VUCA and the Future of the Global Mobile Telco Industry

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Abstract

The disruption global digitally based firms are imposing on the positions of established multinational telcos is not just in degree, but also in kind. As such, the telcos are entering a period of VUCA. Although digitally based competitors could suffer from liabilities of 'outsidership', employing the telco Telenor as a case, we argue that the physical presence of telcos in local markets will be insufficient to avoid a future as utilities or dumb-pipes. One significant issue as they confront VUCA is therefore whether telcos are able to develop and apply dynamic capabilities.

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Introduction

The disruption stemming from digitalization is increasing the environmental volatility, uncertainty, complexity and ambiguity (VUCA) for most international firms, challenging the traditional geographic dispersion of their activities and diluting the benefits of building physical presence. These *VUCA* conditions (Bennett & Lemoine, 2014; Schoemaker et al., 2018) are particularly striking in the case of the global mobile telco industry whose traditional competitive advantage has been related to the big investments in physical presence. Since the early 1990s, multinational telcos have been dominant players across many geographies typically earning average gross margins of 40 percent (*Factset*, 2019). Since 2016, the consensus within the telco industry is that relative stability is ending as global digitally based firms – some known and many unknown – increasingly challenge the position of established multinational telcos not just in degree, but also in kind. In April 2016 the CEO of Telenor, a leading multinational telco, Sigve Brekke responded to the looming VUCA situation:

> "We are faced with the need to change rapidly. We will see a dramatic reduction in income from voice. We (therefore) need to embark on a journey from being a traditional mobile operator… (and) put into place completely different business models to those we have today.." (*Dagens Næringsliv*, 2016: authors' translation).

However, as long as local market operating licenses and management of a large number of cellular radio towers remain prerequisites for their operations, the business model innovation of telcos, unlike digitally based firms, must incorporate local physical presence.

Further, the need to maintain income streams means that telcos cannot simply abandon their current business model. Instead, telcos need to develop ambidexterity (He & Wong, 2004; Raisch & Birkinshaw, 2008) so that they are both aligned and efficient with current business demands while simultaneously being able to develop new capabilities in response to imminent VUCA.

In this paper, we investigate the future of telcos as they contend with VUCA. We present the multinational vertically integrated telco model and the VUCA environment it is now facing. We contrast the characteristics of telcos with those of digitally based firms including their distinctive internationalization process. We discuss the potential value of physical presence in national markets and the prospect that digital competitors could suffer from liabilities of 'outsidership' (Johanson & Vahlne, 2009; Brouthers et al., 2016). However, using various sources of industry data, we explore whether in the long-term, the benefits of 'insidership' in national markets multinational telcos can draw on, will be sufficient to maintain their competitive advantage. We argue that these new volatile, uncertain, complex and ambiguous pressures demand that multinational telcos develop dynamic capabilities (Teece et al., 1997; Schoemaker et al., 2018) that either enable them to compete directly with digitally based firms, or to move into novel domains where physical presence is required. Failing that, eventually telcos face becoming utilities supplying only price sensitive internet connectivity and barely profitable voice and SMS services.

The value of physical presence for established multinational telcos

Since the early 1990s across many countries, the main players in the mobile telephony industry have been multinational telcos such as Vodafone, Telefonica and Telenor (Chepkemoi, 2017). In order to operate in national markets they compete for nationally regulated operating licenses. Physical presence has been a prerequisite to operate. For

example, it has been necessary for the local negotiation of sites for towers and base-stations in country markets and for obtaining local marketing expertise. New generations of wireless mobile telecommunications technology have been released roughly every 10 years. 1G provided voice-service, 2G was about voice and messaging services, and 3G added the first viable internet access useful for e-mail and web-browsing (Hess & Neil, 2006). 4G, introduced in 2010, granted mobile broadband that functioned across any internet service including high-bandwidth demanding services like video streaming (Agrawal et.al, 2015). Thus, telcos have constructed their extant business models on voice, messaging and, more recently, internet connectivity platforms.

Telcos have extracted value of their multinationality by typically employing internationalization strategies based on a "replicator" approach (Winter & Szulanksi, 2001), i.e. they apply their generic business model in each market they enter. However, at the same time there has been a view that responsiveness to local market conditions is crucial. Local business units have had considerable latitude to develop local market knowledge and to adapt their resources to produce and to deliver mobile services that are responsive to local market and regulatory conditions. Thus, the basic telco business model is significantly adapted to the local context with each foreign market treated as an independent operation (Elter, Gooderham & Ulset, 2014).

