# *Development Implications of Digital Economies*

**Digital Economies and Development: A Research Agenda**

2018

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# Digital Economies and Development:
# A Research Agenda

## Development Implications of Digital Economies (DIODE) Strategic Research Network
### Funded by the UK's Economic and Social Research Council
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This short paper summarises the research agenda emerging from the work of the "Development Implications of Digital Economies" (DIODE) Strategic Research Network, which was funded by the UK's Economic and Social Research Council as part of the Global Challenges Research Fund.

## Overview

Why research digital economies and development?

First, because of the increasing importance of the digital economy which may be defined as "that part of economic output derived solely or primarily from digital technologies with a business model based on digital goods or services" (Bukht & Heeks 2017:13) and conceptualised as shown in Figure 1.  Rough estimates place its value around 5% of global GDP; contributing around 3% of global employment; and typically registering double-digit annual growth (*ibid.*).
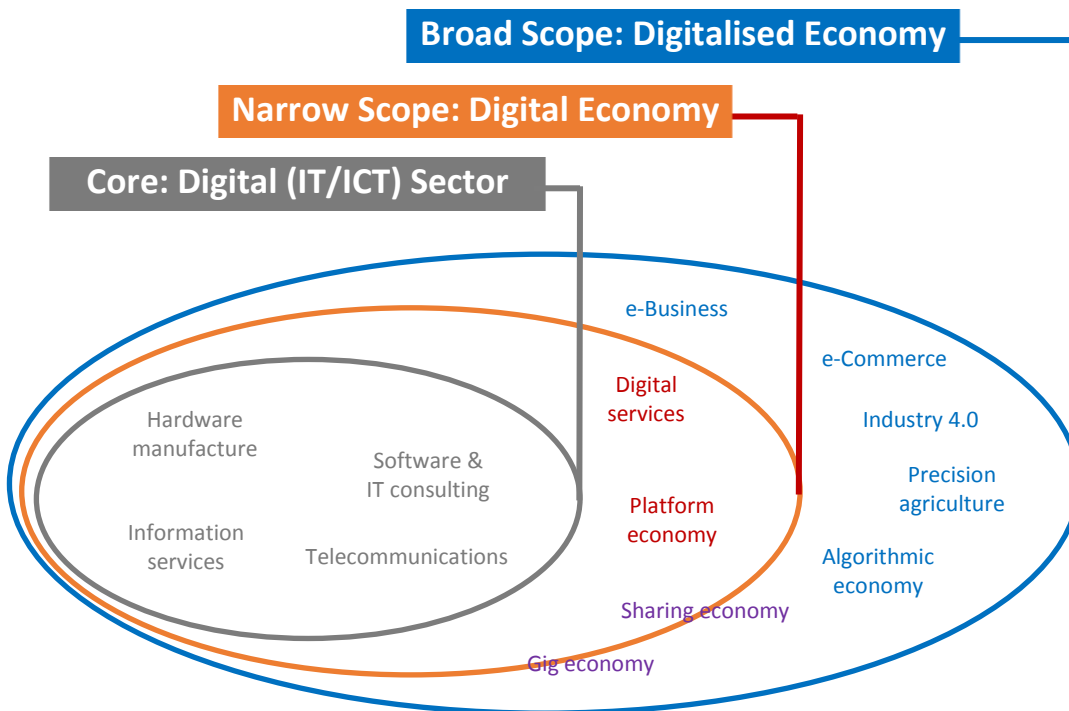


***Figure 1: Scoping the digital economy***
Source: Bukht & Heeks (2017)

Second, because digital economies in developing countries are falling well short of their development potential due to various constraining challenges; for example with national contributions to GDP and employment roughly half that seen in the global North, and even less

in least-developed countries (*ibid*).  Yet, alongside these constraints, the rapid growth of the digital economy in developing countries has been associated with emergent harms: growth in digital exclusion and wider digital inequality including emergence of digital monopolies, and growth in other digital harms such as threats to security and privacy (Bukht & Heeks 2018).

Third, because of extensive knowledge gaps around the two rationales just stated.  We have only the roughest idea of the size of the digital economy in the global South.  We lack knowledge about the nature of constraints to growth and how to overcome them.  We know little about the harms and disbenefits of digital economy growth.

