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RESEARCH ARTICLE

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ICT4D 3.0? Part 2—The patterns of an emerging “digital-for-development” paradigm

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Abstract

There is evidence of “ICT4D 3.0”: a new “digital-for-development” paradigm emerging in the relationship between digital technologies and international development. Part 1 of this paper looked at the component parts of that paradigm. Part 2, provided here, analyses the impact of the paradigm on development. It does this by looking for big-picture patterns in terms of two key logics that shape society: the logic of competition and the logic of cooperation. Looking at evidence in the economic and political domains, it finds that digital technologies are associated with a reproduction, diffusion, mutation and intensification of the dominant, competitive logic in developing countries. We see this in relation to capitalism, competitive markets and hierarchical state-citizen relations. At the same time, though, the digital-for-development paradigm is also associated with growing examples and opportunities for an alternative economics and an alternative politics based around cooperative logic. The paper ends with some suggestions for the future digital-for-development research agenda.

KEYWORDS

ICT4D, digital-for-development, paradigm, trends, logics

1 | INTRODUCTION

As argued in Part 1 of this two-part paper, there is evidence of a new relationship between digital technologies and international development. It was suggested this might be called a “digital-for-development” paradigm, which could be understood through the framework shown in Figure 1.

Part 1 laid out the components of that emerging paradigm: what were called its “foundations” and “building blocks.” In this part of the paper, I look at the impact and implications of the paradigm; particularly seeking to understand some of its big-picture patterns in relation to two fundamental guiding forces for human society: competitive logic and cooperative logic.

First, this paper briefly explains these two logics as the basis for viewing the impact of a digital-for-development paradigm. The main weight of the paper is then given to looking at evidence for five patterns of relation between the two logics: seen first in evidence from the digital economy and second in evidence about the intersection between digital technologies and politics in developing countries. The paper ends with a short conclusion and reflection on elements of a digital-for-development research agenda.

2 | IMPACT OF THE DIGITAL-FOR-DEVELOPMENT PARADIGM

The impact of digital information and communication technologies (ICTs) on international development can be considered at the micro-level of the individual. There is, for example, an ongoing stream of evidence conceptualising this through one or more of three lenses (Heeks, 2014):

- Economic: development as accumulation of financial capital.

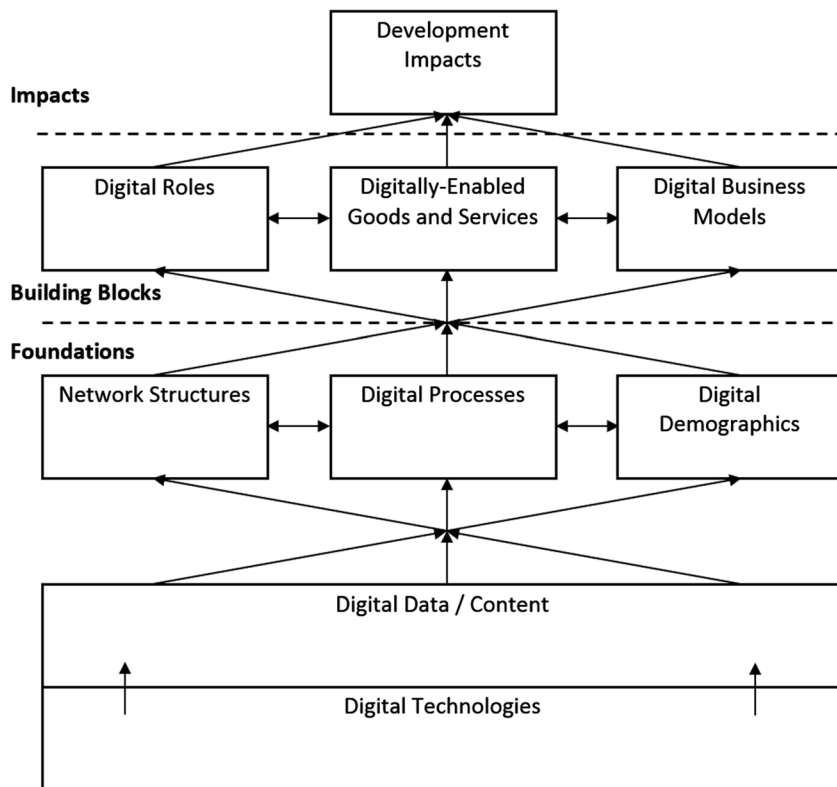


FIGURE 1 Framing the changing relationship between digital and development

- Livelihood: development as accumulation of livelihood assets; not just money but also health, skills, information, etc.
- Capability: development as greater freedom to be and to do.

But these micro-level changes represent very small drops in a very large development bucket. To understand if and how digital-for-development will be transformative, our focus must pull out to the macro-level. There is, for example, national-level economic data claiming a small but significant and positive impact of digital ICTs on economic growth in developing countries (Heeks, 2018). Or one can look at the evidence on employment, which is mixed (*ibid.*, Paus, 2018). On the one hand, automation and productivity gains reduce the need for labour. On the other hand, many millions of jobs are being created within the digital economy, and there are secondary job-creation effects as greater efficiencies and growth stimulate demand.