Physical presence has been a critical source of experiential local market knowledge (Johanson & Vahlne, 1997). Eriksson et al. (1997:354) distinguish three dimensions to the local market knowledge that is developed through "durable and repetitive interactions" in foreign markets. In addition to general internationalization knowledge on how to organize and manage international operations, they identify foreign business knowledge and foreign institutional knowledge. Foreign business knowledge is market-specific knowledge of customer preferences and relationships with local counterparts. In other words, physical

presence can lead to knowledge about how to engage with local customers (*exchange*), how to *sense* customer needs and the development of local *networks*. Foreign institutional knowledge refers to the potential for developing *legitimacy* in the local institutional setting including an understanding of the functioning of local systems for hiring, contract enforcement, and national regulations. This causes us to distinguish four types of local market knowledge or "operational" capabilities (Winter, 2003) that telcos derive from physical presence – see Table 1.

The first column in Table 1 comprises the four types of operational benefits telcos can derive from their local market presence and in the second column in the table, ("Relationships – current situation") we summarize the main forms of relationship that telcos have typically to date developed through physical presence.

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Exchange refers to knowing how to recruit local customers by using and developing a local network of sales agents including meeting the logistical challenge for the distribution of SIM-cards (particularly challenging in emerging economies where cash is the only payment medium). *Sensing* denotes local marketing expertise including building local customer knowledge, designing local price plans and establishing local brand recognition through local mass marketing in physical media. *Networking* is knowledge about how to negotiate local agreements for the location of the necessary network infrastructure such as towers and base stations and how to operate a local mobile network. Finally, *Legitimacy* connotes the knowledge that telcos need in order to secure and maintain operating licenses through negotiations with local government authorities.

Thus, as telcos enter a new local market they have to build a range of relationships in order to thrive and to be able to renew their operating licenses. To take *Legitimacy;* the perception by government licensing authorities that a telco is a legitimate investor and holder of spectrum licenses as well as custodian of sensitive customer data is critical not only for entry but for continuing operations. Legitimacy is also essential for achieving the other physical presence benefits. Negotiation of sites for mast building and operating the mobile network-infrastructure, pricing and segmentation, customer recruitment, billing relations, and customer care all require a sound understanding of local laws and regulations. For example, to build masts and towers, knowledge of local contract laws and negotiation practices are required in order to contract with local site owners. *Networking* is also critical for telcos. To attract customers and to distribute sim-cards for mobile handsets, telcos typically build and serve a local network of sales-agents and logistic capacity across each market. This enables *Exchange. Sensing* is achieved as local marketing staff develop intimate knowledge about customer behavior in order to create locally appropriate mass marketing and price plans. In Figure 1, we summarize our four-fold typology of the benefits of physical presence.

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We emphasize that the benefits or capabilities from physical presence are far from abstract. They are tangibly related to developing an interface with local counterparts (*exchang*e) for learning about the behavior of local counterparts (*sensing*), for building trust and opportunities with local counterparts (*networking*) and finally for obtaining local legitimacy (*legitimacy*). However, while analytically distinct, in day-to-day activities these four benefits arising from physical presence are intertwined.

Physical presence under increasing VUCA conditions: Challenges for the multinational telco business models.

The four benefits associated with physical presence have allowed traditional telcos to deal with the VUCA environmental conditions they were facing. For instance, keeping an extended network of agents allows to obtain first-hand information from the users, designing specific service and pricing plans that accommodate their needs with higher agility (therefore addressing volatility and uncertainty). Additionally, building network infrastructure and directly negotiating with local authorities help telcos in addressing ambiguity and provides legitimacy. Telcos become agents in these institutional environments and know the "rules of the game", which is basic for making judgements about the future. Therefore, so far the physical presence has been critical and provided a competitive advantage to telcos.

However, digital disruption is increasingly questioning the actual value of physical presence for established multinationals as research shows how virtual business models emerge, where companies establish global platforms for interacting with customers and suppliers, changing the logic of multinational competition (Brouthers et al., 2016; Dasí et al., 2017).

Regarding the telco industry, even before embedded sim (e-sim) began to emerge as an industry change driver – see column 3 in Table 1 – other drivers were modifying aspects of the value of physical presence, particularly in regard to *Networking*. Initially, most telcos executed in-house each part of the value chain. From the early 2000s, they started to outsource a range of functions. Typically, in each country they outsourced a significant portion of the work relating to building and operating their networks. Further, in countries with a mature local call center industry, customer care through call-center functions was also outsourced. Thus, the telcos became country-by-country "orchestrators" of vendors and

selected retained activities. However, this orchestrator role was based on having developed considerable local market knowledge. For example, how to recruit sales agents varies between locations, as does contracting with local entrepreneurs in order to build and maintain the physical mobile-networks. Without deep local market knowledge, orchestration would be highly problematic.

