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2021, Vol. 35, No. 4, 606–621.
https://doi.org/10.5465/amp.2020.0015

A R T I C L E S

THE DARK SIDE OF DIGITAL GLOBALIZATION

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This article describes the dark side of digital globalization primarily in terms of its impact on the multinational enterprise (MNE). Digital assets have brought about a new kind of firm-level internationalization. Those assets operate as firm-specific advantages (FSAs) throughout the firm's value-creating processes. The dark side refers to the new challenges and costs associated with such globalization, especially those related to overestimating the nonlocation-boundedness of FSAs and to underestimating the need to engage in novel resource recombination as a complement to the extant FSA reservoir. It demands the same attention we want to give to supposed opportunities and benefits. Our research question addresses how to achieve the desirable, balanced conceptual focus on the bright and dark sides of digital globalization, aligned with mainstream contingency thinking in international business research. We first describe the key components of the bright side, namely a higher digital intensity of the MNE's asset base and the related FSAs supporting digital globalization. We subsequently provide an overview of the main components of the dark side. We seek, via an integrative approach, to stimulate scholarly dialogue about the relevant trade-offs in international business strategy.

Digital globalization has become a new core topic in international business research, as shown by the many papers on the topic presently being published in scholarly outlets. At the macro level, digital globalization has been used to describe the changes in world trade and foreign direct investment resulting from the deployment of digital assets (Azmeh, Foster, & Echavarri, 2020). We focus on the firm level (Cahen & Borini, 2020), and on how firm-level internationalization has been enabled by digital assets that operate as firm-specific advantages (FSAs).

One can observe two biases in the firm-level digital globalization literature, in addition to the perhaps obvious point that in most cases firm-level *internationalization* has a much more limited scope than does *globalization*.[1] First, from an ontological point of view, there may have been too much emphasis on the economics-driven *mechanics* of "globalization of digital technology" rather than on the "globalization of firms" *enabled* by digital assets. The technology perspective has mainly focused on how communication and alignment between demand and supply are facilitated (Vadana, Torkkeli, Kuivalainen, & Saarenketo, 2019). This has somewhat obscured the fact that to exploit its digital FSAs the focal MNE must interact with numerous local partners, and that this can significantly affect its ability to use and exploit

We are grateful for the valuable comments and suggestions received from two anonymous reviewers, and for the outstanding developmental guidance throughout the reviewing process from AMP Associate Editor Prof. Geoff Wood. We would like to dedicate this article to the memory of Dr. Michael Gestrin.

[1] The latter would require competing successfully across the globe, and *inter alia* operating asset bases, as well value chain configurations, that span multiple regions. The more modest footprint of the majority of internationally operating firms does not support the notion of corporate globalization, as explained in Rugman and Verbeke (2004), Verbeke, Coeurderoy, and Matt (2018), and Rosa, Gugler and Verbeke (2020).

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its digital assets (Bouncken & Barwinski, 2020; Poulis & Poulis, 2018).

Second, the empirical phenomenon of digital globalization has been couched primarily in positive terms, whereby a variety of challenges facing the MNE and society have been somewhat downplayed. At the firm level is the issue of location-boundedness of digital asset–based FSAs and the need to combine these assets with complementary resources abroad—a phenomenon commonly observed for other asset classes (Hennart, 2009; Verbeke & Kano, 2016). At the societal level, issues arise related to potential monopolistic behavior, digital insecurity (of individuals and firms), exclusion of stakeholders from digitally supported value chains, and ineffective regulation, all of which can ultimately jeopardize the MNE's social license to operate (Buckley, Doh, & Benischke, 2017; Ojala, Evers, & Rialp, 2018). The literature may thus have given undue weight to the opportunities and benefits of digital globalization, i.e., the *bright side* (Bughin, Lund, & Manyika, 2016; Su, 2013; van Tulder, Verbeke, & Piscitello, 2019), rather than to its *dark side,* which we see as the limited capacity of digital assets to function as FSAs in a wide variety of cross-border contexts, and the potential negative impact on the relationships between the MNE and its stakeholders.

This article's focus is the somewhat downplayed dark side of digital globalization. We address its relational-contextual dimensions, as advocated by Norder, Sullivan, Emich, and Sawhney (2019), and recognize the complex interactions between global and local levels. Thus, we deal with the challenges and costs for the MNE and its stakeholder relationships arising from attempts to expand and do business internationally on the strength of digital assets. The supposed benefits are many. To enjoy them, MNEs must be able to deal with the predictable challenges and associated costs. We undertake a careful analysis of relevant benefits as well as costs—and therefore boundaries—of digital globalization, much in line with mainstream international business scholarship on more conventional types of firm globalization (Dunning & Lundan, 2008).

Therefore, our research question is: How can the desirable, balanced conceptual focus on the bright and dark sides of digital globalization, aligned with mainstream contingency thinking in international business research, be achieved so as to guide scholarly work on international strategy decisions? As we will show, various conditions must be fulfilled before higher digital intensity can confer nonlocation-bound FSAs to support an MNE's international expansion: some MNEs are simply better positioned than others to both exploit existing digital assets and bundle them with nondigital resources and capabilities. In addition, asset-bundling processes in foreign markets must take into account the complexities and uncertainties brought about by rapidly evolving government regulations and stakeholder demands, often expressed in the nonmarket sphere.

HIGHER DIGITAL INTENSITY AND DIGITAL GLOBALIZATION: SUPPOSED ECONOMICS FOUNDATIONS AND THE NEGLECTED DARK SIDE

Digitalization refers to converting "things" (information, sound, shapes, etc.) into digital data that can be stored, processed, reprocessed, and deployed an infinite number of times, at low or zero marginal cost. It involves digital data, technologies, infrastructure, and business models, all of which represent some form of *digital assets*. These assets in turn support the development and delivery of products and services in the marketplace. Firms can be assessed in terms of their digital intensity, meaning the relative importance of digital assets versus nondigital ones, with brick-and-mortar-based firms in many sectors—agribusiness and professional services, for instance—now seeing rapid increases in such intensity (Nwankpa & Datta, 2017; Westerman, Tannou, Bonnet, Ferraris, & McAfee, 2012).