However, this macro-economic view—which remains short on evidence and debated if not contested—provides only evidence of incremental change in growth rates and still says nothing concrete about transformation. We must therefore shift from hard evidence to softer interpretation of patterns: an interpretation made harder by the formative state of digital-for-development in many developing countries.

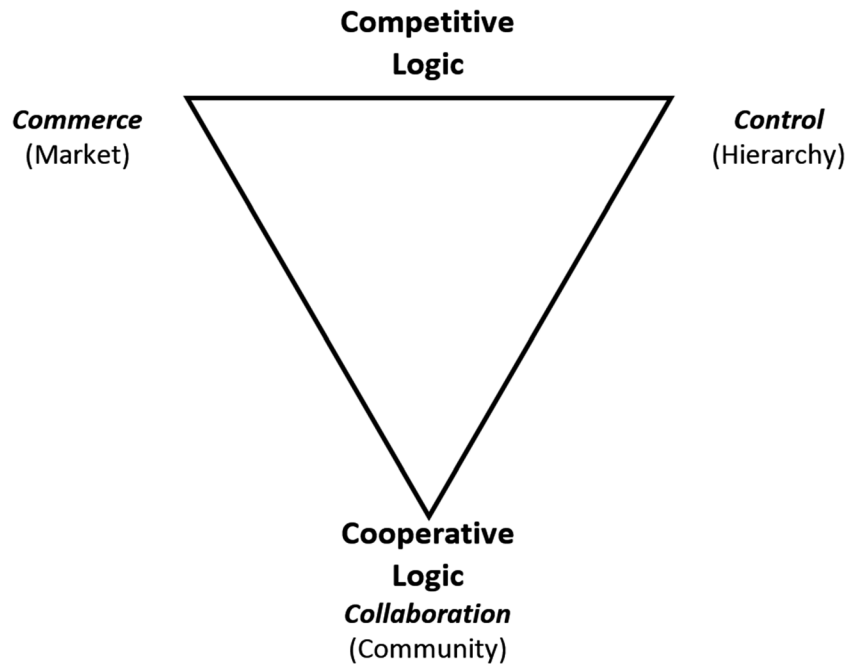
The understanding presented here of the macro-level impacts of digital-for-development is founded on two different logics under which economic, political and social relations can operate: competitive logic and cooperative logic (Fuchs, 2008; Kohn, 1992; Postigo, 2011). The logic of competition can be reflected in two different manifestations: a commercial manifestation in which the market would be the archetypal structure and a control manifestation in which hierarchy would be the archetypal structure. The logic of cooperation has a collaborative manifestation in which the community would be the archetypal structure¹. In any given context, the dominant mode of operation (combination of logic and archetype of organising) will vary. Each context can be placed somewhere in the space of modes shown in Figure 2.

We can conclude that competition/markets is the dominant mode in many economic contexts, certainly as far as global trade and production are concerned; that control/hierarchy is the dominant mode in many political contexts, certainly as far as international and national politics is concerned; and that some mix of competition and control is dominant in many social contexts (for example, provision of health and education) (Adler, 2001; Cerny, 1990; Felber, 2015; Smith & Meiksins, 1995). As the relationship between digital and development deepens, what happens to these dominant modes of organising?

Five different outcomes can be discerned (individual initiatives or studies may report some combination or overlap). These will be exemplified in further detail below, but here they will be summarised, each with its own keyword (see also Figure 3):

¹Networks are often identified as the third archetype but, as noted in Part 1 of the paper, the cooperative model of a self-organised network is only one form of network, and so “community” is used here instead.

FIGURE 2 The logics and organising modes and structures of society



- Copy: digital technology enables a simple reproduction of the existing dominant mode of organising.
- Spread: digital technology enables the dominant mode of organising to diffuse into a space that it did not previously occupy.
- Curve: digital technology enables the dominant mode of organising to mutate and take on a new form.
- Boost: digital technology enables an intensification of the dominant mode of organising.
- Shift: digital technology enables a strengthening of the subordinate mode of organising; potentially to itself become the dominant mode.

We can now look at evidence within two different sectors of development: economics and politics.

3 | DIGITAL ECONOMY

As noted above, the dominant mode of economic organisation worldwide is the market for commerce, and hierarchy within economic units of production, both operating under competitive logic. We see below ways in which these are and are not being reshaped within an emerging digital-for-development paradigm.

