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Competing Logics: Towards a Theory of Digital Platforms for Socio-Economic Development

Silvia Masiero¹ and Brian Nicholson²

¹ University of Oslo, Oslo, Norway ² University of Manchester, Manchester, UK; University of Oslo, Oslo, Norway

Abstract. Extant literature on digital platforms is predominantly centred on the Global North, resulting in a paucity of research on the implications of digital platforms for developing countries. Against this backdrop, a recent research stream has focused on digital platforms in developing country contexts, with a view of understanding the affordances and limits of platforms as a route to socio-economic development. This paper seeks to contribute to this nascent literature, unpacking a human-centred development logic as an alternative to the market logic that animates most of the platforms discourse and relying on it to lay the foundations for an emerging theory of platforms for development. Two sub-linkages, centred respectively on platforms' openness and modularity, are conceptualised and illustrated with examples from empirical research. This work has implications for the emerging literature on digital platforms for development, and for theorising platforms in the context of information systems and societal challenges.

Keywords: Digital platforms; socio-economic development; institutional logics; openness; modularity

1 Introduction

Existing literature on digital platforms is situated primarily in the context of the Global North and seeks to understand business models and market dynamics attached to platformisation (e.g. Gawer & Cusumano, 2014; Parker et al., 2016; Constantinides et al., 2018; De Reuver et al., 2018; Rai et al., 2019). Information Systems (IS) literature (Gawer, 2009; Evans & Gawer, 2016) distinguishes *transaction* platforms (multi-sided markets that connect supply and demand) from *innovation* platforms (which enable the construction of complements from third-party developers). Across the two streams, IS research focuses on innovation in business models and profit generation, observing platform-specific phenomena such as the dialectics of control and openness (Ghazawneh & Henfridsson, 2013; Eaton et al., 2015) and monetisation in a predominant business-oriented light. By contrast, significantly less research focuses on the social dimensions of platforms, such as their involvement in solving societal challenges (Majchrzak et al., 2016) and fostering broader goals of human and development.

Against this backdrop, a new stream of research has focused on digital platforms in developing country contexts (cf. Koskinen et al., 2018, 2019; Nicholson et al., 2019). In contrast to previous literature, this stream poses platforms in *explicit* relation to socio-economic development: not only does it observe platformisation outside of the Global North, but openly considers if and how platforms are entrenched in determinate development processes. An important focus of this emerging literature are affordances (e.g. Hatakka et al., 2019) of platforms for development, to be studied in parallel with the constraints that platforms can impose on ongoing development processes. Koskinen et al. (2018, 2019) identify four trends in this nascent platforms-for-development literature: the development potential of platforms; differences between Global North and Global South; the ways in which platforms may exacerbate inequality; public and non-profit alternatives to private platforms.

This paper contributes to the nascent literature on platforms-for-development. Our contribution stems from the observation that, while empirical work on the topic is being conducted, researchers lack a clear mapping of the linkage operating between platforms and socio-economic development. In response to this absence, we observe that a human-centred logic (which we conceptualise drawing on Sein & Harindranath, 2004) provides the basis for an alternative to the market logic on platforms, leading to an alternate vision of platforms for development. Our objective is to provide steps towards a theoretical framework that presents platforms as human-centred, illustrating their potential in terms of broader societal objectives that transcend immediate market goals.

To develop such framework we draw on two core properties of platforms, which are characterised by a modular architecture and an open governance structure (Constantinides et al., 2018; De Reuver et al., 2018). Openness and modularity are considered as two defining characteristics of platforms, which differentiate them from other digital objects (Tilson et al., 2010; De Reuver et al., 2018). Drawing on instances of published research on platformisation in developing nations, we examine how each property concurs to enacting a human-centred logic, theorising two sublinkages which substantiate the connection between platforms and socio-economic development. We also look at the limits of each sub-linkage, which leads us to offer possible reasons for platform-for-development failures.

This paper is structured as follows. In Section 2 we illustrate the dominant market logic on platforms, contrasting it with a human-centred logic which expands more on socio-economic development. In Section 3 we examine openness and modularity as platform properties, and theorise how these are linked to the enactment of the human-centred logic just explained. In Section 4 we observe the limits of each sub-linkage, reading extant cases of platform-for-development failure in their light. In Section 5 we conclude, highlighting implications for emerging theories of platforms in ICT4D.