The information and digital age, sometimes referred to as the Fourth Industrial Revolution, builds upon disruptive technologies revolving around digital assets that are supposedly transforming industries and markets (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013; McKinsey Global Institute, 2013; McKinsey Global Institute, 2016). In essence, this is about injecting digital assets in both local settings and the global economy. A distinction can be made here between born digitals and going digitals (Eden, 2019). Born digitals are businesses that build their FSAs mainly on the basis of digital assets: Internet search engines (e.g., ask.com, Baidu, Bing, DuckDuckGo, Google, Yahoo), Internet social networks (e.g., Facebook, Instagram, LinkedIn, NextDoor, Twitter, WeChat, WhatsApp, YouTube), and Internet-based sharing platforms and ecosystems (e.g., Airbnb, Dropbox, Google Drive, Khan Academy, Uber). Born digitals are distinct from existing brick-and-mortar-based businesses that infuse digital technologies into their main value chain processes—that is, going-digital firms trying to create new FSAs as complements to, or substitutes for, older ones, for example by adopting digital technologies in their main

production processes and internalizing or quasi-internalizing digital assets (van Tulder, Verbeke, & Piscitello, 2019).

Apart from the often-heard management prescription that MNEs should increase their digital intensity, consulting-driven analyses and research on international business strategy have typically made the point that digitalization allows faster, broader, and deeper international expansion with modest resource footprints in host countries (Gestrin & Staudt, 2018). This view ultimately reflects the bright side of digital globalization (Li et al., 2019; Steenkamp, 2020; Nambisan, Zahra, & Luo, 2019). One notable exception is Stallkamp and Schotter (2020), who carefully explained the low internationalization level of many digital firms as an outcome of configurations of country, industry, and business model variables. Another exception is Huang's (2020) report on competition in Southeast Asia's digital economy, which describes mixed outcomes of firms' digital globalization efforts, with large Western digital MNEs achieving lackluster performance in that host region because of insufficient efforts to develop location-bound FSAs.

Below, we describe in more detail the components of the bright side, as articulated in recent scholarly contributions. A critical analysis of this work reveals that recent scholarship has well-illustrated the bright side, but has not fully addressed the dark side, which is our focus. The relative underplaying of the dark side risks the forming of unrealistic prescriptions for MNE decision-makers, as well as overly optimistic predictions of expected outcomes. We provide a brief overview of the supposed FSA-infusing properties of higher digital intensity and digital globalization, and its related predictions.

Supposed FSA-Infusing Properties of Higher Digital Intensity and Digital Globalization

The overarching perspective shared in the literature on digital intensity and digital globalization is that: (i) the digital economy is an ever more important part of the world economy—in the sense of digital elements substituting for nondigital ones; (ii) digital business models will almost always confer FSAs to the companies adopting them, and outperform nondigital ones; and (iii) the transformation of business through fast-paced adoption of digital business models requires, on the academic side, new theories to explain FSA development in general, and, more narrowly, internationalization processes and levels, as well as governance structures (Nambisan, Wright, & Feldman, 2019).

The following three elements, which we will discuss in turn, have often been put forward as the FSA-infusing properties of higher digital intensity and subsequent success in digital globalization: governance, resources and assets, and customer value focus (see Figure 1). Based on illustrative narratives from the extant literature, we will formulate six bright-side predictions, followed by six corresponding dark-side predictions.

Governance. A first component of the supposed FSA-infusing properties of digital assets relates to how digitalization affects the governance of firms and their networks. The focus is on how firms can exploit their strengths in research and development, branding, and high-quality management practices. Banalieva and Dhanaraj (2019) discussed how digitalization alters the predictions of mainstream international business theory on governance choices in cross-border transactions. According to them, in a digital world MNEs are not primarily reservoirs of proprietary knowledge that try to protect and exploit their FSAs across borders via conventional operating modes (e.g., wholly owned subsidiaries) to deliver their products. Rather, the authors conceptualized digital service MNEs (DSMNEs) as the core of digital networks, and stated that international expansion occurs through digital networks. Banalieva and Dhanaraj (2019: 1379) suggested that digitalization "extends the choice of the governance structure of market versus hierarchy, by adding the digital network as a third choice." Thus, digitalization enables firms to shift their focus from mere product delivery to internationalizing through digital networks with foreign partners.

Hennart (2019) revisited this perspective and analyzed the actual business models of DSMNEs, such as Alibaba, Netflix, Spotify, and Uber. He compellingly demonstrated that structural networks are actually not a third governance structure or generic organizing method on a par with markets or firms. Instead, networks are configurations of conventional governance elements, and not a new governance structure. Structural networks can be governed by hierarchical processes (i.e., within firms), as internal or external hybrids (combining hierarchical and market processes), or as pure markets.

It has been argued that digitalization allows MNEs to exploit more effectively their technology-based FSAs. Bahrami (2013) provided a detailed account of how U.S.-based Mozilla successfully uses digital assets to support network governance, and to coordinate its ecosystem of knowledge contributors and value chain partners who are geographically

FIGURE 1
Bright Side and Dark Side Firm-Level Effects of MNE Digital Globalization

	Opportunities & benefits of digital globalization	Challenges & costs of digital globalization
Governance	Digital network governance allows creating and exploiting ecosystem-specific advantages Digitally supported network rules align the incentives of autonomous actors	Digital network governance must include localized asset ownership and local context knowledge Need to internalize complementary, cospecialized resources
Resources or assets	Digital resources such as data flows, unconstrained by spatial and time-related boundaries, allow FDI-light footprints Digitally supported resource orchestration substitutes for asset ownership in internationalization, and reduces liabilities of foreignness	Requisite physical-asset footprints of born digitals, diversifying into brick-and-mortar assets; heavier international footprints of going digitals thanks to digital resources Requirement of substantial localized, complementary resources abroad
Customer Value	Positive network externalities, both within and across countries, drive emergent winner-takes-all digital hubs, penetrating brick-and-mortar sectors Easy adaptation of digital hub internationalization strategies, as a function of demand-side drivers	Negative network externalities due to power concentration; digital nationalism prevents global digital hub dominance Digital vulnerability and other customer-interface barriers to internationalization

distributed throughout the world. Ben-Ner and Siemsen (2017) described how 3D printing (or additive manufacturing) allows MNEs to adopt new forms of organization focusing much more than before on decentralized and localized production. Bolwijn, Casella, and Zhan (2018: 39) described how digitalization leads to "decentralised production, accelerated servicification and extended disintermediation," while Fisch and Fleury (2020) showed that it triggers the internal reconfiguration of MNE manufacturing plant networks.