3G and particularly 4G led to a redrawing of the telco industry boundaries (Patterson et.al., 2017; GSMA, 2017). 4G provides internet connectivity as an omnipresent infrastructure platform for digital distribution and the use of digital services. With no physical presence, digitally based firms were able to use this internet connectivity as an infrastructure for launching global digital services. Currently, it is estimated that more than 4 billion people are users of the internet (Kemp, 2018). The telco industry body, GSMA (2018), estimates that 4G alone accounts for around three quarters of internet use. Some of the digital services, including Skype, WhatsApps and Facebook Messenger disrupted the voice and messaging income streams of the telcos with estimated lost revenue of $386 billion (Heinrich, 2014). However, this posed no VUCA-style threat to telcos. Telcos kept the physical link to customers, therefore they could still benefit from exchange and sensing. In this regard, telcos coped with volatility and uncertainty by gathering information from customers in a more agile way. Value simply migrated from voice and messaging to connectivity. In response, the core of the telco business model almost seamlessly shifted from voice and messaging services as primary sources of revenue to connectivity (Accenture, 2015). As a result, the total mobile revenues have according to GSMA (2018) continued to increase and by 2017 had reached $1.05tn. Data thus became the fastest-growing source of revenue for telcos (Dickgreber et al., 2014). Physical presence including national operating licenses underpinned these new sources of revenue.

With the imminent launch of e-sim, the nature of the interdependence between telcos and digitally based firms is set to change radically (De Wit & Baena, 2017). This will introduce more ambiguity and complexity linked to the technological and marketing knowledge needed for offering potential new applications. On top of this, telcos will have an added difficulty as they will lose the traditional mechanisms for addressing volatility and uncertainty, the physical connection to end-users. The introduction of e-sim in all mobile handsets means that the last industry proprietary piece of hardware that links telcos to customers is gone (Acker et.al., 2016). With e-sim, the operating system or any software on a mobile handset can automatically switch between suppliers of mobile broadband based on defined algorithms in the software. Therefore, the telcos' local retail distribution network of sales agents and their logistic capacity to physically distribute sim-cards and receive cash-payments becomes redundant. Subscriptions to mobile services can be fully digitized and services can be provided "over the air". In effect, e-sim will obliterate the current local agent distribution network of telcos. Further, global digitally based firms, with their software engineering capabilities, are well positioned to take over the interaction with end-users through digital channels.

Thus, e-sim constitutes a VUCA watershed for established telcos. Unless telcos can do as Sigve Brekke outlined and put into place completely different business models, telcos will become utilities supplying connectivity that will be subject to increasingly intense price competition. Consumers will be beneficiaries but so also will be the global providers of digital services that rely on connectivity. We now investigate the business model of digitally based firms, their pattern of internationalization and why their lower physical presence in foreign mrakets is challenging established telcos.

Digitally-based firms under increasing VUCA

As Katz & Shapiro (1994) noted, while many products have little value in isolation they might be indispensable parts of systems of complementary products. This is indeed the case for digital products, which have no value unless they are combined with hardware, other software and internet access. Indeed, many digital products have emerged out of previously integrated hardware and software solutions such as cloud based collaborative text processing. Thus, digital products are not stand-alone products, but organized around technological ecosystems or platforms. Some platforms are two-sided markets with network externalities i.e. where changes in participation on one side of the market affect the other side of the market (Ye, Priem & Alshwer, 2012). The typical structure of these platform markets is that there is one or a few leading platforms, several content providers and even more users.

Digitally based firms usually follow an aggressive "get-big-fast" strategy striving to: 1) rapidly grow their platform's user-base; 2) lock in their users; and 3) prevent rival platforms from doing the same (Cennamo & Santalo, 2013). Thus, for digitally based firms that seek to become leaders (whether home or abroad) the basic challenge relates to scale (that is, getting big enough fast enough). The importance of gaining a large user-base fast is reflected in the business models of many platforms like Spotify or Skype, where firms often offer a basic free version and an advanced paid version of their product simultaneously. The rationale is that the actual value of the product will increase with user adaptation and user experience. Largely because of network effects, there is a "winner-takes-all" outcome in platform competition on services.

Among others, Kim, Nam & Stimpert (2004) highlight that digitally based firms are able to overcome physical boundaries and distance. This enables them to efficiently serve substantial customer bases. In addition, digitally based firms are able to obtain more detailed and higher quality information on local transactions as vast amounts of rich data can be

collected and analyzed through the digital interface. These rich data allow for more effective marketing methods and to refinements to the product mix, so they can precisely target their product or service offerings to specific customers (Kim et al, 2004).