2 Market and Human-Centred Logics

The notion of *institutional logics* is a relevant one to examine the contrasting visions underpinning, respectively, business-oriented platforms and instantiations of platforms for development. Thornton and Ocasio (1999) define *institutional logics* as "the socially constructed, historical patterns of material practices, assumptions,

values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality (1999: 804). Friedland and Alford (1991) conceptualise society as an interinstitutional system where behavior in a context is theorised with reference to societal sectors ("orders") representing sets of expectations for social relations and organisational behavior. Building on these insights, scholars have sought to understand the multiple logics implicit in organisational activity, which can be mutually reinforcing, complementary or in conflict with each other (cf. Besharov & Smith, 2014; Thornton et al., 2012).

Rolland et al. (2018) illustrate three perspectives in the literature on digital platforms. These are an engineering ("technical artifacts with a modular architecture consisting of a stable core component and many changing peripheral components"), an economic ("markets that disrupt traditional markets and facilitate efficient interactions between consumers and producers"), and an organisational view ("innovation practices in which actors organise and coordinate innovation enabled by technical mechanisms and social arrangements"). These three perspectives sum up the IS literature on platforms, illuminating its complementary foci on technicalities, organisational aspects and mechanisms of value creation. Underpinning these three is a focus on platforms as profit generators (Parker et al., 2016), which invites questions on business model disruption and its value-generating consequences.

The work by Parker et al. (2016) offers a comprehensive illustration of the market logic implicit in this discourse. Drawing on multiple examples of transaction platforms (Gawer, 2009), their book unpacks different instances of business model disruption, highlighting the short business history of actors such as Uber, AirBnB, Google, PayPal or Amazon and pointing out their mechanisms of value-creation. Focus on innovation platforms (e.g. iOS, Android etc.) is limited in this work, and when such platforms appear that is in order to illustrate further profit-generation mechanisms – stemming, for example, from the creation of an apps ecosystem that capitalises on generative properties (Parker et al., 2016). In this work, as in further platform literature in IS and economics, the teleological reason for platforms to exist is that of profit generation, pursued through business model disruption.

To be sure, this paper does not problematise the tenability of the market logic, which is effectively confirmed by multiple works on the profit-generation mechanisms of platforms. It does, however, question the view that a market logic of platforms is "the only" one possible, a view that has arguably dominated platform literature till very recent times. The three perspectives identified by Rolland et al. (2018) all subsume a market logic, only illuminating three different aspects of it (technical, economic and organisational) as applied to platforms. By way of example, recent reviews of platforms literature in lead IS journals barely make a mention of the human, societal or, indeed, development implications of platforms, focusing instead on new trends of platformisation and the relation of platforms with infrastructures (cf. Constantinides et al., 2018; De Reuver et al., 2018).

Against this backdrop, the nascent literature on platforms-for-development (cf. Koskinen et al. 2018, 2019; Nicholson et al., 2019) articulates around a different implicit view of platformisation. As stated in Koskinen et al. (2018, 2019), digital platforms have the potential to create social and economic value in the Global South, meaning that researchers need conceptual tools to understand platformisation outside

its common Western-centred focus. Underpinning this is the view that the value of platforms goes well beyond profit generation, and is entrenched into socio-economic development processes aimed at increasing quality of life in resource-constrained settings. If "development" is to be broadly understood as the "enlargement of people's choices" (Sen, 1999) through dimensions such as health, education and income, this leaves scope for understanding the role of platforms towards this goal.

