

## DIGITAL ECONOMY

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### Annotation

The digital economy is growing fast, especially in developing countries. Yet the meaning and metrics of the digital economy are both limited and divergent. The aim of this paper is to review what is currently known in order to develop a definition of the digital economy, and an estimate of its size. The paper argues there are three scopes of relevance. The core of the digital economy is the ‘digital sector’: the IT/ICT sector producing foundational digital goods and services. The true ‘digital economy’ – defined as “that part of economic output derived solely or primarily from digital technologies with a business model based on digital goods or services” – consists of the digital sector plus emerging digital and platform services. The widest scope – use of ICTs in all economic fields – is here referred to as the ‘digitalised economy’. Following a review of measurement challenges, the paper estimates the digital economy as defined here to make up around 5% of global GDP and 3% of global employment. Behind this lies significant unevenness: the global North has had the lion’s share of the digital economy to date, but growth rates are fastest in the global South. Yet potential growth could be much higher: further research to understand more about the barriers to and impacts of the digital economy in developing countries is therefore a priority.

**Keywords:** Civil society, technology perspective, digital economy, existing businesses.

### Introduction

The digital economy is a recently-emerging phenomenon of increasing importance given estimates of double-digit annual growth around the world, with particularly strong growth in the global South (WEF 2015). The driving forces behind this emergence are economic and political, but they of course also have roots in technological innovation (itself shaped by wider forces). In the 1990s, economic changes were associated mainly with emergence of the Internet, and this remains a foundation for growth of the digital economy. But during the 2000s and 2010s a succession of new information and communication technologies (ICTs) has diffused and underpinned economic change. This includes the embedding of connected sensors into more and more objects (the Internet of things); new enduser devices (mobile phones, smartphones, tablets, netbooks, laptops, 3D printers); new digital models (cloud computing, digital platforms, digital services); growing intensity of data usage through spread of big data, data analytics and algorithmic decision-making; and new automation and robotics technologies (OECD 2015). Arising from these technologies is a set of digital affordances:

potential actions an individual or organisation with a purpose can undertake with a digital system within the context of the environment within which they function (Heeks 2017). These include datafication (an expansion of the phenomena about which data are held), digitisation (conversion of all parts of the information value chain from analogue to digital), virtualisation (physical disembedding of processes), and generativity (use of data and technologies in ways not planned at their origination through reprogramming and recombination) (Heeks 2016). The impact of any technology can be understood as the product of its scale of diffusion and depth of effect (Handel 2015). With rapid diffusion –including in developing countries – and increasing depth of effect with ever-stronger affordances, the impact of digital technologies on the economy is growing fast. That impact can be understood as a disruption of existing economic processes, systems and sectors, re-shaping existing consumer behaviour, business interactions and business models (Dahlman et al.2016). It can also be understood as the emergence of new economic processes, systems and sectors. Within individual sectors, we see this readily reflected in dominance of new firms: Uber (world’s largest “taxi” company), Facebook (world’s most popular media company), Alibaba (world’s biggest and most valuable retailer) and Airbnb (world’s largest “hotelier”). And new business models come to dominate the discourse even if not yet the economic realities: the notion of “Industry 4.0” (see Figure 1) for example.

Economic and political imperatives are combining with technological innovation to spur growth of the digital economy, with growth levels particularly high in developing countries. This growth must be strategised by the private sector, guided by government, and analysed by civil society and academe. Yet the foundations for these actions are missing with definitions, concepts and measures of the digital economy currently in rather a mess. This paper has charted different definitions of the digital economy – including their development over time – to provide a three-scope model. The digital (IT/ICT) sector is the core of the digital economy but the scope of the digital economy is argued to stretch beyond this, encompassing a set of emerging digital business models. Though included by many digital economy definitions, we differentiate wider applications of digital technologies in existing businesses; seeing these as within scope of the broader “digitalised economy”.

Measuring the digital economy faces challenges of fuzzy boundaries, poor data quality, pricing problems, and invisibility of much digital activity. Acknowledging many caveats, we see the digital economy as defined here probably making up around 5% of global GDP and 3% of global employment. Overall measures hide significant unevenness: the global North has had the lion’s share of the digital economy to date, but growth rates are fastest in the global South. Potential growth rates in the global South – if barriers could be overcome – are even higher. Separate investigation will be required of opportunities, barriers, and good-practice interventions that are required to realise this potential of the digital economy to deliver significant development impacts.

Resource Perspective: most obviously this rests on a technology perspective with many definitions identifying the technologies on which the digital economy is founded; but some include a content perspective that typically relates to the handling of data or information (e.g. Brynjolfsson & Kahin 2000b), and a human resource perspective that goes further to incorporate human knowledge or creativity or skills that are enabled by ICTs (e.g. Tapscott 1996).

- Process/Flow Perspective: many definitions cover the use of technologies to support particular business processes such as transactions/commerce (e.g. Kling & Lamb 2000, Mesenbourg 2001), while a few acknowledge the new flows of data or information that are enabled by ICTs (e.g. Lane 1999). This would include talking about the changes to processes that are occurring (e.g. Bahl 2016).

- Structural Perspective: may be rather generic in talking about economic transformation (e.g. Brynjolfsson & Kahin 2000b, G20 DETF 2016) or more specific in identifying the new web-/network-based structures that emerge as part of the digital economy (e.g. DBCDE 2013, European Parliament 2015).

- Business Model Perspective: lying between the process and structural perspectives, are the few definitions that bring in the idea of the new business models that are being enabled e.g. those that mention e-business or e-commerce (e.g. Mesenbourg 2001, European Commission 2013) or digital platforms (e.g. European Parliament 2015).

## **Literature**

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