Even when accepting Hennart's (2019) view that network governance largely consists of governance components long recognized in more conventional governance settings, the prediction remains that digital governance, operating as an FSA rather than as a generic governance system in its own right, fundamentally augments the capacity of lead MNEs in global value chains to guide their internal and external networks. The paradox is that MNEs leading digital networks with many activities occurring outside of their firm boundaries can, through digital tools such as blockchains, keep tight control over their international partners, protect their property rights, and reduce transaction costs more generally (Hooper & Holtbrügge, 2020). The above leads to the first bright-side prediction.

Bright-side prediction 1. Digitalized governance tools function as a powerful coordination and control mechanism in international, asymmetric networks, especially if critical elements thereof are kept proprietary by the lead MNE.

Li, Chen, Yi, Mao, and Liao (2019) proposed a somewhat different conceptualization of the networked firm. They introduced the concept of ecosystem-specific advantages (ESAs). ESAs are supposedly created out of complementary assets and distributed innovation by the various ecosystem participants. In that case, network rules align the contributions of autonomous actors who create digital innovations, whereby *ex post* iterations toward alignment are as important as *ex ante* planning. Governance is thus not the result of easily identifiable, formal contractual agreements among partners, but it is embedded in evolving network rules, such as database and Internet protocols, ecosystem partner status categories, payment systems, terms and conditions of customer service, and marketplace agreements. The goal of ESAs is joint value creation by multiple cospecialized partners, and

this is greatly facilitated by digitalization, which allows instant sharing of information and continuous monitoring.

Sustained growth and successful internationalization of the initial ecosystem will ultimately depend on the positive externalities it can create for customers and complementors (Katz & Shapiro, 1986). As more customers and complementors participate in the ecosystem, it becomes more valuable to the individual customer (e.g., through the larger number and quality of interconnections) and to the individual complementor (e.g., through the larger, overall size of the profit pool that the ecosystem creates). Supposedly, virtuous cycles ensue, with positive externalities creating a self-reinforcing process: a larger installed customer base turns into higher attractiveness for complementors, which in turn attracts more customers, and so on. The mesh of network rules accepted and shared by all participants, and implemented through digital means, can thus support winner-takes-all conditions, at least if individual participants cannot just leave the ecosystem and retain the benefits of the ESAs at hand. The prediction is therefore that digitalization facilitates creating and strengthening ESAs, and this is associated with new governance tools that are easily deployable across borders. The paradox is that winner-takes-all behavior and the governance mechanisms associated with such behavior—typically benefiting a single lead firm—will, in the case of digitalization, be actively supported by other economic actors in the lead firms' ecosystem, thereby facilitating international expansion—hence the second prediction:

> *Bright-side prediction 2. Network rules, digitally enabled and enforced, will support and sustain ESAs, which the MNE can easily deploy and strengthen further in its international expansion.*

Resources and assets. Casella and Formenti (2018) investigated the foreign direct investments of digital MNEs (DMNEs). They find that MNEs in high digital-intensity industries have a lighter FDI footprint compared to traditional MNEs, which typically have value chain activities concentrated in only a few critical markets. They calculated what they called an FDI lightness indicator, which they defined as the ratio of foreign sales to total sales divided by the ratio of foreign assets to total assets. That indicator is 1 for traditional MNEs, but 2.5 for MNEs with high digital intensity, which also have fewer foreign affiliates in developing countries (12% of total number of affiliates vs. 29% for traditional MNEs) and a higher ratio of unremitted foreign earnings to tangible foreign assets, 6:1 versus 1:1. Based on these findings, the authors hypothesized that we may be entering a new era of international production and MNE internationalization patterns, whereby DMNEs can venture abroad without substantial physical presence.

The predicted lightening of MNE footprints could also fuel a reversal of the trend toward increasing the share of developing countries in global inward and outward FDI. Developing countries might suffer from receiving less foreign investment, and the trend toward significant migration streams from developing toward developed countries might increase. FDI itself would become more influenced by finance and tax considerations than by market-seeking and resource-seeking motives. These trends would thus have the potential to radically transform the international operations and value chain activities of many MNEs. Ultimately, digitalization makes MNEs more agile and footloose as to the location of their nondigital assets. Digital assets thus paradoxically facilitate the global dispersion of supply and distribution, but at the same time it becomes possible to locate nondigital assets anywhere, preferably in a few countries with high institutional quality. The expectation of a lighter asset footprint leads to a third prediction:

> *Bright-side prediction 3. MNEs can access institutionally distant markets with lighter asset footprints, and therefore with lower capital expenditures and risks of irreversible resource commitments.*

Nambisan et al. (2019) focused on the resource orchestration features of cross-border digital platforms and ecosystems (DPEs). They highlighted the role of DPEs as venues for multifaceted innovation and multisided marketplaces. They actually viewed DPEs as shared resources that enable new ways of internationalizing. In particular, they hypothesized that DPEs can serve as a "springboard" to internationalize without conventional FSAs based on proprietary assets, thereby also reducing vulnerabilities at home. DPEs imply a shift in thinking about FSAs, away from resource ownership toward resource orchestration.