The DIODE network therefore undertook a set of four workshops during 2017-2018 and commissioned a series of working papers: for further details of both, see https://diode.network/.  The intention was to identify the key knowledge gaps relating to the digital economy in developing countries, and to therefore identify the future research agenda.  This paper presents the outcome of those activities.  It divides the research agenda into six overall topic areas as discussed below: Digital inequality, Digital labour, Digital platforms, Digital enterprise, Digital policy, and Digital economy theory and methods.

In all cases, there was a cross-cutting concern to understand the specifics of these phenomena in the global South given the consistent theme that phenomena, contexts, impacts, etc. were different from the mainstream discourse which is dominated by research and evidence from and about the global North.  Differential issues included:
- Institutional differences between the digital economy context of the global South vs. global North.
- The contrast between "book realities" vs. "field realities" of developing country digital economy: assumptions of global North researchers that are not matched by realities in the global South – either more positive or more negative.
- The challenge of applying digital economy strategies (policy, enterprise strategy, activism) formed in the global North to the global South.

## A. Digital Inequality

The key challenge, overarching knowledge gap and main research priority relating to the digital economy in developing countries was seen to be digital inequality: the unequal distribution of digital resources, processes, benefits and harms across various social dimensions.  This inequality occurs between nations and between social groups on bases including income, gender, education, location, age, disability, ethnicity, etc. (Heeks 2018).  As shown in Figure 2, the original focus of attention was the "digital divide": concern about inequalities of infrastructure and then of access to and use of digital technologies.  But in recent years, this has extended to the broader notion of "digital inequality" which includes the skewed distribution of digital impacts.
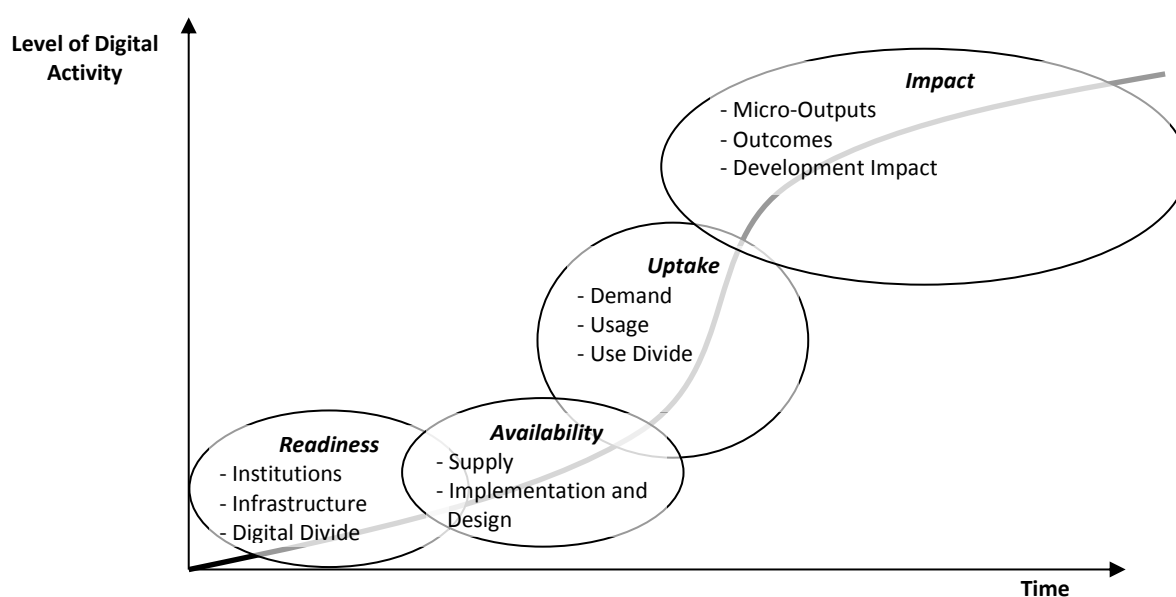


**Figure 2: Changing focus of digital inequality over time**
Source: adapted from Heeks (2018)

The digital divide remains a critical problem: involvement in the digital economy typically requires Internet access yet roughly half the planet's population is not yet connected, with this group disproportionately representing the world's poor, female, and rural citizens in developing countries (Alliance for Affordable Internet 2017).  But these problems are replicated within the digital economy itself.  Men earn more than women, and those in the global North earn more than those in the global South when working via digital platforms (Bukht & Heeks 2018).  Digital engagement by developing country micro-, small and medium enterprises tends to reinforce rather than reduce their marginalisation (Murphy & Carmody 2015).  Conversely, large global platforms tend to oligopolistic or even monopolistic capture of markets and their income streams.