Table 1. Digital Platforms - Market-Centred versus Human-Centred Logics

	Market-centred logic	Human-centred logic
Underlying assumption	Platforms as tool for profit generation (cf. Parker et al. 2016)	Platforms as entrenched in "the enlargement of people's choices" (Sen, 2001)
Core mechanisms	Business model innovation; disruption of existing industry paradigms	Enabling choices in education, health, and standard of living; building a democratic society marked by involvement, participation and transparency; better management of behavior and customs (Sein & Harindranath 2004)
Type of platforms	Transaction (e.g. Uber, Amazon, AirBnB, etc.) a more limited focus on innovation platforms (iOS, Android etc.)	Transaction (e.g. Uber, Amazon, AirBnB, etc.) but also innovation (iOS, Android etc.) and data platforms (e.g. biometric identification)
Teleology (underlying goal of digital platforms)	Optimisation of business goals (competition; profit- making)	Optimisation of development goals (e.g. life expectancy, education, incomes)

Sein and Harindranath (2004) lay out three core principles that support a "human-centred" logic, complementary (and not necessarily antithetic) to the market one as illustrated in Table 1. In their analysis of ICTs in national development, they conceptualise development processes as "enabling choices in education, health, and standard of living; building a democratic society marked by involvement, participation and transparency; better management of behavior and customs" (Sein &

Harindranath, 2004). While a market logic is inspired by a teleology of profitgeneration, it is development in its Senian notion that a human-centred logic is built around, and technologies are seen as entrenched in the making of (or, in some cases, hindering) the forms of enablement that Sein and Harindranath (2004) detail. While a market logic is more squarely focused on transaction platforms, a human-centred logic encompasses different types of platformisation such as transaction, innovation and integration platforms (Koskinen et al., 2019).

3 Openness and Modularity: Enacting the Human-Centred Logic

As noted in Constantinides et al. (2018), the architecture and governance of platforms are defining features that differentiate them from other digital objects. In this section we examine *openness* and *modularity* as platform properties, and theorise how these are linked to the enactment of the human-centred logic illustrated above. The two sublinks are articulated as follows.

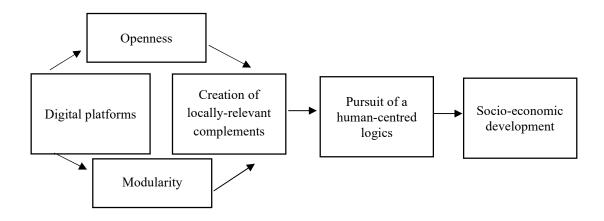


Figure 1: digital platforms & socio-economic development - mapping the theoretical link

Openness: Tiwana (2013: 118, cited in Constantinides et al. 2018: 384) defines platform governance in terms of "who decides what" with regards to incentive structures, control mechanisms, and the power distribution between the platform's owner and complementors. The layered architecture of platforms invites a specific trade-off: that is the balance between owners' control and *generativity*, defined as "the ability of producing new output without input from the originators" (Zittrain, 2008). As opposed to the closed, centralised architecture found in linear value chains (Constantinides et al., 2018: 384), the open architecture of platforms invites forms of governance that allow for generativity, enabling the construction of unfiltered

complements on the top of a platform's core. A standard example from IS literature is that of Apple iOS, whose over 140,000 apps built on top of the platforms' core enable contributions from numerous third-party actors (Eaton et al., 2015). Through generativity, openness enables the construction of customised content, enabling third-party actors in developing countries to produce locally-relevant content for their communities.

Modularity: as in Tiwana et al. (2010), platform architecture describes "how the ecosystem is partitioned into a relatively stable platform and a complementary set of modules that are encouraged to vary, and the design rules binding both". Stemming from this, the modularity of digital artefacts (Kalllinikos et al., 2013) is reflected in digital platforms as the recombinability of different modules, predicated on a common platform core and resulting into reprogrammable architectures (De Reuver et al., 2018). The creation of locally-relevant contents, seen in ICT4D literature as a core strategy for filling design-reality gaps (Heeks, 2002), is sustained by the creation of the "complementary set of modules" that characterise platform ecosystems as described in Tiwana et al. (2010). In particular, third-party innovators in developing countries can capitalise on the modular basis of platforms to build contents that suit the needs of poor and marginalised users, thus minimising the gaps with their lived reality.