In this case, DPEs benefit from context-specific advantages to overcome liabilities of newness and foreignness. When contemplating the transferability of resource orchestration skills, the business context—more specifically, the similarity in industry and market—supposedly matters much more than national boundaries. DPEs offer value propositions that can easily be applied across national boundaries without much need for adaptation. Shared digital components in the DPE make it possible to standardize the

infrastructure, the strategies, and the value chain procedures, and such standardization is readily accepted throughout the relevant industry and market because of cross-border similarities. Again paradoxically, the presence of context-specific advantages related to industry and market, and the supposed reduced importance of location-specific contexts (with the associated liability of foreignness), would make foreign market entry easier and faster. These ideas lead to a fourth prediction.

Bright-side prediction 4. The MNE's resource orchestration FSAs underlying digital platforms and ecosystems are nonlocation-bound, and therefore globally deployable. These FSAs dramatically reduce the challenges posed by the liability of foreignness and will facilitate internationalization of both the MNE and its ecosystem partners.

Customer value. Digital ecosystem partners can perform different roles, such as lead firm(s) or complementary partners. Ecosystem is an umbrella term covering a variety of partnership arrangements to facilitate innovation and exchange (Jacobides, Cennamo, & Gawer, 2018). In each case, the MNE can perform the role of lead firm or hub.

Iansiti and Lakhani (2017) studied this role. They highlighted the economics of increasing returns to scale from strong network effects that can benefit the hub firm at the supply side. However, as already noted, network effects can materialize on the demand side too if network access becomes more valuable to the individual customer because other customers also access and use the network (Boudreau, 2012; Shapiro & Varian, 1999). As more customers become involved in the network and participate more intensely in it, higher positive network effects will result. This outcome can be amplified if FSAs in artificial intelligence are deployed to collect data and to foster learning (Gregory, Henfridsson, Kaganer, & Kyriakou, 2020). From a downstream perspective, network effects can be interpreted as demand-side scale economies, and they are supposedly an important driver of digital globalization (Li, Chen, Yi, Mao, & Liao, 2019: 1450f.).

In parallel, on the supply side, Iansiti and Lakhani (2017) observed that the outcome of strong dynamic scale economies is typically the emergence of a winner-takes-all digital hub firm. The authors qualified network hub firms as "superpowers" that capture most of the value created by the ecosystem. They also observed that these hub firms, beyond dominating their digital industry segment (e.g., in mobile telecommunications), subsequently entered new sectors such as the automotive industry. These sectors represent large portions of traditional brick-and-mortar-based industries, with the digital hubs trying to "rearchitect" them. The paradox in this instance is that winner-takes-all scale economies do not lead to simple monopolistic advantages and consumer exploitation; rather, the stronger position of digital hub firms, and even their diversification into complementary businesses, can further amplify demand-side scale economies and customer value. Hence, we can formulate another prediction:

Bright-side prediction 5. Digital hub MNEs can use their dominant position and value-capture capacity from their baseline ecosystem to diversify into long-established and internationalized brick-and-mortar-based firms, thereby further increasing customer value and creating the potential to become global superhubs.

It is important to recognize that not all digital ecosystems have the same characteristics, and therefore digital hub firms will also internationalize following different paths (Chen, Shaheer, Yi, & Li, 2019). Stallkamp and Schotter (2019) distinguished between two types of ecosystems. The first capitalizes mainly on cross-country network effects (involving customers of different countries), as is the case with PlayStation, and firms following this path will typically opt for greenfield foreign entry modes. The second type builds on within-country network effects (involving primarily customers in a single country), as is the case with PayPal, so that the hub firm will be more inclined to enlist local partners when engaging in an international entry. As mentioned above, network effects are demand-side scale economies, and the precise ways in which they materialize will determine the hub firm's internationalization pattern.

The point is that most research on digitalization studying demand-side externalities has focused on positive networking effects. In fact, value cocreation with customers, such as through social sharing and virtual community building in the case of digital apps, can go a long way toward alleviating the traditional distance dimensions facing nondigital companies (Shaheer & Li, 2020). Here, the paradox is that cultural, administrative, geographic, and economic distance dimensions, which typically prevent MNEs from full and easy access to the host-environment customer base, can be alleviated by making the demand side work for the hub firm. This brings us to our last bright-side prediction:

Bright-side prediction 6. Digital hub MNEs can easily adapt their international expansion trajectory as a

function of how demand-side externalities are generated, and how the demand-side can be coopted in this trajectory.

The Dark Side of Higher Digital Intensity and Digital Globalization

The overall prediction from research linking digitalization to international business, much in line with the paradoxical bright-side predictions above, is that digitalization will lead to faster, broader, and deeper international expansion with relatively modest resource footprints in host countries (Gestrin & Staudt, 2018). Our perspective is that this has not been sufficiently qualified—and it must be. Moreover, the literature on digital globalization has rarely addressed the spillover effects that could trigger a backlash from domestic nonmarket actors, including government agencies, resulting in restrictions on foreign entrants in the digital market space. The "era of digital exceptionalism" that has been enjoyed by many digital hub MNEs now appears to be coming to an end (Internet firms' legal immunity is under threat, 2017). The required conceptual rebalancing rests on three foundations.

Limited coverage. The predictions outlined in the previous section must be qualified because they stem mostly from the assumption that the firms being studied are born digitals, such as digital platforms, digital content providers (e.g. media, entertainment, data), digital solution providers (e.g. digital payment, cloud services), and digital retailers. These firms do represent a growing share of the overall economy; however, extant literature has paid less attention to the much larger brick-and-mortar-based part of the economy going digital, which has relied mainly on traditional governance systems. For large MNEs, these include *inter alia* divisional structures favoring intradivisional, rather than firmwide, knowledge-development and -sharing; a judicious assessment by the head office of autonomous subsidiary initiatives; and formal controls on how knowledge is developed and diffused inside the firm and with network partners (e.g., Filatotchev & Wright, 2011; Goerzen, 2005; Verbeke & Kenworthy, 2008). A balanced assessment of the bright and dark sides of digital globalization should make it possible to predict whether the new contingencies will cause conventional governance systems to be revolutionized, adapted, or simply sustained (for a lucid analysis of some of these contingencies, see Iansiti & Lakhani, 2017).