In a comparative study, UNCTAD (2017) concludes that digitally based firms have a fundamentally different footprint to that of traditional firms. They have a very light foreign asset footprint, with a ratio between the share of foreign sales and foreign assets of 2.6, while typically the ratio for other firms is about 1.0. For telcos it is 0.9. This implies that digitally based firms generate more sales abroad while allocating fewer assets abroad than other firms including telcos. In fact, allocation of the same amount of foreign assets abroad generates 2.6 times more foreign sales for digitally based firms than for traditional firms. Thus, digitalization appears to break the operational nexus between foreign sales and foreign assets. In addition, while there is a significant correlation between foreign assets and foreign sales for traditional firms indicating that physical presence is a condition for foreign sales, this correlation is insignificant for digitally based firms meaning that physical presence does not have the same importance for the generation of foreign sales (UNCTAD, 2017). This does not imply that digitally based firms have no operations abroad. Companies like Airbnb, Google and Microsoft, all have employees abroad, but proportionally substantially fewer than the telcos.

The Potential Value of Physical Presence

Not all observers of digitally based firms are convinced that their business model increases the VUCA conditions. At least some of this skepticism can be traced to developments in the Uppsala model of internationalization that emerged from observing how Swedish manufacturing firms developed into multinational enterprises (MNEs). The original model assumes some enduring, transferable, technological superiority on the part of the firm,

but argues that internationalization is constrained by a lack of foreign market knowledge. In their seminal 1977 article, Johanson and Vahlne stress that in order to move beyond export, foreign market knowledge is essential. However, this form of knowledge is "experiential" and can only be acquired by operating in the foreign market. Eriksson et al. (1997: 343) stress that, "The experience-seeking firm must engage in foreign operations. This implies a presence abroad, exposure to the situation abroad, and interaction with specific customers, intermediaries and other firms in the international market." As we outlined above, the core of their argument is that physical presence, commitment, and relationship building are interlinked and reinforce processes that promote the generation of experiential knowledge of the foreign market that give rise to operational capabilities.

In the course of four decades, the Uppsala model has evolved in several ways. Current versions have a less deterministic approach to the mode of entry choice and, with the introduction of dynamic capabilities, a more entrepreneurial perspective on the heterogeneity of a firm's resources (Vahlne & Johanson, 2017). Further, the original notion of market commitment through physical presence as an absolute prerequisite for knowledge acquisition and success has been modified. Nevertheless, the model still underscores the benefits deriving from physical presence:

> "Commitments describes the distribution of resources over the MNE's functions, its product lines, the countries where it is active, and the relationships where it has invested. The term also has a forward-looking connotation: positions reflect commitments to particular courses of action" (Vahlne & Johanson, 2017: 1097).

Another development to the Uppsala model of internationalization is contained in Johanson and Vahlne's (2009) revisited version of their model. They argue that rather than conceiving the knowledge constraint as exclusively deriving from psychic distance, and therefore grounded in a liability of foreignness, outsidership in relation to relevant networks is

increasingly the main source of uncertainty. Insidership in networks of business relationships provides a firm with an extended knowledge base thereby enabling it to identify opportunities and to overcome the liability of outsidership.

Brouthers et al. (2016) recognize that the internationalization process of digitally based firms differs from traditional firms in that at relatively little cost they can immediately replicate and transfer their business models and electronic platforms across markets. However, while Brouthers et al. (2016) argue that, when compared to traditional firms, digitally based firms suffer to a lesser extent from investment risks related to liabilities of foreignness when they internationalize, they suggest that:

> "(these) firms have to deal with greater liabilities of outsidership since their main concern is the creation of a large enough network of users to generate value on (their) platforms…The lack of network connections means that the firm may suffer from greater unfamiliarity with the location, (and) may lack legitimacy because the firm does not understand how to adapt its products/services, and tend to suffer increased relational hazards, since the lack of connections means it is hard to determine which local firms to team up with and which to avoid" (Brothers et al. 2016:514/517).

In terms of Figure 1, Brouthers et al. (2016) are highlighting in particular the significance of networking and legitimacy issues. We observe a number of examples of digitally based firms that have failed or struggled to enter foreign markets or maintain their positions in foreign markets precisely because of these issues. For example, Airbnb has labored in China. In a blog post its CEO, Brian Chesky, wrote, "as we move into our next phase of expansion in China, we know we will need deep local knowledge and expertise to keep this momentum going." (*Financial Times*, 2015). The impact of differences in national regulatory regimes has been a particular issue for Uber. Failure to achieve local legitimacy has resulted in Uber being

proscribed in several countries. Since December 2015, Google has been subject to regulatory expectations in the EU and is monitored by the EU's data protection authorities. The legitimacy of Facebook's mode of operation has also been questioned. Subsequently, in Europe, the EU in May 2018 introduced data protection rules that guard against the misuse of collected data. However, networking is also surfacing as an issue. For example, a number of EU member states apply quotas to the streaming service Netflix for European productions. French rules stipulate that 40 percent of broadcast programming must be original French language material (Barbière, 2016).