Therefore, as represented in figure 1, openness and modularity both feed into the creation of locally-relevant complements, which may transcend the profit-generation goals stated by Parker et al. (2016). These complements are unfiltered, leaving room for grassroot innovation: for example m-Farm, a company running mobile services for farmers in Kenya, runs an Android-based app for crop price information tailored to the needs of local farmers.ⁱⁱ Similarly, Vula mobile – an app connecting medical professionals and patients in South Africa – is developed on the Android core to meet the specific needs of patients in remote areas of the country.ⁱⁱⁱ Platforms built with development goals in mind also operate under this remit: Kiva, built for connecting borrowers to disadvantaged lenders worldwide, develops its contents accordingly to its contexts and communities of operation.^{iv} E-Kutir, a platform connecting farmers sustaining micro-entrepreneurship for farmers in South Asia, develops different modular adaptations in its four countries of action.^v

The human-centred logic illustrated above is centred on goals of education, health and standard of living that inspire the pro-poor, locally relevant contents built by these platforms. Complements like those of m-Farm, Vula Mobile, Kiva or e-Kutir use local relevance to meet the needs of users, filling the gaps (Heeks, 2002) between content design and the reality that users experience. This illuminates the link illustrated in figure 1, where the two core features – openness and modularity – feed into a logic of content generation inspired by human development rather than profitmaking. It is the open, modular architecture of platforms that enables generative production, a key basis for the grassroot innovation at the root of empowerment in resource-constrained communities.

One clarification is in order here. As noted above, the logics of platforms-for-development is not antithetic, but complementary to the market-centred view: as a result, profit-centred complements are conceivable, and indeed enacted, through the development logic too. For example, Micrograam – an Indian social enterprise operating a platform for microlending – connects socially marginalised borrowers to

lenders, generating a profit from interest both for lenders and for the social enterprise. Vi E-marketplaces such as e-Krishi – a platform for farmers to sell their produce at the market price through the Internet – aim at achieving development through profits for members of marginalised communities. Vii Therefore, in a platforms-for-development logic profit making is not "banned", but is seen in a wider human-centred view where profit is a means to greater standards of living (Sein & Harindranath, 2004), and in turn to the enlargement of people's choices as in Sen (1999).

4 Limitations

Notwithstanding our description of the platforms-for-development linkage, the literature also engages cases of platforms-for-development which do not function as planned (cf. Koskinen, 2020). A reason is that both the sub-links reviewed in our framework can break: openness and modularity enable unfiltered contributions from third parties, but this does not necessarily result in socio-economic development outcomes under the human-centred logic. Below we illustrate how the production of unfiltered contributions may result into perverse effects, ultimately disempowering development subjects rather than resulting in the empowerment (Sen, 1999) that inspires the development logic.

So far, we have noted that platforms entail a balance of control and generativity, which enables grassroot innovation by empowering third-party actors (Ghazawneh & Henfridsson, 2013). However, following the reasoning in figure 1, this process can malfunction in at least two ways: first, openness may be contrasted by control from platform owners that limit the power of local innovators, ultimately disempowering the final users that the platform is meant to empower. Second, modularity can enable complements that do not work towards the intended outcomes, leading to detrimental conditions for the intended beneficiaries of platform-led development efforts. Both cases are illustrated below.

First, platform owners may yield greater power than that assumed by an "open" governance structure. In the case of India's Aadhaar, an identification platform grounded on a large biometric database, complements are constituted by numerous social welfare services, built to "empower the poor" by guaranteeing service access through biometrics (Banerjee, 2016). But Aadhaar's openness – enabling providers to build on it – is constrained by the platform's owner, the Unique Identification Authority of India (UIDAI), a government agency that owns and manages the Aadhaar database. Through UIDAI the Indian central government effectively controls Aadhaar-enabled services, resulting into perverse outcomes such as the exclusion of entitled users who fail to authenticate (Khera, 2019). As a result, openness – rather than resulting into empowerment – is contrasted by platform owners, ending up in exclusionary outcomes that harm development subjects (Khera, 2019; Masiero & Prakash, 2019).

Second, modularity enables the construction of grassroot innovations that can empower development subjects, but may also result into perverse effects. Studies of digital lending platforms have shown how, beyond providing loans to the socially disadvantaged, such platforms may strengthen the power of donors and, in turn, the dependency of recipients. In the case of Indian crowdfunding platforms studied by Banerjee (2019), these platforms participate in processes that perpetuate extant practices of development, preserving extant equilibria among actors and crystallising extant relations between non-governmental organisations and their networks.