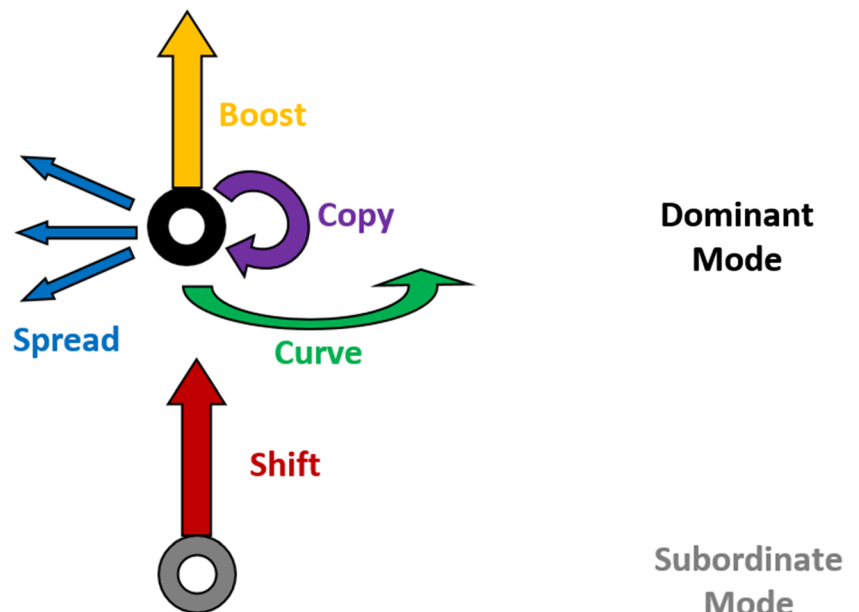


FIGURE 3 The outcomes of digital-for-development

Copy: many initial applications of digital technology are, in Michael Hammer's (1990:104) famous phrase, just "paving the cow paths." That is, they make no change to the structural relations of economic activity, and the only change to economic processes is the medium through which they are undertaken. For example, early applications of computers in commercial organisations reinforced the centralisation of management control within those organisations (eg, Robey, 1977). Early use of mobile phones reinforced existing economic relations in developing country markets rather than building new economic relations (eg, Jagun, Heeks, & Whalley, 2008; Molony, 2006).

Spread: as digital technologies diffuse and draw ever-more economic actors into the digital net, they tend to incorporate those actors into the dominant mode of organising. In particular, we see those at the base of the economic pyramid incorporated into an increasing number of competitive markets. For example, many low-income communities have no formal market for jobs: waged work is found through informal connections and word-of-mouth. Through ICTs, a market for jobs can be created—employers submit job details to a database that can be viewed by those looking for work; would-be workers submit their details for employers to view; and contact between the two is facilitated by mobile (text message or call) or email. Faster filling of vacancies, better employee-job match and improved wages are reported benefits (eg, Balasuriya & de Silva, 2011). Workers now more readily compete with one another for vacancies.

More generally, the diffusion of mobiles—smartphones particularly—enables the spread of markets in various ways:

- Higher-quality information delivered by mobile overcomes informational barriers to market operation (Magesa, Michael, & Ko, 2015).
- Use of mobile money removes or reduces some of the physical barriers to participation in markets (Kim, Zoo, Lee, & Kang, 2018). The micro-payments feasible via mobile contracts enable increasing market-based consumption of digital products such as games, ringtones and mobile services (Aker & Mbiti, 2010). They also allow new competitive markets to be created for low-income groups, for services such as water and energy (Guma, 2019).
- Induction of informal retailers as mobile handset or mobile money retailers incorporates them into more formal chains of market relations (Foster & Heeks, 2013; Kim et al., 2018).

Curve: alongside *Shift*, this is a core construct of those writing about digital and development. Under various terminologies—"digital capitalism" (Schiller, 2000), "informational capitalism" (Castells, 2010), "distributed capitalism" (Zuboff, 2010) and "platform capitalism" (Srniczek, 2017)—the main argument is that, for the dominant mode of economic organisation, the "substance is continuous from previous forms of capitalism, whereas the level of *form*, from industrial to informational, and *praxis*, from hierarchical to decentralized operations and management, is characterized by change" (Gripenberg, 2006:120).

Examples of changes in form/practice that still retain the substance of capitalism² include the following:

- Scale: the digital-for-development paradigm—by eroding the barriers of time and space and by enabling the management of complex systems—has pushed capitalist enterprise to a transnational scale. Of course, since the first emergence of mercantilism and then capitalism, there have been transnational operations impacting developing countries: think East India Company (Robins, 2012). But ICTs have enabled this to become a much more significant model within the overall sphere of economic operations (Dicken, 2015).
- Organisational structure: shifts from the Weberian hierarchies of old towards more networked forms of organisation both internally and externally. For example, networks of small and medium enterprises using digital technologies to remain competitive via a post-Fordist model (Waldman-Brown, 2018). As well as their nature at any given time, these networks—because of their digital foundation—have another essence, which is their flexibility (Barney, 2004). They therefore both allow and require capitalism to constantly re-form.
- Business models/products: the digital economy represents new types of digital goods, services, and business models (see Part 1 of this paper; also Bukht & Heeks, 2017). All of these have successfully been incorporated into capitalist modes of organising.
- Management process: direct managerial control of activities is no longer feasible as scale and complexity increase, and decentralisation is therefore required for large, complex network-structure firms. But ICTs enable this to happen while managers retain an increasingly real-time overview of activities in decentralised parts of the value chains (Foster & Graham, 2017). New approaches such as virtual teams or knowledge management can also be understood as operating within a broadly competitive-driven logic (Fuchs, 2008). Even the new digital relations with customers—sometimes argued to shift the balance of power from producer to consumer (Kucuk, 2016)—are being coopted into a competitive and hierarchical control model by enabling anything from passive surveillance of their online consumption to active "co-creation" of value (Acar & Puntoni, 2016).