Relative neglect of the role of complementary assets. Little has been written in this domain on the role of complementary assets that are difficult to access in international markets. While digitalization may have changed the nature of these complementary assets (compared to those needed by conventional brick-and-mortar-based firms), it has not made them unnecessary. The persistence of requisite complementary assets is much in line with mainstream management thinking (Teece, 2018) and international business strategy research (Hennart, 2019; Narula, Asmussen, Chi, & Kundu, 2019). Identifying, accessing, and utilizing complementary assets remain critical to both born digitals and going digitals.

Relative neglect of nonmarket forces in host environments. The impact of deploying FSAs based on digital assets can be significant, not only for the MNE but also for its value chain and broader ecosystem partners, and for local societal stakeholders (Sturgeon, 2020). It is therefore unrealistic to assume that while firms are riding the wave of global demand-side externalities with relative ease, nonmarket forces in host environments will simply resign themselves to a "new reality" irrespective of its effects on myriad host country stakeholders.

Consequently, it is important to recognize the challenges and costs—that is, the dark side—of higher digital intensity and global digitalization, along the three dimensions discussed above. After rebalancing bright-side factors with dark-side ones in the next section, we will briefly discuss the importance of nonmarket forces that can change the context of global digitalization and can themselves lead to both intended and unintended societal impacts.

Governance. Digital network governance is not easy, especially across national borders. Knowledge of local contexts remains important, and ownership of the critical assets involved may also be required. For example, the challenge of achieving intellectual property rights (IPR) protection for digital assets, so as to turn these into FSAs, typically makes at a minimum part-ownership of the relevant assets a must. IPR governance cannot be based solely on market contracts within a digital ecosystem. For example, Tesla is currently transforming the conventional concept of the car into a platform of applications, but it cannot do so out of a global production hub in the United States and by using contracts with external parties in its network. It finalized plans to open a new, wholly owned factory in Germany, which unavoidably required it to tackle European Union market access issues (MarketWatch, 2019). Many of the world's largest industries, such as automotive, chemicals,

machinery and tools, construction, and so on, cannot rely merely on nonphysical, digital value chains in international markets. The exploitation of high digital intensity as an FSA typically requires recombining tangible resources with intangible ones in novel ways; digital assets with complementary nondigital ones; specialized digital assets with cospecialized nondigital ones. As a consequence, digital network governance requires both market-based contractual rules and the internalization of complementary, cospecialized physical, nondigital resources. This leads us to frame the first two dark-side predictions:

Dark-side prediction 1. The MNE's digital network governance, especially in the international sphere, must rely at least partly on localized contextual information and on the ownership of localized critical assets.

Dark-side prediction 2. The MNE's digital network governance needs to accommodate the presence of complementary and cospecialized nondigital assets, thereby requiring the standard comparative institutional assessment of the entire bandwidth of available governance tools, from simple market contracting to full hierarchical governance.

Resources and assets. By deploying FSAs based on their home-proven digital assets, born digitals can supposedly gain market share rather easily in their industry and reap high profits when expanding internationally (Monaghan, Tippmann, & Coviello, 2020); however, many born digitals do struggle when trying to expand internationally. Different expansion trajectories can be observed in practice (Stallkamp, 2018). In most cases, foreign expansion requires that digital assets be bundled with more conventional assets, both vertically and horizontally (e.g., Uber's need for local operating licenses), and this may hinder or slow down international expansion. Digital firms are also subject to new forms of government regulation, much of it triggered by "locally experienced" problems (Fan & Gupta, 2018). In addition, many going-digital MNEs are acquiring digital resources abroad, for instance buying software-development companies (Gestrin & Staudt, 2018).

Digital assets, in providing competitive advantage in the home market, can facilitate subsequent broader and deeper international footprints for the most successful going digitals, but not for all of them. Many born digitals will want to leverage and strengthen their digital infrastructure and business models by including conventional products and services (for instance Amazon purchasing Whole Foods in 2017) or engaging in complementary brick-and-mortar investments (Wu & Gereffi, 2019). The "dual hybridization hypothesis" suggests that in some sectors more globalization ("that never was" [see Verbeke, Coeurderoy, & Matt, 2018]) will indeed materialize for the most successful firms, but perhaps with an unexpectedly heavy tangible asset footprint and requisite investments in relational assets. Hence our third prediction:

Dark-side prediction 3. In most industries, MNEs' sustained competitive success through FDI-light footprints is illusory, both for born digitals and going digitals.

As noted above, a critical question is how digitalization will affect the need to access complementary resources when expanding abroad. It is important to recognize that international "value creation and capture in its entirety" often requires colocating extant assets that represent FSAs and external, "strategic" complementary resources (Narula & Verbeke, 2015). There has been a false narrative in international business strategy research that firms can just scan and scour the world for such "strategic" complementary resources, in this case to be absorbed into digitally enabled value chains. In reality, resource recombination processes are intense and challenging. There is a need to embed complementary resource acquisition processes in conventional units, such as product divisions, at least for the main product lines (Verbeke & Kenworthy, 2008).

In fact, the need to colocate several linked activities may be amplified in digital economy business models if complementary resources are needed locally to make an upstream, digital-asset-based FSA exploitable and profitable. Our fourth prediction ensues:

Dark-side prediction 4. Foreign direct investments of brick-and-mortar-based MNEs—which represent the majority of the world's largest firms (for instance Fortune Global 500)—will continue to be associated with substantial, localized complementary resources, both digital and nondigital.

