up on innovation capability.

### The Role of Embeddedness

Being an industry outsider initially made it difficult for Huawei to hire the best people, but became easier over time as the company became better known and increasingly embedded. One strategy used to overcome the difficulty of hiring key people was to offer them greater professional freedom, including allowing them to build their own teams, which they often did by recruiting former colleagues. In that way, Huawei gained access to experts and other experts known to them. Huawei offered other strong incentives as well like lucrative bonuses and exceptionally high salaries—in some cases doubling what had been earned before. Interviewees reported that such benefits had to be weighed against long-term job market prospects being harmed by working for Huawei as its reputation in the global industry was one of technological backwardness and lacking reliability. There were also push factors, for instance the earlier mentioned experts who had worked for Nortel in Ottawa or Ericsson in Stockholm had few good alternative employment options if they wanted to stay where they were.

Huawei benefited not only from the contacts of former colleagues of their offshore experts, but from their strategic contacts within the industry at large as they served as door openers to customers and to suppliers, such as AT&T and Qualcomm, and to research collaboration with prestigious universities. Some interviewees reported that this was only partially successful as some of their contacts became unusable when they joined Huawei, as former colleagues tended to see the company as unreliable. Huawei tried to improve its image by bringing on board highly respected figures in the

industry in order to signal that the company was technologically competent to customers and in standardization (see Table 3). Moreover, the offshore experts' higher cultural proximity in comparison to their Chinese colleagues improved Huawei's reliability in the eyes of Western business and research partners.

Huawei appointed ex-military officers, former heads of industry, and retired UK and Australian government officials to be non-executive directors of the local boards of its foreign subsidiaries (See Appendix Table 2). The articles reveal that Huawei wanted the appointees both to advise Huawei's management and to improve the way in which the company was seen. Huawei also hired lobbyists in Washington in an attempt to change the image of the company among US politicians, an effort that appears not to have been successful.

The analysis of the interviews uncovers that the offshore experts believe that a main barrier for Huawei is its lack of legitimacy among global industry stakeholders. Prior research has shown that negative impressions can in part be due to cultural and institutional distance such as that between China and the West. In the case of Chinese companies, this seems to stem from allegations of excessive government influence on companies (Child & Rodriguez, 2005; He & Lyles, 2008; Si & Liefner, 2014). Western host countries often depend on producing sophisticated technology for the world market and are concerned about losing critical technologies, in some cases even of military relevance, to foreign competitors (Meyer, Ding, Li, & Zhang, 2014). The Chinese military career of founder Ren Zhengfei compounds the problem as the principal Huawei product is telecommunication infrastructure which is particularly vulnerable to foreign intelligence. For these reasons, Chinese attempts to make investments in the West are often received with skepticism if not with outright hostility (Buckley, Clegg, Voss, Cross, Liu, & Zheng, 2018). The US government has from early on blocked Huawei's acquisition of US companies, claiming national security reasons.

In addition to placing former politicians and other nationally known figures on subsidiary boards, Huawei has tried to overcome liabilities of origin by making greenfield investments rather than acquisitions. Host countries tend to see greenfields as less invasive than acquisitions and more legitimate, and because the investor public profile is also lower they are less likely to attract media attention (Buckley et al., 2018; Meyer et al.,

2014). Greenfields not only help Huawei avoid a number of issues, but they even boost its image through the positive reputation and connections of its offshore experts.

**Proposition 2:** Greenfield R&D investments where offshore experts are given a predominant role can help latecomers in sensitive industries gain legitimacy abroad. Moreover, they can signal technological competence and improve firm reputation.

### The Scope of Offshore Experts

Huawei went abroad to gain knowledge of the global telecommunications industry because the most powerful players are currently located in the West. Experts in gateway locations are well embedded in a worldwide industry community by participation in cross-border networking and through international standardization and research projects, but they are not very mobile on a global scale. Huawei is not able to hire them in China so it set up R&D labs abroad to leverage their dual embeddedness that provides access to the local context and the global industry network at the same time. In some cases, Huawei hires key experts with extensive international connections even though they are based in areas remote from its existing offshore R&D labs. Huawei also hires experts recently arrived in locations where it has a lab even though they are originally from far away. Another example for the expert's scope is Huawei's European R&D center in Munich where many employees come from outside Germany and make regular use of their industry contacts back in their home countries. All in all this shows that Huawei hires experts not only for their local connections and reputation as discussed in the literature (Johanson & Vahlne, 2009), but also for their global impact.