What this essentially argues is that the digital-for-development paradigm shown above exists within a broader social structure: a combination of power, discourse and institutions that makes up the substance of a mode of organisation. While the content of specific organisational structures, processes, models, etc. may alter under *Curve*; the broader structure does not.

²Barney (2004:71) describes that substance to "include, for example, private property; commodification; class relations; free markets; massive public and private systems for the stimulation and management of consumption; accumulation as a central strategic motivation, etc".

Boost: there are a number of informational barriers to the proper functioning of both markets and hierarchies, particularly in developing countries (Heeks, 2018). Because an innate feature of digital networks is their ability to enable freer flow of information, they have a tendency to improve the operations of both markets and hierarchies (as well—see next—as self-organised networks). Examples are now emerging where this improvement occurs to such an extent that parts of digital-for-development may best be labelled “hyper-competitive”—either hyper-commercial or hyper-controlling.

Three examples are given here:

- **Frictionless markets:** the acme of competitive digital-for-development in the economic sphere could be seen as a situation in which the entire value chain is digitised—suppliers are located and inputs are transferred digitally; the production process and product are digital; and payments, oversight and distribution are digital. “Human cloud” models such as those used by Mechanical Turk provide this by combining crowdsourcing and microsourcing (Thuan, 2019). They involve atomisation of work into microtasks with relative anonymity and atomisation of clients and contractors and with little institutional, regulatory oversight (Heeks, 2017)³. This is leading to global convergence of payment (Beerepoot & Lambregts, 2015). At present, this is a convergence to the middle, with contractors in the global North paid less than their typical rates and contractors in the global South paid more. But there is potential for this to migrate over time to a race to the bottom (Graham et al., 2017).
- **Info-monopolies:** because of network effects (the more people that join a network, the greater the value of joining that network) there is a natural tendency towards monopoly in the provision of some digital services (Hindman, 2018). Examples include Google, Facebook, Twitter, Skype, Amazon and eBay for consumers in the global North and, increasingly, in the global South. Some global South markets also have their own quasi-monopolies, eg, Taobao, Baidu, Tencent QQ and WeChat and Sina Weibo in China, some of which have growing influence in other Asian and African markets (Pan, 2019). While the network effects mean using these is beneficial for the consumer, monopoly effects mean that significant power and control is vested in these firms vis-a-vis their consumers and vis-a-vis nation states (*ibid.*)⁴. While these are not competitive as markets, they reflect competitive logic as the ultimate expression of economic hierarchy and control.
- **Panopticon hierarchies:** the growing digitisation of work activities means those activities can readily be monitored, recorded and analysed by managers—creating a version of Jeremy Bentham’s Panopticon in which a single jailer could monitor the activities of all prisoners. For example, in Indian call centres, “many devices help call center clients maintain their authority digitally ... *autodialers* to control the core process of connecting US consumers to Indian workers; *speakerphones* to participate in the training of Indian workers and monitoring Indian managers; *metal detectors and disk drives* to restrict the flow of information and movements of workers in the Indian building” (Poster, 2018:175-176). Also, in some Chinese factories, technologies such as digital ID cards, electronic gates, company-issued mobile phones, CCTV, RFID tagging of materials, etc. are used as means for managerial surveillance and control over workers (Chan, 2013; Gu, Zhou, Hu, & Gao, 2019; Qiu, 2009).

Shift: digital networks can be seen as innately protagonistic to cooperative models of economic organisation: the Internet is founded on a lack of central control; digital information is hard to control or monopolise in a network; its intangibility and replicability militates against private ownership; and networks seek to establish connections and thus negate individuality (Fuchs, 2008). Digital-for-development has therefore been associated with cooperative, community-based economic models, which stretch across the value chain. Examples include⁵ the following:

- **Supply:** such as crowdfunding models that (largely) disintermediate between a network of peer funders and those seeking funding. In development, true peer-to-peer micro-lending communities have so far been relatively rare but one example is Zidisha, which allows virtually-direct microlending to farmers and micro-entrepreneurs in a number of African and Asian countries (Sun, 2017).
- **Production:** such as open source models of software production. While these were initially restricted to the global North, they are now increasingly used in developing countries with examples of both South-South and North-South collaboration (Gizaw, Bygstad, & Nielsen, 2017; Hussain & Brown, 2018). There are a number of different models for open source software production but most are based on a commitment to sharing and open participation among a community of peers.
- **Consumption:** reflected in growth of “collaborative consumption” in the global South. Basic examples include peer-to-peer sharing of files: music, video, documents and software (David, 2019; Otieno, 2016). More sophisticated examples include ICT-enabled home exchange schemes (Russo & Dominguez, 2016).

³Barney (2004) describes a deinstitutionalisation of work within the digital economy with loss of traditional institutions that govern work: unions, governments, workplace groups.

⁴Though, while monopoly may be a natural outcome of digital-for-development, the longevity of any individual monopoly is questionable: where today are erstwhile monopolies like MySpace, Friendster, Netscape Navigator, etc (see, eg, Keegan, 2007, Blitz, 2019)?

