Development Implications of Digital Economies

Strategy Brief

Digital Economy Policy in Developing Countries

2018

Developed as part of DIODE: the "Development Implications of Digital Economies" strategic research network, funded by the UK's Economic and Social Research Council as part of the Global Challenges Research Fund initiative

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Table of Contents

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Development Implications of Digital Economies (DIODE) Strategic Research Network
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This short Strategy Brief provides guidance on the why and what of digital economy policy in developing countries: why are strategic interventions needed to develop digital economies in the global South; and what interventions are needed.

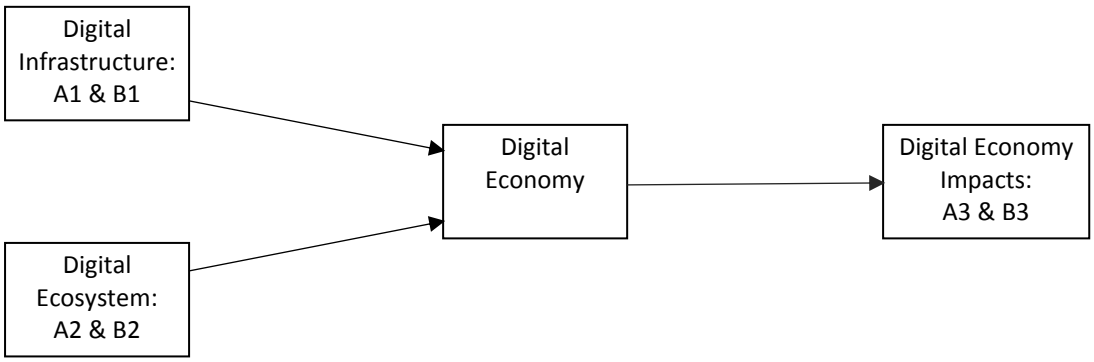
Overview

Why is digital economy policy needed?

First, because of the increasing importance of the digital economy: estimates place its value anywhere between 5% and 15% of global GDP; contributing 3% to 10% of global employment; and typically registering double-digit annual growth.

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.

We can understand the overall picture via the simple input-process-output value chain shown below.



A. Challenges Constraining Development Contribution of Digital Economies

Digital economies in the global South are vibrant, innovative and fast-growing. So the list below should not be used to paint a "doom and gloom" picture. But the challenges are real; they prevent digital economies making the development contribution they could; and they need to be addressed.

A1. Digital Infrastructure Challenges

Digital infrastructure is the essential technological foundation for digital economies. Developing countries are constrained by infrastructural problems that include:

- Power: absent or unreliable, poor-quality, high-cost electricity.
- Telecommunications: mobile and broadband infrastructure that is absent or slow and/or high-cost and/or poor-quality.
- Devices: low penetration rates and high costs of servers, smartphones, tablets, PCs, sensors, 3D printers, robots, etc.
- Applications: relatively low availability of latest applications including cloud services and digital platforms.
- Data content: digital data that is absent or relatively incomplete, inaccurate or inaccessible.

A2. Digital Ecosystem Challenges

We can break these down into three main areas:

a) Human Infrastructure. Challenges here include poor incentives and motivation (e.g. lack of push or pull to engage in the digital economy; or dominance of push from lack of alternatives rather than pull of opportunities); and a lack of digital capabilities including basic literacy, digital literacy, generic technical skills, and specialist digital skills.

b) Institutional Infrastructure. Financing for digital economies – pre-seed, seed, growth funding – is lacking in developing countries; and the various forms of financing – loans, venture, angel, crowd, grants, stock markets – are under-developed. Digital economy markets are also under-developed with, for example, a lack of local demand and various frictions in undertaking commercial transactions within and across borders.

c) Governance. The general challenge overarching this whole Strategy Brief is that relevant digital economy policies are absent or outdated in developing countries. This also applies to wider trade and industry, competition, enterprise, science and technology, and innovation policies that set the context for the digital economy. But alongside these policy content challenges are those relating to digital economy policy process and structure, which can be undermined by weak policy-making capacity within government, by elite capture of policy-making processes, by corruption, by “red tape” in implementation, etc.