Three research priorities were identified:
1. **Mapping Digital Inequality**: identifying the emergent nature of digital economy-related inequalities in developing countries.  Understanding overall the extent to which involvement in the digital economy closes, reproduces or widens existing inequalities.  Understanding specifically how the multiple structural dimensions of inequality (economic,

socio-cultural, political, spatial, epistemic) intersect and interact with the emergence of the digital economy in developing countries either to create digital inequality: exclusions, harms and asymmetrical benefits related to the digital economy, or to disrupt the status quo in favour of equity.

2. **Supporting Digital Labour**: understanding and increasing value capture by workers in the digital economy. A core source of digital inequality is the inequity of power between capital and labour; enabling capital to capture more of the value and benefits of emergent digital economy phenomena in developing countries. This research priority – explained further in Section B – would try to redress this imbalance.

3. **Feminist Digital Economics**: developing gendered understanding of, and intervention in the digital economy in the global South. Identifying the digital economy gender asymmetries of context, activity and impact. Based on that understanding, intervening to address the sources of digital economy inequality including structures that skew women's participation rates in and benefits from digital entrepreneurship and labour.

Other elements of the research agenda include:

- *Pro-Equity Interventions*: analysing and supporting pro-equity digital economy interventions in developing countries. Assessing whether pro-equity interventions such as impact sourcing are delivering development value to marginalised populations, and reducing either absolute or relative inequalities. Guiding and supporting such interventions on the basis of that evidence.

## B. Digital Labour

As noted above, the digital economy accounts for something like 1.5% of employment in developing countries as an overall average.  As per Figure 1, this includes "traditional" ICT sector employment in telecommunications, hardware and software but also emergent work which has crystallised especially around platform labour (van Belle & Mudavanhu 2018).  Platform labour is work mediated by digital platforms: both location-based physical gig work undertaken via platforms such as Uber and Uber Eats, and digital gig work undertaken via platforms such as Upwork and Freelancer.

The DIODE network chose to focus mainly on platform labour.  It is not yet particularly sizeable in employment terms: we estimate around 6m active digital gig workers in low- and middle-income countries (Heeks 2017) and at least that many and likely far more physical gig workers.  But employment growth appears to be greater than 30% per annum (*ibid.*), platform labour can be seen as a bellwether for many wider employment trends in the economy, and there are many aspirations that it will help address high unemployment rates in developing countries (van Belle & Mudavanhu 2018).  It brings benefits to workers in developing countries: income, skill and career development, and an inclusion and objectivity and flexibility lacking in other forms of employment.  But it also appears to fall well short of decent work standards and is characterised by both chronic precarity and structural inequality (Heeks 2017).

Yet, to date, there have been only a small handful of studies on this phenomenon in the global South, creating a research agenda from which we identified the following three priorities:
1. **Decent Digital Work**: assessing and improving developing country digital labour against decent work standards.  This firstly requires an understanding of the extent to which employment in the digital economy meets or undershoots decent work standards; potentially requiring an update of those standards to match new forms of digital employment (*ibid.*).  It will then require analysis and action research on interventions seeking to improve the employment context and work conditions, such as IT impact sourcing, codes of conduct, and platform certification.
2. **Digital Labour Trajectories**: charting the longer-term paths of those working in developing country digital economies.  This means moving beyond the typical cross-sectional understanding of digital labour to a longitudinal view that understands how workers move (or fail to) between different digital economy jobs; how they manage those transitions; the capabilities and social capital they do or do not build over time; the external support they require in this process; the lessons from those who drop out of digital work.
3. **Broader Impact of Digital Labour**: evaluating the wider and longer-term impact of digital labour in developing countries.  Measuring the creation, flow and capture of value across the value chain including digital enterprise profits and true worker earnings over time; balance of private and social benefits; distribution of value capture between and within countries; impact on levels and types of inequality.  Measuring the macro-impacts of digital labour e.g. on traditional employment, on overall wage levels, on national productivity, on the national and international geography of work, on labour market institutions.