⁵Other examples include use of ICTs to support the operations of cooperatives (Deichmann, Goyal, & Mishra, 2016), and other cooperative production models, eg, platform cooperatives (Scholz, 2016).

There are a number of reported instances of *Shift*, of ways in which ICTs enable transformative examples of economic organisation based around a cooperative logic. The unanswered questions—likely unanswerable, given we are at such early stages of digital-for-development—relate to weight and trend. In comparative terms, how much are ICTs helping strengthen capitalism vs. strengthening alternatives to capitalism? And which of these two is growing faster?

Hybrids: real-world examples of digital-for-development often combine two or more of the outcomes described above. Indeed, pure instances of each outcome can be hard to find—as an example, cooperative models of digital-for-development can find themselves partly reproducing institutional values and hierarchies: reproducing gender discrimination (both positive and negative) in peer-to-peer lending (Chen, Li, & Lai, 2014); reproducing hierarchies in open source such that all programmers may be equal but some are more equal than others (Sahay, 2019).

One pattern that can be observed is *Shift-then-Curve*: the expansion of the digital commons through a cooperative model, with parts of those new commons then colonised by a competitive model. Examples include the following:

- **Social media:** there was an initial colonisation by forces that challenge the status quo—for example, services like TripAdvisor that initially sought to empower communities of consumers vis-a-vis producers or Facebook that sought to create quasi-organic communities of students. While some of these may continue, some are co-opted or challenged as the dominant forces learn to use the new technologies; thus, social media becomes the forum for new forms of “relationship marketing” and “social customer relationship management” in which communities of consumers are created and managed by corporations (eg, Elena, 2016; Olupot & Mayoka, 2013). One can see a similar dynamic at play around the incorporation of social networking—which could readily be seen as a self-organised, cooperative network of participants—into new models of capitalism in which users get the service—Facebook, Google, Twitter, etc.—free of charge but also “work” for free by providing the service providers with monetisable data (eg, Casilli, 2017). To the saying, “If the service is free, you are the product” we can add, “If the service is free, you are the producer.”
- **Sharing economy:** the same has been true of the ICT-enabled “sharing economy.” While there are a growing number of examples of this built around the cooperative ethic, there are also a growing number of non-profit sharing sites becoming for-profit businesses (eg, CouchSurfing.org) and “pseudo-sharing” sites that are actually driven by the competitive logic of “money, egoistic motives, expectations of reciprocity, and lack of a sense of community” (Belk, 2014:16). So-called “sharing economy” platforms such as Airbnb and Uber have spread to developing countries, but these have long since been captured by competitive logic (Hira, 2017; Parente, Geleilate, & Rong, 2018).

One particular hybrid pattern—combining *Spread*, *Curve* and *Shift*—of which examples are reported is digital social enterprise (Masiero & Ravishankar, 2018). IT impact sourcing falls into this category: the outsourcing of digital work processes to marginalised communities (Heeks, 2013). It integrates community members into market-based value chains, though typically insulates them from the competitive component; it represents a new digital business model; and it provides a more welfare-oriented alternative to traditional commercial outsourcing (Heeks & Arun, 2016; Malik & Nicholson, 2020).

4 | DIGITAL POLITICS

Political arrangements for nation states (and for many other units of larger and smaller geographic scope) involve hierarchy: an imbalance of power between states and citizens with the former much more able to control the latter than vice versa. Scandinavian-model democracies may place at a different point along the continuum to totalitarian dictatorships, but the hierarchy and the logic of competition for political capital is present for all currently-dominant models. What do we find under a digital-for-development paradigm?

Copy: in some situations—particularly where ICTs are relatively new to parts of the political system—the technology provides a digital wrapper but does not change the nature of political relations and behaviours. For example, in relation to the administrative functions of government, introduction of ICTs into the Thai justice system “has come to reinforce a certain power structure ... [with] no real change in responsibilities or the structure of workflow” (Chongthammakun & Pal, 2012). One can also see this in citizen relations, as shown in the application of an open government portal in Kazakhstan intended to deliver e-participation (Knox & Janenova, 2019). Focus groups “argued Kazakhstan’s open government portal had failed to promote active citizen participation. Rather, it presents an imitation of engagement between the government and citizens”, which is more “window dressing ... to appease international development organisations” and which in practice replicated rather than challenging existing distributions of power.

Spread: diffusion of digital ICTs—mobile phones especially—incorporates millions upon millions of individuals as nodes in the digital network. For many on low incomes, this means a step change in their connectivity and their relationship with the state. They are much better able to receive (some) government services (Al-Hubaishi, Ahmad, & Hussain, 2017; Isagah & Wimmer, 2019) including direct social protection payments (Kemal,

2019), and they also—indirectly—become taxpayers given “mobile phone operators are key, and rapidly growing, contributors of tax revenues to government” and that operators derive their revenues from individual customers (Heeks, 2009)⁶. In many cases, digital ICTs are replacing a localised, intermediated, capricious and limited experience of government with an increasingly “standard” hierarchical model of state-citizen relations.

State control is also moving into another space from which it was originally absent: cyberspace. Often framed around narratives of criminal activity online—particularly child pornography and predation, terrorism and other threats to national security (Taylor, Fritsch, Liederbach, Saylor, & Tafoya, 2019)—this has led to a steady increase in state surveillance and regulation of online activity (eg, Shahbaz, 2018).