Figure 2 summarizes how the four benefits of physical presence are affected by operating as a digitally based firm.

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To take exchange and sensing first, digitally based firms are limited to reaching customers. They cannot interact directly with or sense their needs. However, they can compensate for this by for example offering free (basic) versions of their products, so that customers can easily access and test them and leave on-line feedback. To some extent accumulating rich data on customer behavior could substitute for direct local exchange with customers. Networking and obtaining local legitimacy are distinctly harder to accomplish remotely. Indeed, our argument is that many of the problems that digitally based firms are experiencing are precisely related to a lack of networking and legitimacy. Further, while it may be the case that a global brand may provide some legitimacy, it also potentially creates more vulnerability as a loss of legitimacy in one location might have global implications.

Based on our four-fold typology that we introduced in Figure 1, Figure 2 proposes that digitally based firms are able to go international with an asset light model (as they can reap

the benefits of exchange and sensing remotely). However, their lack of foreign physical presence could mean that they fail to network sufficiently with local actors and do not succeed in achieving necessary legitimacy in foreign markets. Thus, they are lacking in critical operational capabilities. In the following, we will critically explore this liability of outsidership perspective on the telco industry. We aim to tease out how physical presence (or lack of it) is playing out in the industry in terms of telcos versus digitally based firms.

Methodology and data

In the next sections, we move into the explorative part of our paper. The main issue we investigate is whether local market physical presence will continue to constitute a durable competitive advantage for telcos as they enter VUCA or whether this must be supplemented with dynamic capabilities. Given the process nature of this analysis, we draw on various sources of qualitative data (Bansal et al., 2018). Our data for digitally based firms and the telco industry comprises published perceptions from industry analysts. Generally, we found a substantial commonality in their views. Further, one of the four authors is employed by Telenor in its strategy department and he has had access to company internal strategy documents. In particular, the future perceptions contained in the third and fourth columns in Table 1, "Change-drivers" and "Implications" are derived from a series of conversations conducted within Telenor during 2018.

THE TELCO INDUSTRY: CHANGE DRIVERS AND IMPLICATIONS

The telcos' original core offerings, voice and messaging have already been disrupted as a future revenue source by new digital services such as Skype and Facebook Messenger that offer these services over the internet with more features than offered by the telcos. However, in mature markets, mobile operators have to date been able to successfully move

their value capture from voice, messaging and internet connectivity as separate revenue streams to internet connectivity with voice and messaging bundled for "free" as part of their internet connectivity services. In that sense, the telcos' historic investments in physical presence have proved durable. The question is whether this resilience will endure the emerging context of digital services and platforms that enable direct and immediate interactions between users and producers located in entirely different parts of the world. Is it the case that telcos can address specifically local customer needs in ways that digitally based firms with their universalistic approach are unable to address? We take each element in column 3 ("Change-drivers") and column 4 (Implications) of Table 1 in turn. We structure our discussion in accordance with column 1, i.e. the four benefits of physical presence we identify in Figure 1. We view exchange and sensing as foreignness challenges and networking and legitimacy ones of outsidership.

Exchange

Exchange refers to the operational capability that derives from knowledge of how to recruit local customers by using and developing a local network of sales agents including meeting the logistical challenge for the distribution of SIM-card. One key factor at the core of the local business models of incumbent telcos is that customers have needed a physical sim-card installed in their handset to be able to use mobile services.This has necessitated networks of local sales agents and distribution. In emerging markets there is an additional factor. These are cash-only economies with 2 billion unbanked people (Asktrakhan, 2016), which necessitates physical money exchange for a service. Both of these two factors require local presence and market knowledge. However, both the sim-card and cash-payment are about to be digitized causing the local agent-network to become superfluous.

Sensing

Sensing denotes the development of local marketing expertise including building local customer knowledge, designing local price plans and establishing local brand recognition through local mass marketing in physical media. For incumbent telcos the ability to recruit and retain customers has required intimate local customer knowledge in order to carry out targeted marketing campaigns and for the tailoring of price-plans for mobile services. This approach is already declining in favor of using online and personalized digital marketing (Constantinides, 2014; Gallegos, 2016; Wixcey, 2015) which requires large datasets and advanced computer based analytics suited for multi-country marketing where national regulations permits (Gordon & Spillecke, 2013). With the introduction of e-sim, the knowledge of the telcos local marketing experts is set to be further devalued with the introduction of computer-based analytics and machine learning as a means to segmenting customers and to personalizing marketing. Digitally based firms such as Google and Facebook see no role for local marketing experts (Court et.al., 2015).