Other elements of the research agenda include:
- **Platformisation**: investigating the impacts of IT and other digital work in developing countries gradually shifting from value chains involving traditional IT firms to value chains intermediated by platforms.
- **Fair Labour Platform Design**: analysing and guiding on labour platform designs that improve digital labour in developing countries.  For workers: enabling them to see the bigger context of their tasks; allowing their data to be portable; giving them a voice; making algorithms transparent and fair.  For platforms: enabling them to manage responsibly.  For clients: overcoming barriers to accessibility; enabling relationship building with workers.
- **Domestic and South-South Markets**: analysing the implications of growth in domestic, regional and broader Southern demand for digital labour, and understanding whether there are opportunities for greater demand for impact sourcing and decent digital work.
- **Informalisation**: understanding the similarities and differences between digital labour and informal labour in developing countries.

## C. Digital Platforms

Digital platforms are digitally-mediated services that enable interaction and transaction between user groups. They are typically divided into two types (see Figure 3): transaction platforms that facilitate interactions, and innovation platforms that provide the building blocks on which developers can build products or services (Koskinen et al 2018).
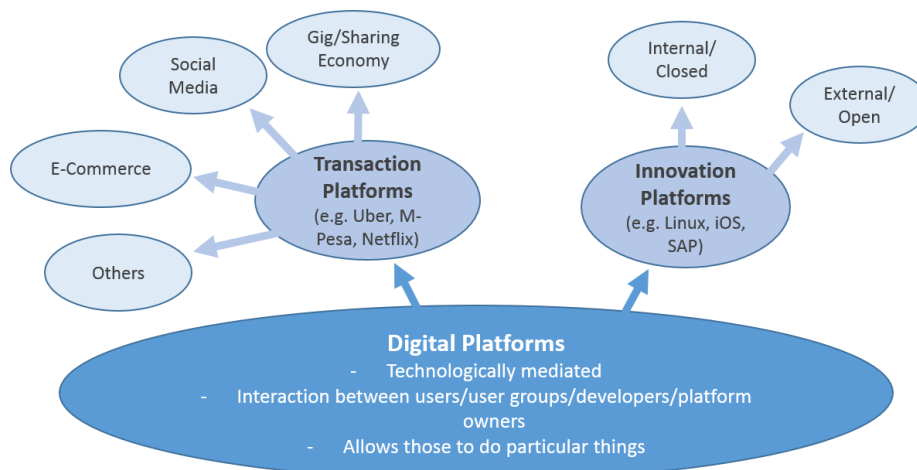


**Figure 3: Typology of digital platforms**
Source: Koskinen et al (2018)

The global market value of these platforms is more than US$4 trillion – larger than Germany's economy – registering double-digit and sometimes even triple-digit annual growth rates (*ibid.*). Hence, and as illustrated by the evidence on platform labour, there has been explosive growth in the past few years of the presence and impact of digital platforms in developing countries across economic, social and political domains. Platforms are the key institution of the digital economy, and their institutional features and affordances thus shape digital economies in developing countries: network effects, tendencies to monopoly, etc.

Three research priorities were identified:
1. **Platform Mapping**: mapping the platforms currently active in developing countries. The presence of major global platforms in developing countries is relatively well-known but the size and nature of their activity less so. Simultaneously, many smaller and locally-developed platforms remain uncharted, as sites of both economic production and consumption.
2. **Platform Impact**: evaluating the developmental value and impact of digital platforms. Platform impact can be understood in relatively direct terms e.g. the value as a business (turnover, profit, capitalisation, employment, etc.) and for platform users (e.g. in affecting individual livelihoods). It can be understood in more structural terms; for example, understanding platforms as institution-building in contexts often characterised by weak or absent institutions; and understanding who captures value from the operation of platforms in the global South: platform owners/investors, platform users, platform workers, the state, etc. It can also be understood in terms of inequalities: whether platforms are leading to a concentration of value capture and hence to inequality.