Customer value. The extant literature has heavily emphasized the positive network effects that digital superhubs can create and capitalize upon, both within and across countries. The somewhat underanalyzed mirror image of such positive effects is that power concentration in network hubs can actually lead to negative network externalities. As a network gains higher market share, customers have fewer choices and their switching costs are raised. Suppliers that are highly dependent on superhub firms become more constrained by network rules, which ultimately also reduces customer choice. Typically, potential new entrants create innovative alternatives to the product

and service offerings of incumbent firms. Such innovations can be suppressed by superhubs. More directly, a firm such as Amazon has the power to cut off end customers that return purchases too frequently. It can also compete with third-party complementors selling on its site, or even replace them (Zhu & Liu, 2018). An external validation of the dominant position occupied by a limited number of network superhubs is the high status bestowed by national governments on the CEOs of firms such as Facebook, Google, and so on; at least until 2020.

Perceived negative externalities can act as a wake-up call for government regulators and other nonmarket forces. The 4.3 billion euro fine imposed on Google by the European Commission in 2018 for abusing its dominant network position, and thus lowering the innovation potential of the Internet, is a case in point (van Tulder, Verbeke & Piscitello, 2019). Governments can close off or regulate entire sectors, based on national security and data privacy concerns, or can support local incumbents. The challenges faced by Chinese acquirers of firms in the United States, and by LinkedIn in Russia and Google in China, are just a few of the cases in point.

If digital superhubs attempt to expand internationally through acquiring brick-and-mortar assets viewed as politically sensitive, regulatory measures to protect local industries are likely. Uber, for example, has been denied licenses to operate in a large number of countries and cities (Thelen, 2018). The reality is that the status of the global superhub is difficult to achieve in practice, which leads to a fifth prediction:

Dark-side prediction 5. MNE attempts at digital globalization typically generate nonnegligible crowding-out effects and negative externalities in host environments, which in turn lead to protective countermeasures from nonmarket forces; these measures, in some cases motivated by digital nationalism, can jeopardize digital MNEs' social license to operate in host environments.

Finally, efforts to increase digital intensity and digital globalization are often associated with increased digital vulnerability. Physical infrastructure, intertwined with advanced digital assets, such as those of power plants and airports, as well as the digitally supported value chains of logistics companies, hospitals, payment providers, and so on, have been targeted by cybercriminals and have suffered from data leaks, extortions, and denial of service. New routines addressing what ultimately amounts to a critical vulnerability in the interface with the demand side are needed (Kaplan, Richter, & Ware, 2019; Lees, Crawford, & Jansen, 2018).

Combined with the other dark-side challenges described above, such as the low potential of many MNEs to use digital assets for internationalizing with FDI-light footprints and the rather low likelihood of benefiting from demand-side network externalities, the actual contribution of higher digital intensity to sustained international competitive success may be more limited than suggested when adopting a bright-side lens. This leads us to our last dark-side prediction:

Dark-side prediction 6. MNEs using their higher digital intensity as a lever to accelerate and broaden international expansion will also face heightened digital vulnerabilities and related impediments to their interactions with host environment customers.

A BALANCED FIRM-LEVEL VIEW ON HIGHER DIGITAL INTENSITY AND DIGITAL GLOBALIZATION

Balancing opportunities and benefits, on the one hand, with challenges and costs, on the other, along the three dimensions we have discussed (see Figure 1) leads to the following conclusions.

Governance

Even with sharply increased digital intensity, MNE governance decisions on intertwined ownership and location choices do not change fundamentally. Lead MNEs in networks that operate as digital hubs still need to consider the entire spectrum of governance choices ranging from short-term contracts with network partners to internalizing all classes of transactions. Networks are therefore not an emerging, dominant governance form. Many networks operate around platforms and ecosystems, but underlying them are conventional firms. For example, stock exchanges—which are ecosystem hubs—are organized and run by firms. In the digital sphere, internalization has not lost its importance, because lead MNEs typically own the core assets underpinning the platform and its ecosystem. The main difference with conventional platforms and ecosystems is the new forms of digitally supported cospecialization and cocreation of innovation, leading to emerging "contractual variations" (Prashantham & Yip, 2017).

Resources and Assets

Higher digital intensity does have effects on value chains. FDI-lightness, albeit hardly a generalizable occurrence, is a real-world phenomenon linked to business models constructed on purely digital assets

(e.g., sales of music and software entirely in digital format). At the same time, born digitals expanding into brick-and-mortar-based industries, as well as going digitals focusing on the acquisition of digital assets, still need to rely substantially on localized, complementary resources in host countries. FDI-lightness and deeper international footprints will thus emerge in parallel and coexist (Fisch & Fleury, 2020).

Customer Value

Positive effects of digitalization on the demand side—the occurrence of cross-country positive network externalities—have already led to the emergence of a small number of international superhubs, but the resulting negative network externalities from market dominance on the supply side is triggering host-country (and host-region) protectionist measures, as well as other negative reactions from nonmarket forces. Instead of global superhubs, it is more likely that national and home-regional dominant firms will emerge, much in line with the recurrent observation that few global firms exist (Rosa, Gugler, & Verbeke, 2020). The winner-takes-all hypothesis may need to be reformulated into a "winner-takes-*most-of-a-region*" one. For example, in China, Amazon has been confronted with Alibaba, and Google with Baidu, highlighting how nonmarket forces and critical, location-bound competences can reduce the impact of economic drivers that would otherwise have led to a global winner-takes-all situation (Wu & Gereffi, 2019). Finally, digital vulnerability increasingly casts doubt on the reliability of superhubs to create customer value (one can think of the privacy concerns of Facebook users after the leakage of personal information to third parties [see Isaak and Hanna, 2018]). Most likely, space will open up for new players, leading to market power dispersion in many industries. In the business-to-business sphere, including the entire public sector, retaining supplier diversity is important to reduce digital vulnerability. For example, in 2019 the entire information technology (IT) systems of German universities were shut down for several weeks because of cyberattacks (A university had to hand out paper passwords, 2019). As a consequence, university IT administrators there decided to diversify the platforms used to deliver IT services.