A3. Digital Economy Disbenefits

Growth of digital economies in the global South brings many benefits for those countries: national, government and personal income; creation of businesses, jobs and livelihoods; growth in value-addition; development of capabilities, etc. But the impact of digital economies has also been associated with an emerging set of disbenefits:

- Digital exclusion: the relative inability of particular groups (women, the poor, older people, those with disabilities, certain ethnic groups, those in rural areas) to participate in, and gain the benefits of the digital economy.
- Digital inequality: alongside the inequality emergent from digital exclusion, there are inequalities arising from participation in the digital economy. Capital benefits far more than labour; foreign firms benefit more than local firms; large firms benefit more than small enterprises; men benefit more than women; and so forth.
- Other harms: these include the growth in cybercrime, and loss of privacy.

B. Policy for Digital Economy Development

Government needs to respond to the challenges identified above. The summary tables below present an overview of the policy issues and outcomes, and a selection of recommended policy instruments. These are organised in terms of the three challenge domains above – infrastructure, ecosystem and disbenefits – plus a more detailed discussion within ecosystem of governance processes and structures for digital economy policy.

Digital Economy: Business Strategy

Digital enterprises in developing countries need to ensure they engage with, and help shape the digital economy policies outlined in the summary tables below. In addition, the following strategic guidelines are identified:

Market-Wide Strategies

- Markets: opportunities may lie more in local or regional digital goods and services markets than in global markets.
- Focal locations: it is currently very hard to create vibrant digital economy ecosystems in rural and peri-urban areas, towns and small cities; where resources are stretched, focus on main cities.
- Timescale: play the long game – focus on evolutionary features of learning and adaptation rather than buying into the hype on revolutionary change.
- Lead firms and actors: sustainable, innovative, early-moving lead firms and organisations are essential to digital economy success; these and other fast-growing digital start-ups often depend less on market and enterprise factors and more on presence of a digital entrepreneurial mindset (competitive, disruptive, confident, resilient): find ways to identify "digital economy champions" with these characteristics.
- Actions: focus less on highly-visible actions often done for the sake of appearances (hackathons, bootcamps, etc) and more on enabling tacit knowledge creation (incentivised mentorship programmes, vocational training, apprenticeships, internships, etc).
- Customise: provide different support to different types of digital enterprise at different stages of the enterprise lifecycle; customise entrepreneurial methodologies (Business Model Canvas, Lean Start-Up, etc) to developing country contexts.

Entrepreneur Strategies

- Mentorship: seek out high-quality mentorship including from peers such as others in hubs, incubators, accelerators; identify sounding boards among donors, investors, academics, other experts.
- Training: seek out digital and entrepreneurship training with simple guiding principles that are context-relevant
- Knowledge: understand the particular market and ecosystem – don't rely on general statistics but validate markets direct; don't just copy business models but customise by identifying specific niche position and opportunity in relation to specific context; identify a realistic growth path: don't think too small or too big.
- Embedding: aim for balanced knowledge and links to vertical/product and horizontal/digital sectors, and to local and global
- Growth: keep looking for paths to break out of small, fragmented markets e.g. through partnerships with or just learning from large players (corporations, banks, mobile operators, platforms, etc).

Source: DIODE workshop, Oxford, UK, 9-10 October 2017 esp. contributions of the Digital Enterprise group, summarised by Nicolas Friederici

B1. Digital Infrastructure Policy

Digital Infrastructure Policy Objective: to ensure a pervasive and effective infrastructure for the digital economy		
Policy Issue	**Desired Outcome**	**Recommended Policy Instruments**
Unreliable / unavailable supply of electrical power	Effective electrical infrastructure	• Invest directly in power infrastructure • Encourage private sector investment in power infrastructure, including micro-scale • Encourage "smart grid" innovation
Inadequate supply of technical infrastructure	A pervasive, high-capacity, interoperable technical infrastructure	• Invest directly in telecommunications infrastructure • Encourage private sector and international finance institution investment in telecommunications infrastructure • Ensure independent regulation of telecommunications infrastructure • Address technical monopolies through competition policy reform • Establish clear guidelines (including competition vs. return-on-investment) for spectrum and other infrastructure planning, licensing and pricing • Regulate cost-based interconnection between networks, and infrastructure sharing • Review cost/benefit of taxation, pricing or other barriers that restrict access to infrastructure, networks and devices • Develop specific plans and incentives for (mobile) broadband • Develop country-level Internet Exchange Points • Set minimum, universal access speed and quality requirements
Insufficient data infrastructure	A pervasive, high-quality, interoperable data infrastructure	• Promote or mandate use of interoperable data standards • Invest in capacity for data capture, analytics and visualisation • Introduce regulations on data integrity, retention, consent, usage and administration • Incentivise development of local data / server / cloud computing centres