3. **Platform Alternatives**: evaluating and potentially supporting alternative types of platforms in developing countries. The dominant platform model is that owned and run by a for-profit multinational. But there are increasing alternatives which need to be assessed in terms of their developmental value, with potential action research agendas to develop and support such alternatives. Examples include hybrid business—welfare platforms such as those run by social enterprises; state-owned platforms; "open platforms" that provide access to their data and algorithms; platform co-operatives; and others.

Other elements of the research agenda include:
- *"Platformness"*: assessing how the specific functionalities and affordances of the digital impact the development impacts of platforms.
- *Platform Design*: researching how design decisions are made in the creation and ongoing development of platforms active in developing countries; the way in which designs inscribe particular values and power relations; and the impact of those decisions on user behaviour and developmental value.
- *Institutional Narratives for the Platform Economy*: investigating whether platforms in developing countries are more associated with de-institutionalisation (erosion or destruction of traditional institutions) or re-institutionalisation (improvement or renewal of traditional institutions).

## D. Digital Enterprise

"Formal digital enterprise embraces firms in telecommunications, digital services, software and IT consulting, hardware manufacturing, information services, platform economy, gig economy and sharing economy. The informal sector embraces informal production activities like repair of digital devices, organising online training sessions, and individual entrepreneurs who leverage over-the-top services like WhatsApp and mobile money and cryptocurrency services to operate virtual businesses. There is also the growing dark economy which exists in several forms including cybercrime, digital piracy, SIM box fraud and the adult economy" (Boateng et al 2017:1).

The digital economy in developing countries has historically been dominated by multinationals based in the global North. However, experiences in China, India and other middle-income countries reflect increasing presence of home-grown large and even multinational digital enterprises. Alongside these are millions of start-ups developed by local digital entrepreneurs. While individually small in economic impact, these have a significant overall contribution to national income and employment, and they provide the breeding ground for potential "unicorns" that may deliver much more substantial benefits. Yet digital entrepreneurs and their start-ups in the global South face many barriers to initiation and growth; barriers that government policy is only slowly addressing.

Three research priorities were identified:
1. **Enterprise Trajectories**: analysing the factors underpinning success and failure over time of digital enterprises in developing countries. These factors can be analysed at the various stages of a digital enterprise: pre-start-up, start-up, growth, maturity. They may include relatively generic factors around entrepreneur attributes alongside others that are digital- and South-context-specific including funding sources, business models, and optimal levels of embedding into local and global contexts and into product and digital sectors (Quinones et al 2017).
2. **Enterprise Impacts**: evaluating the developmental value and impact of digital enterprise. Beyond the hype and hope, this will analyse the contributions of digital enterprise to developing country economies: value-addition, exports, employment, capability-formation, innovation, taxation, etc.
3. **Enterprise Support Strategies**: identifying and promoting government, sectoral and entrepreneur strategies to maximise the developmental value of digital enterprise. For government and sectoral organisations this will include developing the evidence base to guide interventions on financing, training, networking, and institution-building. For entrepreneurs, it will include researching guidance on mentorship, partnership, knowledge-building, and business models: for the latter, including requirements to modify techniques such as Lean Startup to fit developing country contexts.

Other elements of the research agenda include:
- *Digital Social Enterprise*: analysing the particular features of digital enterprises that combine business and welfare missions as these become increasingly popular with young digital entrepreneurs in developing countries; including strategies for initiating, growing and orchestrating digital social enterprise; understanding funding sources and legal incorporation models; understanding their unique hybrid business—development models

and strategies for balancing the two potentially-competing missions/institutional logics; and evaluating development implications of digital social enterprise.

- **Grey/Black Digital Enterprise**: understanding the features and impacts of those digital enterprises operating at or beyond the legal margins; enterprises which have remained largely hidden from the focus of research to date. Covering the micro impact of liminal livelihoods; livelihood and entrepreneur trajectories; the role of government and other institutions; and specific domains: dark web, click farms, cyber-sex, scams, etc.
- **Enterprise Economic Geography**: understanding the economic geography of digital enterprise in developing countries, including positioning within local and global value chains and the contribution of clustering and agglomeration.
- **Data Economy Enterprise**: researching the nature of start-ups and mature enterprises solely dedicated to the data economy in developing countries: areas of operation, value creation, challenges, eco-system; what intra-organisational value in the public and private sectors is extracted from new data streams; how platform data is being monetised.
- **Digital Fabrication Enterprise**: analysing the general development impact of Industry 4.0 including employment impacts, and the specific impacts of digital fabrication e.g. on the localisation of production. Identifying the strategic and policy implications of these trends.