Networking

A networking capability derives from knowledge of how to negotiate local agreements for the location of the necessary network infrastructure such as towers and base stations. We observe three developments to networking. First, originally, incumbent telcos established, owned and operated towers and base stations and negotiated with site owners. By owning the towers and base-stations mobile operators have been able to control the network infrastructure to differentiate on network coverage and capacity. However, over the last 20 years, a new breed of independent telecom tower companies has created a USD 300 billion infrastructure asset class, the tower industry, which now owns 68.7 per cent of the world's investable towers and rooftops (Osmotherly, 2018). Further, this industry is now rapidly evolving the

competencies that it shared with the telcos so as to incorporate services such as energy, small cells and backhaul (Wei & Neri, 2015).

A second development regards the knowledge of how to operate a local mobile network. Telco vendors such as Ericsson, Huawei and Nokia-Siemens have increasingly provided telcos with country-by-country vertically integrated mobile-network technology solutions. As such this type of local market knowledge no longer resides primarily within the telcos. Further, with the transition to 5G, the physical hardware layer of networks will be separated from the service layer and future services will be developed by software only. With the introduction of 5G, where national regulations permit, the need incumbent telcos have had for local market knowledge and resources could be replaced by multi-country solutions similar to those employed by the internet industry in their operation of multi-country cloud data-centers (e.g. Microsoft operates its data-centers for cloud-services to the European market from Amsterdam and Dublin).

A third development relates to knowledge of how to network with local providers of digital services. Assuming increasing government pressure to protect local services and content providers, this particular local networking capability could be advantageous for identifying and forming partnerships with local companies. Thus, in this regard, the physical presence telcos have invested in could continue to be of value.

Legitimacy

The telco industry is regulated by country governments who also license spectrum. Legitimacy stems from learning how to negotiate with local telco licensing authorities in order to acquire and maintain spectrum. Local legitimacy will continue to be important for the holding of spectrum licenses. In the sense of being able to regularly interact with government regulators, physical presence will continue to be advantageous.

Overall our analysis indicates that significant parts of the operational capabilities of telcos deriving from local market knowledge are set to lose value. This is particularly so in relation to exchange and sensing. However, physical presence that grants local insidership will continue to be of value for local networking and for legitimacy. Liabilities due to a lack of insidership are, according to Brouthers et al. (2016), the main challenge that digitally based firms face. The core of their business services is to provide a platform that allows users to buy and sell products/services to each other or exchange information with each other (Brouthers et.al., 2016). As noted above, Brouthers et al. (2016) point to their lack of embeddedness in local markets. Even if digitally based firms such as Google and Facebook deploy cloud based technology platforms that are globally accessible, they cannot do away with the need for experiential business knowledge for each country they enter. Users and companies must be recruited to their platforms. However, digitally based firms lack direct ties to potential platform users in foreign markets. At the extreme, a digitally based firm will have no users when it enters a new market and potential users will be reluctant to adopt its platform.

However, while we emphasize outsidership as the liability faced by digitally based firms, there will also be issues of foreignness. One reason for this is due to the very variable penetration rates of smart-phones and internet in many emerging economies. Therefore, there is a dependence on local institutions and investments in local infrastructure. For instance, according to Open Signal records for 2017, while 97.45 per cent of time users have 4G access in South Korea with high speed, countries like Brazil have a lower coverage of 3G or more (75.2 percent) and at low speed. In Pakistan, Bangladesh, Myanmar the current penetration of smartphones is approximately 35 percent. Low penetration of smartphones and internet creates two problems for the digitally based firms. First, their services presume a stable, fast and reliable internet infrastructure across the country in order to penetrate. Thus, considerable further market uptake of internet and smartphones is a necessity for digitally based firms'

growth. Lacking physical presence, their one-size approach will likely encounter difficulties when dealing with diversity in infrastructure and the multiplicity of institutional environments this generates (Kostova & Zaheer, 1999). Telcos with subsidiaries operating in each environment will invariably have a superior local understanding of the state and evolution of the needed infrastructures. Additionally, having a local presence increases their legitimacy to initiate and follow negotiations related to the infrastructure investments. Compared to new digital players, incumbents that grant compliance with institutional requirements might enjoy from higher legitimacy.

This view of physical presence and the potential advantage it confers on telcos as they enter VUCA is shared by industry consultants. Senior partner at McKinsey, Miklos Dietz (Schwartz, 2017) argues that:

> "Large incumbent businesses have plenty of competitive advantages from trust, brand, data, and capital to be able to shape the emerging future of ecosystems. They can become crucial partners. It really depends on whether they are fast enough reinventing their business models and realizing that they are not just playing in their little industry anymore, but in a very different and much broader universe."