Curve: there are examples of the form and practice of politics changing but its substance remaining the same. These could be corralled under the heading “informational politics” (Castells, 2010). In a narrow sense, there has always been an informational politics—a politics of meaning, symbols, discourse, public relations and persuasion—but this has arguably taken centre stage as digital media becomes the key platform through which politics is consumed and even enacted (Fuchs, 2017; Ross & Rivers, 2017)⁷. But *Curve* also means a mutation of the way in which the dominant force—the nation state—exercises its control, as it shifts from being the apex of a hierarchy of power, to the most powerful node in a broader network.

In some cases, the mutation is relatively small. One can see instances within nations. For example, e-petitions provide a much easier way than paper petitions for citizens to express their political opinions, and online petitioning sites therefore tend to generate hundreds if not thousands of petitions (Danylchuk, 2017; Margetts, Hale, & Yasseri, 2014). Given the reduced barriers to petitioning, the high level of e-petitions generated and some evidence of (marginal) alterations in citizen participation (Harrison et al., 2017), this can be seen as a new form of political action. It has pushed governments into action, to extend their own form to incorporate e-petitioning with many legislatures now hosting this service. However, this is a mutation at the margins of state politics: being channelled into the existing mechanisms, eg, of congresses and parliaments, and potentially strengthening rather than undermining models such as representative democracy (Bandeira, 2019; Hough, 2012).

Looking more broadly at ICT-enabled political campaigns—which may involve e-petitions but also a broader range of online communication—the mutation is somewhat larger. Governments have been pushed to change their legislative programmes and to get rid of unpopular politicians. Examples include the ICT-enabled citizen protests in Brazil to ensure passage of the “Ficha Limpa” law barring those with a criminal record from running for public office (Welp & Breuer, 2014); the ICT-enabled student protests against education reforms in Chile, which also impacted the outcome of the subsequent Presidential elections (Valenzuela, Arriagada, & Scherman, 2014; Welp & Breuer, 2014); and the ICT-enabled protests that forced withdrawal of a controversial extradition bill in Hong Kong (Shao, 2019, see also Ting, 2019).

Governments have had to change their processes and relations to take account of the new online politics, of the space it creates for citizen opinions to be manifest and of the broader political network within a country. Particularly, that network now often includes online political intermediaries: organisations like Avaaz and Change.org, which have proven necessary in order to marshal the “herd of cats” that is citizens acting online. Those intermediaries have thus become important political actors (Horstink, 2017). But, in general, these intermediaries and their networks have worked with, rather than directly challenged, governance of the nation state.

Governments have also had to change their processes in response to e-government as this has moved beyond the automation phase described under *Copy*. This is seen in the integration of processes—often cutting across organisational boundaries within and between departments—so that citizens can be presented with “one-stop government” (Hanna, 2010). In a number of cases and partly due to issues of locus of ICT capabilities, the advent of one-stop government services has involved use of private sector providers to administer or deliver public services (eg, Bakunzibake, Klein, & Islam, 2018). While government retains ultimate control, its role mutates to one of “steering not rowing” (Osborne & Gaebler, 1992).

There are other ICT-enabled changes that challenge the nation state further but which still mutate rather than transforming the dominant, competitive model of politics. The first mutation is largely within nations and summed up as “accelerated pluralism” (Bimber, 1998). This sees a fragmentation of political interests, with individuals adhering to an ever-wider array of special interest political groupings, including those with more polarised political views (Barney, 2004, Curran, Fenton, & Freedman, 2016). One result is a decline in mainstream political parties within democratic regimes and, more generally, a loss of the common public realm of politics. This—for example the rise of ICT-enabled non-traditional political parties—is most clearly seen in the global North but starting to also arise in the global South (Ahmed, Jaidka, & Cho, 2016; Bennett, Segerberg, & Knüpfer, 2018).

The second change is a mutation of politics to the transnational level. Transnational governance within the public sphere has arisen to address the transnationalisation of political issues. Most of these issues have been enabled or exacerbated by digital technologies and would not exist in their present state without ICTs: transnational crime and terrorism, migration, pandemics, climate change, trade and

⁶For example, mobile operators “average 7% of tax receipts in Africa and, in some countries, are the single largest tax payer” and “around 30% of the cost of mobile phone ownership goes to pay tax” (Heeks, 2009). The mobile sector overall contributed more than US\$15bn in taxes in sub-Saharan Africa in 2018 (GSMA, 2019).

⁷Though traditional sources of power—money, military might—remain.

financial flows, and tax and labour activities of transnational firms. This is not *Curve* in its conventional sense because here, ICT is not enabling but requiring the emergence of transnational governance. However, ICTs also do the former: they enable the transnational governance networks which, again, would not exist in their present form without ICTs (Dawes & Gharawi, 2018; Navarrete, Gil-Garcia, Mellouli, Pardo, & Scholl, 2010).