## E. Digital Policy

Digital economies in developing countries are vibrant, innovative and fast-growing. But the challenges they face in relation to digital infrastructure, ecosystems and disbenefits are real; they prevent digital economies making the development contribution they could; and they need to be addressed (Bukht & Heeks 2018). The following policy components are therefore required (*ibid.*):

- Digital Infrastructure Policy: to ensure a pervasive and effective infrastructure for the digital economy.
- Digital Ecosystem Policy: to ensure an effective digital ecosystem and an open, stable and enabling environment for the digital economy.
- Digital Economy Disbenefits Policy: to reduce the emergent disbenefits/harms associated with the digital economy
- Governance of Digital Economy Policy: to maximise effectiveness of digital economy policy structures and processes.

Yet policy-makers currently lack effective guidance on these components and also lack the evidence base to underpin such guidance.

Three research priorities were identified:
1. **Mapping the Digital Economy**: measuring the size and qualities of the digital economy in developing countries. Across all aspects of the digital economy – including the specifics of inequality, labour, platforms, enterprise discussed above – there is very little reliable evidence from developing countries. Thus all decision-making including that of government policy-makers is undertaken in something of an informational vacuum. Research is needed to fill that gap including basic statistics e.g. on size, employment, no. of enterprises, etc.; and also cost/benefit analysis of the digital economy including return on investment in digital infrastructure.
2. **Cross-Country Comparison**: sharing experiences and lessons across countries. While the digital economy in each individual developing country has its specificities, it was recognised that there are also commonalities across groups of countries. Policy-makers wanted a sharing around the nature of digital economies, the content and strategy behind digital economy policies, and the governance (i.e. processes and structures) of digital economy policy.
3. **Policy Guidance**: desk and action research to guide specific policy decisions. This would typically be undertaken on a country- and likely policy-specific basis. It could well draw on the current (limited) evidence but would better be undertaken where feasible on an iterative, action research, longitudinal basis to try out a particular policy intervention and then revise it on the basis of ongoing evaluation.

Other elements of the research agenda include:
- ***Beyond Content***: analysing the processes and structures – particularly the politics and political economy – of digital economy policy-making and implementation in developing countries. This would include research on managing the politics of inter-agency co-ordination/competition; on leaders and champions of digital economy policy; and on policy continuity: how to set digital economy policy outside the cycles/rhythms of domestic politics.

- ***The Digital Developmental State***: understanding how the developmental role of the state is different vis-à-vis the digital economy compared to other/earlier sectors.  In particular, historically, some developing country governments have played a developmental state role vis-à-vis the ICT sector.  Can and will they play such a role vis-à-vis the new digital economy: the gig economy, the platform economy?  If so, what is that role?
- ***Digital Trade***: the definition and measurement of digital trade and its developmental impact; understanding digital global value chains; and the regulation and promotion of digital trade.
- ***Digital Finance***: the general role of fintech including blockchain and cryptocurrencies in development; the impact of digital finance platforms on financial inclusion/exclusion; and the regulation and promotion of digital finance.

## F. Digital Economy Theory and Methods

The research agenda here included the items identified below.

**Digital Economy Theory**
- Developing new theory at the intersection of digitality/materiality + institutions/power + networks in order to more fully understand the digital economy in developing countries.
- Examining the particular value that middle-range theory might have to offer research into the digital economy in developing countries.

**Digital Economy Methodologies**
- Researching digital economy research: analysing how to cross the research—policy/practice gap and ensure that digital economy research is translated into action.
- Developing co-creation and co-design methodologies for conducting digital economy research in developing countries.
- Broadening our understanding of research ethics to encompass emergent issues of digital economy research such as data justice and digital rights of research participants.
- Recognising the potential value of pragmatism and of critical realism as philosophies guiding research on digital economies and development.

**Digital Economy Methods**
- Evaluating "digital density": ways to measure not just breadth of the digital economy in developing countries but also depth of impact.
- Finding ways to access big data of relevance to the digital economy in developing countries and using this to measure quantitative and qualitative features of the economy.

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