**Proposition 3:** Offshore experts may not be hired solely for their embeddedness in local industry networks, but also for their embeddedness in global industry networks that would otherwise be inaccessible to latecomers.

### CONCLUSION

Conditions were favorable for entering the global telecommunications industry using a catching-up-by-hiring strategy at the time Huawei was setting up R&D facilities abroad. Lee and Malerba (2017) explain that the catch-up cycles of industries have a

repetitive temporal pattern of emerging windows of opportunity that allow latecomers to achieve industry leadership. Huawei benefited from a cooling down phase in the technological life cycle that led to competitors downsizing, hence more industry experts were on the job market. Some of them coming to work for Huawei helped it enter the industry. Rather than attempting to make acquisitions that would provide fast access to markets through existing brands, Huawei used greenfield investments to gain influence with its own brand (Anderson & Sutherland, 2015). Moreover, the company was able to generate dynamic capabilities by combining its already existing advantages of access to cheap capital, low labor costs at home, and a reputation for providing customer-centric service, with newly acquired technical and innovation capabilities provided by offshore hires.

The perspective of the offshore experts provides a more disaggregated picture than found in the many studies that rely mainly on management accounts. Indeed, aggregating the perspectives of experts and locations allows unvarnished insights from behind the curtain of the corporate image, such as that working for Huawei was initially considered harmful for the careers of some experts and caused partial loss of their networks.

In addition to showcasing a different perspective, I consider a less-investigated means of internationalizing. Future research should not only look at formal acquisitions when studying catch-up strategies, but look deeper into hiring practices of greenfield investments as this study shows that they are not only undertaken to serve foreign markets. One contribution of this study is that it shows that latecomers in highly globalized industries may also be able to profit from hiring non-locals who are culturally and professionally embedded in the international industry networks, thus providing entry points to latecomer firms seeking to become internationally embedded in an industry.

There are some limits to the generalizability of this study as Huawei is a rather special latecomer in terms of the particular timing of its internationalization, its access to cheap domestic capital, its negative image abroad, and the politically sensitive nature of its telecommunication infrastructure business. Nonetheless, this case provides valuable insights into the mechanism of hiring as part of a catch-up process. The management implication is that hiring experts at locations of strategic global importance can be a way to accelerate efforts to catch up with industry leaders under certain



circumstances. This approach, in contrast to acquisitions, might help latecomers gain legitimization in host countries. The policy implications of the findings for Western decision makers are that latecomer companies can absorb displaced experts during market downturns, although more research is needed on the sustainability of such jobs. Finally, one long-term implication for Huawei is that it might want to concentrate its most innovative R&D activities in China to reduce political risk and spillovers as well as the information losses inherent in transferring research output over long distances. The current political situation in the US in particular shows how vulnerable Huawei's current approach leaves it.

The question remains of whether Huawei will manage to catch up in terms of innovation capability at its main Chinese R&D locations and become independent from its offshore experts' inventive capabilities. In such a scenario, it might then suffice to have just a few overseas locations as listening posts for cooperation and technology monitoring, in particular in host countries where it faces political risk.

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### NOTES

<sup>1</sup>The concept of offshore experts has been discussed in the literature as "host country nationals" (HCN) meaning persons working in their home country for a foreign company in contrast to expatriates who work abroad for a company from their home country (Gong, 2003; Tan & Mahoney, 2006; Vance & Paik, 2005). I do not use the term because it does not account for the diverse cultural backgrounds of experts working for MNEs and Huawei in particular (Caprar, 2011).

<sup>2</sup>Hiring technical offshore experts is a powerful means Huawei used to enter the global industry, but not the only one. It also used technical and managerial consultancy, political lobbying, and participation in prestigious R&D cooperation projects.

<sup>3</sup>There are particular factors and conditions that made a greenfield approach attractive for Huawei and this may limit generalizability to other latecomers, the sensitivity of the telecommunications industry, Huawei's access to cheap credit, and an economic downturn to name a few.

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## APPENDIX: GUIDELINES FOR SEMI-STRUCTURED INTERVIEWS

### Employment history and hiring process

Where did you work/study before?  
 How did you come to work for Huawei?/Why did Huawei hire you?  
 How old/big was the offshore laboratory when you joined?

### External contacts

Did you already live at your current job location when you were hired by Huawei?  
 Did you already have (local) professional contacts when you were hired by Huawei? If yes: How many?  
 Did you use previously established contacts in academia/the industry for your job at Huawei? If yes: what did you use them for?