To date, we can indeed perceive a number of examples of close collaboration between digitally based firms such as Google and Facebook and incumbent telcos such as Telenor. For instance, Facebook has developed a low-end version of its service that Telenor is offering at zero-rate data-traffic to stimulate uptake of internet. When users want to move to the full version of Facebook, data-tariffs apply. Telenor and Google have collaborated to create direct-operator billing embedded in YouTube. If a user does not have sufficient prepaid data to watch a YouTube video over internet, a top-up can be executed online with direct operator billing embedded in YouTube. These examples illustrate mutually beneficial partnerships

where telcos grow uptake of internet and digitally based firms acquire users of their digital services. The outsidership of the digitally based firms is attenuated by partnering with telcos that have local insidership both in terms of operating licenses and marketing knowledge.

Discussion

There is a tension between the traditional model of internationalization (built around physical presence in foreign markets) and a new emergent model of internationalization (foreign asset light) that is being played out in many industries. In the light of this tension Telco industry observer Venkat Atluri of McKinsey (Schwartz, 2017) summarizes the uncertain VUCA future for the telcos. Atluri recognizes that as the telcos approach their VUCA they have some advantages that derive from physical presence, but that these will be insufficient: He contends that:

> "…the so-called nondigital players have some critical assets (such as) customer relationships, (and) things like channel relationships. Those are very, very hard for the broader digital players to reestablish or put in place. That is going to help the so-called nondigital players quite a bit, to cover their position, and I'm equally as optimistic as (to) their potential to take advantage of these sectors-without-borders friends…. (However,)….they (will) have to work hard to change their DNA".

At the outset of the paper, we specified four distinct benefits of physical presence in foreign markets: exchange, sensing, networking, and legitimacy. Thereafter, we have explored the proposition that digitally-based firms are able to operate internationally with less physical presence as they can organize exchange and sensing remotely. Further, we have considered whether they face a challenge in relation to developing local networks and local legitimacy.

As outlined, the telco industry serves as a context for studying the effect of having or not having a physical presence in foreign markets. It includes the incumbent telcos all of whom have significant physical presence in the markets in which they operate and digitally based firms that operate based on substantially fewer commitments in foreign markets. For the telcos it has been a necessity to build substantial physical presence in order to obtain the benefits of exchange, sensing, networking and legitimacy. However, as the telco industry undergoes change, new digitally based firms such as Facebook and Netflix are entering the industry with a less costly, foreign asset light model. In particular, we have focused on the value of insidership that derives from physical presence and that creates the basis for trust building relationships and legitimacy.

At the very least mobile telcos will survive as utilities or dumb pipes supplying connectivity, the local market knowledge that enables them to acquire operating licenses guarantees them this. Some, such as industry analyst, Jamie Davies (2018), already perceives a trend toward a dumb-pipe mode whereby "telcos… facilitate the transfer of information while the value add services, and the lion's share of profits, are…absorbed by the internet and technology brands at the top of the supply chain." As, however, Davies acknowledges, "the telcos are keen to resist this trend." Nevertheless, simply relying on local market physical presence to enable partnerships with digitally based firms suffering from the liability of outsidership is precarious. Industry analyst Simon Torrance (2018) is not hopeful that the telcos are able to respond to the VUCA threat posed by digitally based firms. He views telcos as sleep-walking into the future. In his view:

> "Telcos still have most of the assets in place that can be leveraged to upgrade their business model and create a new way to grow. The problem is that, in practice, they have become stuck, like many now-incumbent organizations, in what Jeff Bezos calls Day 2 thinking (i.e. stasis, followed by irrelevance, decline and death)…. They are

> failing at effectively transforming for a digital world, and so they remain stubbornly 'defensive' stocks for investors, sinking more and more towards utility status and unable to attract talent and excite customers in the way they once did."

One approach to explaining the ability of firms to reconfigure their resource bases in the face of VUCA is that of dynamic capabilities (Schoemaker et al., 2018). Teece (2007) breaks these down into three primary components, "sensing" external opportunities and threats, "seizing" opportunities by, not least, designing innovative business models and "transforming" both internal and external assets. "However…, (as Teece readily admits), "understanding how to enhance performance of the enterprise through sensing future needs, (seizing and transforming) remains enigmatic" (Teece, 2007:1345). One view of why dynamic capabilities are so "enigmatic" is that the concept encompasses the reconfiguration of both resources and activities; some of these are tangible and observable, while others are intangible and difficult to observe (Sheehan & Foss, 2017).