NONMARKET FORCES IN THE MACRO-LEVEL ENVIRONMENT AS STIMULATING AND CONSTRAINING DIGITAL GLOBALIZATION

The above analysis, focused on firm-level effects, suggests a need to rethink the role of nonmarket forces. When faced with foreign digital entrants, it is unrealistic to assume business-as-usual government regulation or indifference on the part of other nonmarket actors. The latter can both stimulate and constrain firm-level attempts at digital globalization. This has already led, and will continue to lead, to a variety of *societal impacts*, both intended and unintended (see Figure 2).

Intended Outcomes of Stimulating and Constraining Nonmarket Forces

The most important motivation for government support of digital globalization is the stimulation of free trade. Facilitating the dissemination of born-digital and going-digital business models is seen as helping the diffusion of digital innovations. Customers will benefit from larger networks if digital business models can be disseminated without facing hard country borders, but this can lead to digital superhubs with strong international market positions. Furthermore, if digital networks allow for broad inclusion of stakeholders (e.g., eBay, Facebook, Uber, etc.), easier diffusion of their business across borders will permit the participation of a larger number of stakeholders. Beyond this, digital globalization can facilitate broader inclusion of dispersed, decentralized actors and their participation in democratic processes. The Arab Spring in 2011 would not have been possible without social networks such as Facebook (Huang, 2011). In general terms, nonmarket forces stimulating digital globalization can foster stakeholder inclusion in technological, economic, and broader societal terms.

The intent of forces constraining digital globalization is quite the opposite: prevent foreign-based superhubs from unduly capturing value in potential host markets. Several national governments in Europe—Germany's for instance, but also the EU Commission—have voiced the intention to foster the creation of a "European Google" to secure independence from Google, a move similar to the creation of Airbus as a counterweight to the market power of Boeing in the 1970s. The French government has voiced its preference for an additional tax on sales in France achieved by foreign Internet-based hubs (Ledson, 2020). These and other measures are intended to protect local-born digitals and going digitals against foreign-based digital superhubs. In general terms, constraining measures emanating from nonmarket forces are typically expressions of digital nationalism (or regionalism), explicitly intended to exclude foreign competitors from the domestic digital marketplace,

FIGURE 2
Nonmarket Forces and Outcomes in the Digital Economy

Nonmarket forces	Outcomes: Intended	Outcomes: Unintended
Stimulating digital globalization	Faster innovation through accelerated experimenting Increased customer value through cross-country positive network effects Increased inclusion of stakeholders Deeper democratization	Asymmetric value-creation and -capture Exclusion of conventional value chain partners Adverse selection by biased algorithms Emerging protectionism against foreign superhubs
Constraining digital globalization	Protection of domestic born globals and going digitals against foreign superhubs Digital nationalism	Advantages accruing to managed economies through, for example, patent circumvention Digital experimenting with extensive government control of societal stakeholders

or to regulate their activities and tax their financial gains.

Unintended Outcomes of Stimulating and Constraining Forces

The negative spillovers of digital globalization are manifold, and may be exacerbated by liberal policies toward digital firms. Such spillovers result *inter alia* from MNEs gaining privileged access to big data on a worldwide basis through their dispersed customer base (e.g., the sale of tractors that collect information on crop quality and quantity in agriculture; the weaponizing of personal information against users, as noted by Tim Cook, Apple CEO, in 2018 [Cook, 2018]). In such cases, nonmarket actors need to trade off the unintended asymmetric value capture by digital hub firms against the intended value-creating benefits of enabling digital technologies that accrue to providers of complementary resources. For example, equipping marine containers with digital information-gathering and -processing devices can give digital technology providers unparalleled and exclusive access in real time to comprehensive information on the evolution of world trade, while at the same time providing information on the exact location and status of the containers to the owners of the goods inside them, and possibly as well as to government agencies. Likewise, radio frequency identification technology tools are significantly reducing losses in transit for German logistics centers such as those of BMW and Hewlett Packard (Sarac, Absi, & Dauzère-Pérès, 2010).

In addition to the challenge of weighing asymmetric value capture against a variety of societal benefits, any nonmarket push to stimulate digital globalization can unintentionally result in economic exclusion. Indeed, the progression of global digitalization may result in the exclusion of some conventional value chain partners. Digitally enabled value chains can support MNE corporate social responsibility (CSR) strategies, but at the same time exclude second-tier and lower-tier suppliers from participating (see Narula, 2019). In such a case, the paradoxical outcome of regulations and nonmarket pressures to improve CSR may be the opposite of that desired. While base-of-the-pyramid, inclusive strategies prescribe that MNEs "clean up their act" and abide by the highest possible CSR standards, this may backfire, with the end result being the exclusion of the most vulnerable participants from digital value chains.

More generally, Forsgren's (2017) insight on the extreme bounded rationality at MNE head offices

may also be relevant in the context of deploying or bundling digital assets in foreign markets: here, the head office may lack essential, local know-how and may not grasp the importance of commanding such know-how. Superficially, "going digital" can solve many bounded rationality problems associated with operating and monitoring foreign operations, but the main challenge for the head office is to avoid focusing on specific, narrow performance dimensions related to digital assets in isolation, at the expense of broader performance criteria. Regulators and other nonmarket actors face a similar challenge when opening their borders to foreign digital entrants without any constraints. There is growing awareness of the falsity of the claims that algorithms used in artificial intelligence–based digital assets are neutral vis-à-vis age, gender, race, religion, political preference, and so on. They may indeed unduly favor some participants over others, and this feeds negative sentiment against some digital superhubs.

Finally, the fast growth of digital superhubs is associated with unexpectedly high market concentration and the crowding out of smaller local competitors. This has caused suspicion and resistance among national authorities, causing them to question their initial liberal policies on digital globalization. Penetration of foreign-based digital hubs can lead governments to impose trade barriers, as Amazon experienced in India (Agrawal & Salam, 2020).

In general terms, stimulation of digital globalization by nonmarket actors can lead to unintended societal outcomes such as asymmetric knowledge advantages accruing to privileged participants in digital networks; exclusion of vulnerable parties from international value chains; the favoring of some economic, social and political actors over others; and the crowding out of local firms.