B2a. Digital Ecosystem Policy

Digital Ecosystem Policy Objective: to ensure an effective digital ecosystem and an open, stable and enabling environment for the digital economy.		
Policy Issue	**Desired Outcome**	**Recommended Policy Instruments**
Lack of digital economy capabilities	A pervasive, full-spectrum set of digital economy production capabilities	• Embed ICT-related curricula into primary, secondary and tertiary education including higher-level entrepreneur and innovator competencies • Improve methodologies and capabilities of ICT-related educators and trainers • Audit specific, local digital economy capability requirements • Provide specific support for building higher-level capacities among digital entrepreneurs • Provide subsidies or tax breaks for in-service digital economy training • Encourage return of digitally-trained citizens resident overseas • Review immigration policy impact on in-flow of digital economy workers and entrepreneurs
Limited access to finance	A high-performance and attractive investment environment	• Steer development financing, including crowd-funding, into digital economy investments • Provide direct (public) funding for digital economy investments • Support digital economy innovation through direct funding, subsidy and tax breaks • Encourage private sector funding of the digital economy including use of public-private partnerships and investment by foreign entrepreneurs and companies • Establish mechanisms conducive to venture capital funding • Make available specific financial support for digital start-ups and SMEs • Make available risk capital including consideration of scaling and growth capital and foreign direct investment • Support digital economy enterprises through other investments and incentives e.g. around R&D
Low levels of digital economy demand	Increased digital economy consumption	• Support general programmes to improve basic and digital literacy • Support interventions to promote ICT application in all development sectors (health, education, agriculture, small enterprise, public administration, etc) • Run hackathons, competitions, etc for development of apps relevant to local development needs

Policy Issue	Desired Outcome	Recommended Policy Instruments
Absent and outdated digital economy policies	The necessary legal framework to enable the digital economy	• Analyse and legislate for the specific requirements arising from digital platforms • Update taxation policy to address emerging digital economy • Update labour policy to address emerging digital economy • Promote legal recognition for digital signatures, identities, contracts and transactions
Poor institutional infrastructure for the digital economy	A supportive institutional infrastructure for the digital economy	• Identify and develop localised digital economy champions • Raise understanding and awareness of digital economy impacts • Develop effective public-private partnerships across digital economy financing, innovation, capacity-building, etc • Support for other bipartite (NGO-private; community-private) digital economy partnerships • Review and streamline digital economy regulations including digital enterprise start-up, operation, closure
Lack of specific support for digital economy start-ups and SMEs	Targeted digital economy support	• Provide business development services specifically for digital economy enterprises • Incentive-based mechanisms to encourage digital economy start-up and growth • Create hubs, incubators and accelerators that support and boost digital entrepreneurship • Develop digital economy techno-parks that foster enterprise clustering

B2b. Governance of Digital Economy Policy

Governance of Digital Economy Policy Objective: to maximise effectiveness of digital economy policy structures and processes		
Policy Issue	**Desired Outcome**	**Recommended Policy Instruments**
Problems with capacity, policy structures, policy-making and implementation processes	Strengthened governance of digital economy policy	• Identify clear digital economy leadership • Conduct overall audit of all legislation and regulations and institutions relating to digital economy • Conduct Digital Economy Readiness appraisal • Implement a strong but agile governance structure to ensure accountability • If necessary, reorganise legacy Ministerial/Agency structure to match digital economy requirements • Implement capacity-building on digital economy within the public service • Develop digital economy strategy through multi-stakeholder collaboratory approach • Utilise digital politics platforms and "regulatory sandboxes" for policy-making • Strengthen and broaden gathering of digital economy statistics including use of new data sources, methods, and metrics • Develop metrics for policy evaluation, building on existing initiatives and providing cost/benefit evidence on specific policy interventions • Incorporate strong programme accountability and progress monitoring • Develop multi-country cooperation and best practices
Corruption	Reduced corruption in digital policy implementation	• Establish automated corruption reporting system • Adopt open procurement procedures for digital economy policy contracting • Adopt open government data policy for all digital economy-linked processes
Government bureaucracy	Reduced bureaucratic overhead	• Simplify customs regulations for digital goods • Simplify digital trade regulations • Implement broader "regulatory simplification" and institutional reforms for digital economy policy • Adopt agility as criterion for design of digital economy policy structures
Shortcomings in wider policy	Effective digital economy context	• Audit impact of wider policy context on digital economy, and identify policy requirements • Engage with and improve digital economy-relevance of policies including: trade and industry, competition, enterprise, science and technology, and innovation