Do you experience reservation/resentments from other companies/researchers against Huawei?  
 Are there any barriers for Huawei operating R&D abroad?

### Internal role

(How) are your tasks at Huawei different from your tasks at your former employer?  
 How closely do you work with Chinese expatriates at your location/offshore experts at other offshore locations/Chinese employees at locations in China?  
 Do you encounter cultural barriers/language barriers at work?  
 Is there a difference in technology/tasks between offshore locations/offshore and domestic locations? (Tables 2, 3).

**Table 2** Print media on Huawei hiring officials abroad

Title	Date of publication	Author	Newspaper/publisher
Former US official joins Huawei consultancy	21.10.2010	Stephanie Kirchgaessner	Financial Times
Huawei names John Brumby, Alexander Downer board members	06.06.2011	Michael Sainsbury	The Australian
Downer joins the board of Chinese telco	06.06.2011	Lucy Battersby	The Sydney Morning Herald
Downer, Brumby join Huawei Australia board	06.06.2011	James Hutchinson	iTnews
Government's former IT boss in MI6 grilling after taking job with Chinese mobile giant	07.08.2011	Abul Taher	Daily Mail
Row over Chinese role for British trade chief three months after £1.2 m pay off	13.11.2011	Valerie Elliot	Daily Mail
Huawei's Downer warns on Chinese paranoia	18.04.2012	James Hutchinson	CRN
Huawei hires former U.S. defense contractor official	10.07.2012	Ellen Nakashima	The Washington Post
Huawei expands lobbying amid national security probe by Congress	26.08.2012	Eric Engleman/Jonathan D. Salant	The Washington Post
Huawei's Australian directors get two more years in job	24.08.2013	Peter Cai	The Sydney Morning Herald
Admiral goes into bat for Huawei	27.10.2012	Peter Cai/Lucy Battersby	The Sydney Morning Herald
Conservatives and Lib Dems take donations from Chinese company accused of US security threat	20.11.2012	Rowena Mason	The Telegraph
Chinese firm Huawei spends tens of thousands lobbying British politicians	30.11.2012	Christopher Hope	The Telegraph
Questions grow on U.S. lobbyists with strong ties to Chinese firm linked to espionage worries	26.04.2013	Richard Pollock	The Washington Examiner
It's the biggest company that no one has heard of	27.04.2013	Adele Ferguson/Peter Cai	The Sydney Morning Herald
Lord Browne to head Huawei's UK board	16.02.2015	Daniel Thomas	Financial Times
Huawei appoints three non-executive directors to UK board	16.02.2015	Paul Withers	Mobile News

**Table 3** Facilitators of access to the global telecommunications industry

	Standardization organizations	EU-financed research projects	University cooperations	Customers and suppliers	Highly qualified employees <sup>a</sup>
	Particularly important in telecommunications, high license fees are demanded to use standards, increases influence and signals technological competence	Helps to capture technology, boosts reputation, provides contacts in the industry, early attempts to participate fail for lack of embeddedness	Cooperating with prestigious ones signals competence and improves global image, technology transfer is not necessarily the main goal	Needed to operate in the global industry, improving perceptions of reliability is easier through existing contacts	Initially difficult to hire because Huawei is unknown/has a negative reputation in the industry
<i>Embeddedness</i>					
Contacts	Important for negotiations and keeping up-to-date on industry politics	Contacts in the projects help getting accepted	Contacts from academia used to set up cooperations	Contacts to customers of former employer	Recruiting former colleagues to work in the team
Perceptions of reliability and reputation	Helps in negotiations and for getting influential positions in standards	Hiring European engineers and cooperating with European universities generates perceived reliability	Hiring experts from academia improves perceptions of reliability	Western experts are sent to client meetings to signal technological competence	



Table 3 continued

	Standardization organizations	EU-financed research projects	University cooperations	Customers and suppliers	Highly qualified employees <sup>a</sup>
<i>Skills</i>					
Experience	Helps to negotiate and interpret politics between stakeholders	Project experience helps to apply for and succeed in projects	Knowledge of the field helps to choose the right cooperation partners	Understanding of western customer's wishes	
Technological knowledge	Understanding of state-of-the-art technology enables contribution			How to make the products fit the customers' needs and how to create state-of-the-art solutions	
Language	Bridging English language barrier for Chinese engineers to facilitate active participation		Local R&D takes over projects from headquarters to bridge language barriers		

Employees that are qualified through longstanding experience in the telecommunications industry or academia.

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