Petricevic and Teece (2019) recently found that a number of managed economies are trying to boost their digital sector, *inter alia* by not protecting IPRs for digital assets. Because it is nonpatentable and patent-circumventable, the knowledge of foreign firms can be appropriated by local firms, whereas foreign innovators struggle to access downstream complementary resources (including relational assets) because of digital nationalism (Hennart, 2012). Here, digital nationalism means the deployment of discriminatory policies against foreign entrants, while at the same time stimulating domestic firms in the same sectors, and stakeholders who would otherwise have been excluded (for an extensive discussion of the broader institutional context, see Yan, 2020).

Barring Google from operating in China has made it possible for Baidu and WeChat to emerge as dominant players in the domestic market. Local complementors to those platforms are unlikely to have emerged without government intervention. At the same time, the much-debated Chinese face-recognition and social-ranking systems are possible only because the digital ecosystems and infrastructure are largely government regulated and controlled (see also Kendall-Taylor, Frantz, & Wright, 2020).

The broader question therefore arises about whether a centrally controlled country is able in the long run to be more effective at resource orchestration in digital space than a diverse set of firms working in innovation-driven markets. In general terms, governments that constrain foreign-based digital globalization through protectionism can foster local participation. At the same time, a government-controlled digital infrastructure and its related ecosystems can lead to strong and controversial control over citizens, thereby triggering societal effects reaching far beyond economic impacts.

Even if digitalization were to facilitate the international transfer of products and services, which is debatable for many products and services that are not fully digital, it does not necessarily create a level playing-field between countries, as is sometimes assumed. This raises two key questions: Which specific location advantages, government policies, and other nonmarket features are likely to attract the innovation activities of born digitals and going digitals, beyond the mere exploitation of extant digital assets and tools? Which institutional qualities are most valued by foreign digital hubs, especially when they need access to complementary resources such as digital infrastructure and relational assets?

If digital globalization affects the relative location advantages of individual countries, it raises subquestions at the macro level that will ultimately spill over to the micro level of firm strategy. We look at six such questions that deal with important process-related and societal implications.

(i) Are small open economies able to be more than just spokes in an MNE's network? (ii) Can local born digitals be protected against large digital hubs from abroad? (iii) Are there sufficient benefits to small open economies for them to enter multilateral agreements regulating digital economy activities? (iv) How can individual countries address the challenge of undesirable knowledge transfer, especially if many foreign providers of complementary resources are involved as partners in digitally enabled value chains? On this question, Teece (2018: 1373) has

voiced the somewhat anti-Schumpeterian view that "a rising tide can lift many boats." That may be correct, but it does not solve challenges of requisite IPR protection. (v) If business models involving digital resources lead to more complex entry mode choices because complementary resources are often not off-the-shelf inputs but must be customized or codeveloped, and may assist the MNE in future knowledge-development and -melding, then will the bundles of location advantages, including relational assets, required to enter a particular country also change? (vi) What kinds of policies can we expect host country governments to adopt to address spillovers in the new digital space? Will they invoke cybersecurity to create new liabilities of foreignness against potential entrants, as the United States is doing with Russian and Chinese competitors?

CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

Conclusions

We have argued in this paper that the dark side of digital globalization has been somewhat underplayed in mainstream management and international business strategy research, and we raised some research questions that should be explored further. The framework we have introduced gives a balanced view on digital globalization that integrates its bright and dark sides. At the firm level, FSAs resulting from digital assets and facilitating digital globalization must be balanced with a number of recurrent challenges and costs. At the macro level, nonmarket actors can both stimulate and constrain digital globalization, and thereby attention must be paid to both intended and unintended societal outcomes.

The balanced view we have presented tempers the optimistic predictions on the globalization prospects of born-digital MNEs (e.g., software firms). In many industries, MNEs expand internationally by deploying digital and nondigital assets. For these assets to function as FSAs, MNEs must recombine resources to cater to national contexts, and take into account nonmarket forces, often in reaction to—or anticipation of—specific societal outcomes.

Limitations

The objective of this paper has been to draw attention to the dark side of digital globalization—the mirror image of the bright side—which has been the main focus of much extant literature. We summarized the literature in a stylized fashion, by selecting exemplary and representative contributions, rather than conducting a comprehensive literature review. Our call for systematically assessing both the bright and dark sides of digital globalization underscores the need for a broader perspective on opportunities and challenges associated with digital globalization before conducting more focused and narrow analyses. We are certainly not the first to advocate balance in the analysis of digital globalization, but our integrative framework sets out key elements senior MNE managers should take into account when making international strategic decisions on their digital assets, and it proposes an agenda for future research.

Future Research

Our assessment provides guidance to researchers on how to conduct future research on digital globalization. The theory of international business strategy is strongly focused on asset bundling in foreign markets (Hennart, 2009; Narula et al., 2019; Narula & Verbeke, 2015). The complexities of asset-bundling processes remain, even when MNEs possess digital assets that can be interpreted as nonlocation-bound FSAs. Internationalization is challenging; it requires careful reflection on the pros and cons of specific governance tools, on the location-boundedness of the firm's extant resources, and on the manner in which value is created for the customer.

We have shown that adding various types of digital assets to the bundling processes requires some theory extension because of the varied and often localized nature of these assets. This does not mean that digitalization cannot ultimately be accommodated within mainstream international business theory, in line with Narula et al. (2019), Hennart (2019), and van Tulder et al. (2019). Importantly, recent theory-augmenting studies on digital globalization have tended to focus mainly on the bright side and on the potential of internationalizing through digital assets. A systematic, complementary focus on the dark side may help to extend mainstream thinking on international business strategy. In addition to firm-level effects, we have shown that, given the fragmented nature of regulatory adaptation, global digitalization can have unintended macro effects. As a result, firms will continue to encounter significant challenges when trying to deploy internationally their digital assets and bundle them with host country resources.

Our look at the dark-side effects of digital globalization shows the need for more creative scholarship that analyzes potential new forms of efficient resource

bundling, and new strategies to manage external stakeholders.

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