But transnational governance has also arisen within the private sphere as nation states have ceded power to transnational corporations. As already seen, these could not exist in their present form without ICTs, and transnational corporations have often sought advantage through shaping national policies or playing governments off against each other (Babic, Fichtner, & Heemskerk, 2017; Miyoshi, 1993; Narula & Dunning, 2010). Transnational ICT firms—some of which are quasi-monopolies—are no exception, and have undertaken regulatory capture (steering nation state policies to their interests), regulatory arbitrage (working around regulations, for example through transfer pricing, taking advantage of either loopholes or differences between regulations in two locations) and regulatory opportunism (for example to take advantage of regulatory lacunae or delays) (Frieden, 2002; Jelen & Kolakovic, 2009; Olbert & Spengel, 2017). While this represents an important dynamic, it is still working within, rather than transforming, the dominant mode of politics and the logic of competition.

Boost: from pre-digital origins in the census, information and communication technologies have been used by states to augment their power. The advent of digital technologies has significantly increased the opportunities for further enhancement of government power. Examples increasingly in use by governments in the global South include CCTV, facial recognition software, biometric passports and surveillance of online activity and communications (Brewer, Menzies, & Schott, 2015; Smyth, 2019). More authoritarian regimes have passed through their original phase of seeking to reject the Internet due to its political costs (despite its economic benefits: the so-called “dictator’s dilemma”), into a second phase of seeking to control the Internet (eg, via filtering, blocking and disconnecting services), which overlaps with a third phase of proactive e-repression (Heeks & Seo-Zindy, 2013).

It is the third, repressive phase that boosts the power of the incumbent regime:

“states make use of e-surveillance to gather evidence that is used to repress their opponents. But they also actively use ICTs for repressive purposes: disseminating propaganda inside and outside the country; hacking into the websites of internal social movements and the email/mobile accounts of organisers; planting disinformation into social movements’ communications; using viruses and other tools of cyberwarfare to attack political challengers ([Kalathil & Boas, 2001], Karlekar & Cook, 2009). This ... presents evidence that the dictator’s dilemma is solved: ICTs can be simultaneously harnessed for economic growth and political restraint.” (Heeks & Seo-Zindy, 2013:4)

Shift: digital technologies are enabling political transformation—strengthening an alternative politics—in two main ways (Fuchs, 2008). First, digitally-enabled social movements give voice to an alternative politics. This could be on a small scale, for example, the use of ICTs to bring together Indian and Pakistani youth to support peace-building between the two nations (Peace Insight, 2019). Maximally, these new social movements have been able to enact regime change; the ultimate demonstration of ICTs overthrowing a dominant and authoritarian political order. There are many disagreements here. Views on revolutionary actions like the Arab Spring, for instance, range from those arguing a central, causal role for ICTs to those arguing a merely facilitative, mediating role (Castells, 2012; Heeks & Seo-Zindy, 2013). But this spectrum of opinion is delimited, with a general acceptance that regime change would not have happened or at least would not have happened in the same way or timescale, had it not been for ICTs. There are serious limits set by asking “what happened next?”: fluid, atomised, ICT-enabled social movements are often no match for more traditional hierarchies (*ibid.*). Yet, in all cases, they have shifted the terms of political debate and action in their countries.

Second, digitally-enabled social movements themselves provide an example of an alternative politics:

“The digital social networks based on the Internet and on wireless platforms are decisive tools for mobilizing, for organizing, for deliberating, for coordinating and for deciding. Yet, the role of the Internet goes beyond instrumentality: it creates the conditions for a form of shared practice that allows a leaderless movement to survive, deliberate, coordinate and expand.” (Castells, 2012:229)

Certainly, there are limits here. Cooperative online politics can be undermined by citizens being self-centred (using e-participation as the means to form one’s own opinions and political identity rather than engage in debate or influence political outcomes (Lyu, 2008)), performative (more concerned with display and impact than content or engagement (Nagle, 2017)), and transitory (flitting from one issue to another rather than forming the mass, long-term identities necessary to drive systemic transformation (Qiu, 2009)). As both mirror and stage, the Internet is thus a medium through which we regard our own performance, and form our own identity, values and attitudes (Castells, 2012; Cover, 2016). But that formation can be in light of the alternative politics. The majority of the population may not join, and many involved may already adhere to that alternative model, so online social movements’ main transformation may be to individuals at the margins.

Hybrid: as with the digital economy, real-world digital politics may involve a mix of different outcomes. One example—mixing *Curve* and *Shift*—is the disintermediation seen in e-government applications. For many in the global North, this simply means service consumers save a little time, eg, by being able to renew a licence without visiting a government office or posting a letter. For many in the global South, it means more (Heeks, 2018): first, by virtue of three savings: the cost of a journey to the nearest government office (which could be a day-trip for many in rural areas), the wage or agricultural earnings that would have been foregone during the journey and avoidance of a corrupt payment to someone intermediating between them and the government service (eg, Bhatnagar & Singh, 2010⁸); and second, by changing the nature of the relationship to the state to a more objective and equitable one, to some extent reducing the control of the state—at least as exercised by local officials—over their lives.