Our view is that the observable activities of managers are a key component of dynamic capabilities (Helfat & Martin, 2015). For telcos to evolve new business models that enables them to compete with digitally based firms, or to move into new novel domains, their managers will not only sense but also seize new capabilities in for example computer based analytics and machine learning in order to transform current local marketing knowledge (Meffert & Mohr, 2017). We observe examples of managers of telcos that while maintaining their current business models are simultaneously investing in new domains, such as the Finish telco Elisa that is developing IoT knowledge to digitize factories (*CIO Applications Europe*, 2019). However, on a general level we cannot predict whether the managers of telcos will act with sufficient foresight to acquire necessary relevant dynamic capabilities. Indeed, we acknowledge that firms located in business environments subject to VUCA often, simply die

(Christensen, 1997). Nonetheless, there are established firms that do cope with rapid, unpredictable, complex and ambiguous change and that succeed in business model innovation in the sense of a complete reconfiguration of how they do business (Zott & Amit, 2017).

Finally, just as we cannot predict the ability of incumbent telcos to incorporate and apply dynamic capabilities, nor can we predict the future direction of government and inter-government regulation of digitally based firms. We have referred to recent developments in Europe that constrain the activities of digitally based firms. The EU is increasingly "taking on the tech giants" and given that "the EU's standards are often copied in the emerging world" (*Economist*: 2019:11) the value of the insidership that is embedded in the local physical presence of telcos could be further enhanced. However, while government regulation of digitally based firms can provide telcos some degree of shelter from VUCA, of itself it is unlikely to be sufficient to secure any extension to the competitive advantage these firms have enjoyed for more than two decades.

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Figure 1. Benefits of physical presence

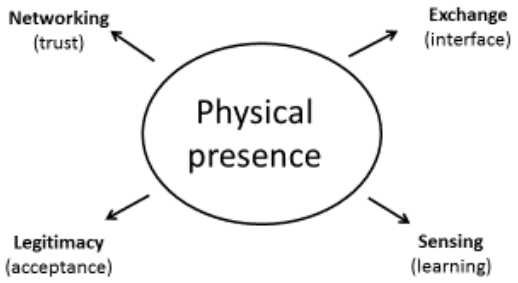
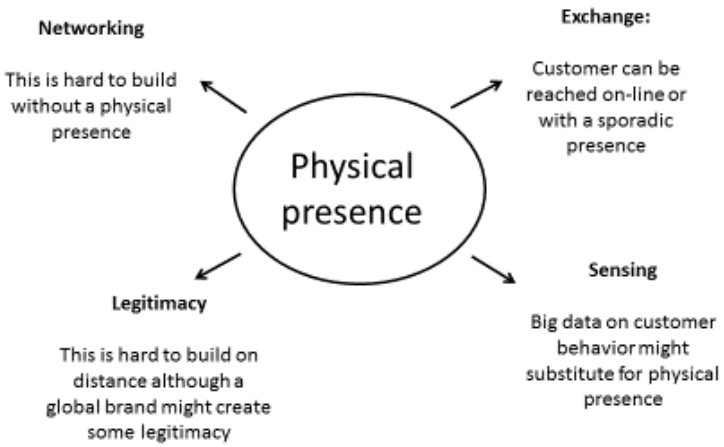


Figure 2. What changes for digitally based firms



Benefits of physical presence	Relationships – current situation	Change-drivers	Implications
EXCHANGE	Local customer recruitment by using/developing local agent network and logistics for selling SIM-cards. Cash is only payment method in emerging economies.	With E-sim, service provisioning will be done over the air. No need for cash-payment with introduction of digital payment to all customers also in emerging markets.	**No future value:** Local agent-network superfluous.
SENSING	Local marketing expertise including building local customer knowledge, designing local price plans and establishing local brand recognition through local mass marketing in physical media.	Use of computer based analytics and machine learning deployed to understand and segment customers. Personalized price-plans created on corporate policies. Online marketing and use of analytics to personalize marketing campaigns.	**Limited future value unless transformed:** Multi country computer based marketing supplement and may eventually take over the job of local marketing experts. Remaining local marketing require few local resources.

			Local marketing expert knowledge of potential value if converted to non-utility services.
NETWORKING	Local negotiation of sites and building network infrastructure of towers and base-stations in country markets.	Spin-off to tower-companies. Tower companies expand business from managing only towers, antennas and power to also manage base-stations.	**Integrated operators faced with a choice to outsource to tower-companies:** Outsourcing over the years means that specialized local market knowledge has passed to external firms.
	Country operation of local mobile-network.	Transition to 5G involves separation of physical network infrastructure from services by deploying software and cloud-technologies	**Limited need of future local resources:** Mobile operation performed in multi-country cloud data-centers. Distributed data operated remotely. Local knowledge and resources moved to multi-country setup if national regulations permits
LEGITIMACY	Governmental relations and negotiations to invest and hold spectrum licenses: i.e. local legitimacy	No change	**Continued value** Local legitimacy continues to be important

Table 1: Current local market knowledge and its future value