B3. Digital Economy Disbenefits Policy

Digital Economy Disbenefits Policy Objective: to reduce the emergent disbenefits/harms associated with the digital economy		
Policy Issue	**Desired Outcome**	**Recommended Policy Instruments**
Limited infrastructure in peripheral regions	Targeted financing for inclusive digital infrastructure initiatives	• Develop universal service funds (USFs) or obligations for mobile, Internet and other ICT infrastructure • Develop USFs or obligations for power infrastructure • Consider potential for other public funding or subsidy for remotest regions
Poor performance of universal service funds	Maximised USF effectiveness	• Set clear goals, targets, timelines and processes for collection and distribution of USFs • Review USFs and remove or revise if original goals achieved • Ensure open distribution of funds via transparent and consultative process with key stakeholders • Prioritise funding of least-cost technologies, and shared-access infrastructure
Absence of inclusive digital content	Development of inclusive local content	• Support local data content generation by capacity-building of data producer roles • Facilitate collaborative development of data content between local developers and broader actors including content distributors
Lack of ICT access in marginalised groups	Effective uptake of ICTs by marginalised groups	• Embed ICTs into government and NGO information and service delivery programmes • Establish competition policies to mandate operators to expand coverage into marginalised (low-income / rural) regions • Provide financial support (subsidy, tax exemption, etc) for ICT goods and services to help accelerate access and affordability • Encourage inclusive innovation of low-cost devices and services for low-income users • Provide ICT capacity-building programmes and financial support for marginalised groups
Lack of digital economy participation by marginalised groups	Inclusive participation in digital economy	• Financial support for ICT incubators / hubs / clusters in marginalised communities • Promote role models of digital entrepreneurship from marginalised groups (women, youth, disabled, etc) • Target digital economy capability-building for marginalised groups • Support grassroots / marginalised digital entrepreneur links to formal sector (e.g. network events, fairs, competitions / awards, innovation databases, reports to amplify awareness of grassroots digital enterprise, marketing assistance, quality assurance, government procurement)

Policy Issue	Desired Outcome	Recommended Policy Instruments
Adverse incorporation into digital economy	Fair incorporation into digital economy	• Fair / decent work standards for digital labour and other work in the digital economy • Regulatory and policy audit to ensure level playing field for smaller-scale and other more peripheral actors in the digital economy
Threats of malicious software, spam, phishing, identity theft, piracy, etc	Reduced levels of cybercrime	• Develop cyber security practices and regulations • Legislate to criminalise hacking • Raise awareness of cybercrime and cybersecurity through engagement programmes • Train and enhance practising cybersecurity professionals • Create cybersecurity agencies and capabilities • Extend conventional crime legislation to cover online activity
Vulnerable digital infrastructure	A secure digital environment	• Establish state-of-the-art secure digital infrastructure • Strengthen defences in cyberspace and improve ability to detect threats in cyberspace • Create appropriate anti-cyberterrorist and anti-cyberwarfare agencies and capacity at national and international level • Improve the structural arrangements for digital forensics, as well as the sophistication of the systems to monitor the Internet and detect cyber-attacks • Introduce measures for sharing and reporting information related to cyber attacks
Lack of protection for data and privacy	"Data justice" via protected digital rights	• Legislate right to online privacy as part of data protection • Create reporting instruments within ombuds, agencies and associations to easily monitor and report activities • Balance cross-border vs. localisation concerns in relation to data flow and cloud legislation • Develop "loose and limited IPR" legislation, balancing rights of digital economy producers and consumers • Extend labour legislation to cover the online domain • Commit to abide by UNESCO Code of Ethics for the Information Society
Emergence of digital economy monopolies	Reduced disbenefits of info-monopolies	• Ensure anti-trust, anti-monopoly regulation and other competition law covers online and digital economy activity • Enable effective and developmental competition in digital economy sectors • Clarify application of taxation rules for online digital economy activities • Improve monitoring of digital financial flows

C. Sources and Further Reading

The material in this Strategy Brief was developed from workshops – including presentations and group discussions and activities – held during 2017 and 2018 by the "Development Implications of Digital Economies" (DIODE) strategic research network, funded by the UK's Economic and Social Research Council. It was also developed from DIODE Paper No.6 and other sources cited below. The Strategy Brief was authored by Richard Heeks.

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