Castells (2012) argues that power comes directly through physical coercion and control and indirectly through control of discourse and meaning. One can see states morphing some powers and relinquishing others—again, a mix of *Curve* and *Shift*—in the realm of online political discussion. The Chinese state is perhaps the quintessential example. It coerces (by threatening blog writers or discussion board hosts), it controls (via censorship of online content⁹ and blocking of sites), and it intervenes in discourse (via the “50-cent party” who challenge and seek to refute online content critical of the state) (Repnikova & Fang, 2018; Rongbin, 2015). Yet, it cannot—or chooses not to—stifle all political debate across the diverse spaces that have opened up online. Therefore, a space has been created for alternative voices and this is not simply status quo: “the Internet has contributed to a more critical and politicized citizenry in China’s cyberspace and shifted the power relationship between the state and the society” (Lei, 2011:311). Yet, state controls place limits on this shift, and Huang (1999:145) sums it up neatly: politically-active citizens online in such contexts are “flying freely but in the cage.”

As well as being found in terms of e-efficiency, e-transparency and e-communication, the same pattern—mixing *Curve* and *Shift*; flying freely but in the cage—can be seen in three other areas:

- **e-Participation:** For example, in e-participatory budgeting, citizens are able to determine among themselves—facilitated by online visualisation, scenario modelling, discussion and voting—how public money should be spent. However, the proportion of public budget allocated is often quite small, and citizen input may be guiding rather than binding (Alfaro, Gomez, & Rios, 2010; Coleman & Sampaio, 2017).
- **e-Accountability:** Online applications are being used in Asia and Latin America for “sousveillance”: to track performance against politicians’ promises, to report corruption of public officials, to track budget payments to their intended destinations and to show which officials were handling a licence application (Bertot, Jaeger, & Grimes, 2012; Gigler & Bailur, 2014; Seth, Faith, Prieto Martín, & Ramalingam, 2016). While producing a shift in balance of power from government to citizens, government remains the reference point; the sun around which the planets of civil society orbit.
- **e-Collaboration:** Government goods and services can be co-produced with citizens via use of ICTs. For example, interactive community mapping has been undertaken in Africa, using community members and others to capture details of roads, buildings, facilities, etc. on a digital map (Ahmed et al., 2019; Shkabatur, 2014). Similar public participation geographical information systems have been used in Asia to integrate top-down satellite data with bottom-up inputs of community members; for example, to identify priority locations for planting trees to improve resilience to climate change (Ty, Heeks, & Chuong, 2012). In these cases, there is a co-production model between community, government and technical experts. The community can use the final product though final decision-making on some issues may be seen as the preserve of government.

5 | CONCLUSIONS

There are many different ways in which the impact of an emerging digital-for-development paradigm could be assessed. Here, I chose one that tries to identify broad-scale patterns, based around the idea of two logics that shape society—competitive and cooperative—and the way in which digital technologies are associated with a reshaping of the pattern of relations between those two logics.

As noted above, there can be no exact reckoning on the relative impact of digital technologies on the dominant vs. subordinate modes of economics and politics seen in the global South. One can say that the digital-for-development paradigm is associated with a reproduction, diffusion, mutation and intensification of the dominant mode: of the competitive markets and hierarchical controls associated with capitalism and with traditional state-citizen relations. But, simultaneously, the paradigm is also associated with growing examples and opportunities for an alternative economics and an alternative politics.

⁸In their before-and-after survey of e-government in rural India, Bhatnagar and Singh (2010) found in roughly half of cases before computerisation, officials would demand a bribe (averaging around US\$3; equivalent to a day’s income in rural India). After computerisation when government officials were largely disintermediated from the process, less than 1% of users reported paying a bribe.

⁹King, Pan, and Roberts (2014) report results of a mass experiment which showed online postings critical of leaders were often permitted (the authors interpret this as state tacit approval of data on “which officials are not doing their job”) while postings relating to collective action outside government were censored.

In practical terms, our conclusions and actions will depend on which of the logics we believe will best achieve the outcomes we seek for ourselves and the wider world: competitive logic, cooperative logic or some specific combination of the two.

In research terms, one can discern three aspects of a future digital-for-development research agenda. Drawing from Part 1 of this paper, there is a need for research to trace out the current state and ongoing trajectories of all of the elements shown in Figure 1. What are the key trends in digital data and technologies for development? How are these impacting the demographics and roles of digital usage in developing countries? What new business models and social structures are emerging as a result? And so forth.

Drawing from the frame set by Part 2 of this paper, we need research that investigates with much greater depth and rigour the relation between competitive and cooperative logic in digital-for-development. How exactly does digital technology relate to the logics: which logics are inscribed into technologies, and how and where does agency and the possibility of change in the current dispensation of logics arise? What determines the balance of logics that emerges both from conscious digital-for-development initiatives, and from the wider and inexorable spread of digital into developing countries? Which of the five patterns emerges from specific examples of digital application, and what are the broader development implications of those patterns? How best can those who believe in cooperative logic strengthen its role within development through digital technology? And ditto for those who believe in competitive logic, or some combination.

Finally, we can step back from the frame of logics presented here. What other, broader patterns can be seen in the emerging digital-for-development paradigm? And what implications do these have for the three watchwords for future development identified in Part 1: transformation, inclusion and sustainability?

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