In sum, emerging stories of failure – or unintended outcomes – in digital platforms for development can be read through the linkage theorised here. First, platform owners can contrast openness by altering the balance of power to the disadvantage of local innovators. Second, modularity can evolve into unfiltered contributions that end up damaging development subjects rather than serving them. The two sub-links theorised above can both malfunction, which contributes to explaining cases of platformisation that do not result into positive development outcomes.

5 Final Remarks

In this paper we have theorised a human-centred development logic as an alternative to the market logic that informs most of the IS literature on platforms. Building on the market logic of theoretical foundations of platform governance and architecture (cf. Gawer & Cusumano, 2014; Parker et al., 2016; Constantinides et al., 2018), we have theorised two sub-linkages predicated respectively on digital platforms' openness and modularity. Our framework shows how these properties afford the creation of locally relevant content capable of filling design-reality gaps as in Heeks (2002). We have also observed the limitations of each sub-linkage, showing how platform owners can contrast openness by shifting power equilibria in their favour, and modularity can evolve into unintended outcomes that ultimately result in development failures.

Our paper needs positioning within a broader critique to the limitations of the market logic dominance in digital platforms. For instance, Zuboff (2019) and Taplin (2017) offer an extensive critique of the main global digital platforms (often referred to as the "frightful five") in terms of mass pervasive surveillance, domination of markets without contributing to local tax revenues and acquisition strategies controlling innovation. Others have pointed to the dysfunctional effects on local communities of Airbnb (Dayne, 2016) and the damage to local businesses brought by Uber (Elbanna & Newman, 2015). Taking stock of this literature, our paper offers a human-centred alternative to the market logic underpinning global platformisation, using it as a lens to study platforms developed with explicit goals of socio-economic development.

Consequently, our theoretical contribution is based on the potential of openness and modularity as a basis for design and evaluation of digital platforms in ICT4D, where profit is not the main purpose. In this domain, meeting the needs of the poor and marginalised and focussing on broader socio-economic development goals is the main underpinning logic. As a result, fundamental platform design building blocks such as "platform monetisation" (Parker et al., 2016) are downplayed relative to the human development logics outlined here through Sein and Harindranath (2004). The reading key offered here views core properties of platforms in relation to this logic, observing their potential to enact it and outlining its principal constraints.

Some final remarks are in order: first, our focus on openness and modularity does not dismiss the affordances of other platform properties for development, such as the ability to connect supply and demand through two-sided markets. While Constantinides et al. (2018) suggest that two-sided markets for digital labour may have positive job creation effects in developing countries, a wide stream of research (cf. Bergvall-Kåreborn & Howcroft, 2014; Graham et al., 2017; Chen & Qiu, 2019) problematises this view, pointing especially at the exploitative conditions and lack of protection (for example, through unionisation) to which digital workers are subjected. As the perverse effects of digital labour on workers inside and outside the Global South are highlighted, transaction platforms appear as a double-edged sword for development, whose affordances need examination along with their structural drawbacks. In the light of this, the human-centred logic proposed here is offered as a route to undertake this type of research.

The main contribution of this paper is to offer some tentative first steps towards a conceptualisation of the theoretical link between digital platforms and socio-economic development, on which further theoretical development can be built. In line with this, a practical contribution of the framework is to offer advice to designers regarding the governance and architecture of platforms, transcending the insights of prior work that adopts a market logic. Finally, if read as a potential lens to evaluate extant platforms, the framework provides criteria that allow a focus on their suitability for the needs of development subjects, rather than the fulfilment of sheer market purposes.

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¹ For example, in Constantinides et al. (2018) there is only one mention of implications of platforms for developing countries, when it is stated that "there are a number of sectors where this (the diffusion of online work) would be highly beneficial, especially for "new-collar jobs" in developing countries". Even this argument has been, however, put into serious question by researchers of digital labour in the Global South (e.g. Heeks, 2017; Graham et al., 2018).

ii https://www.mfarm.co.ke/

iii https://www.vulamobile.com/

iv https://www.kiva.org/

v http://www.ekutirsb.com/

vi https://micrograam.com/

vii https://www.ekrishikendra.com/