



Australian Government
**Department of Infrastructure, Transport,
Regional Development and Communications**



**Bureau of
Communications
and Arts Research**

Measuring the digitalisation of Australia's economy 2012–13 to 2016–17

September 2020

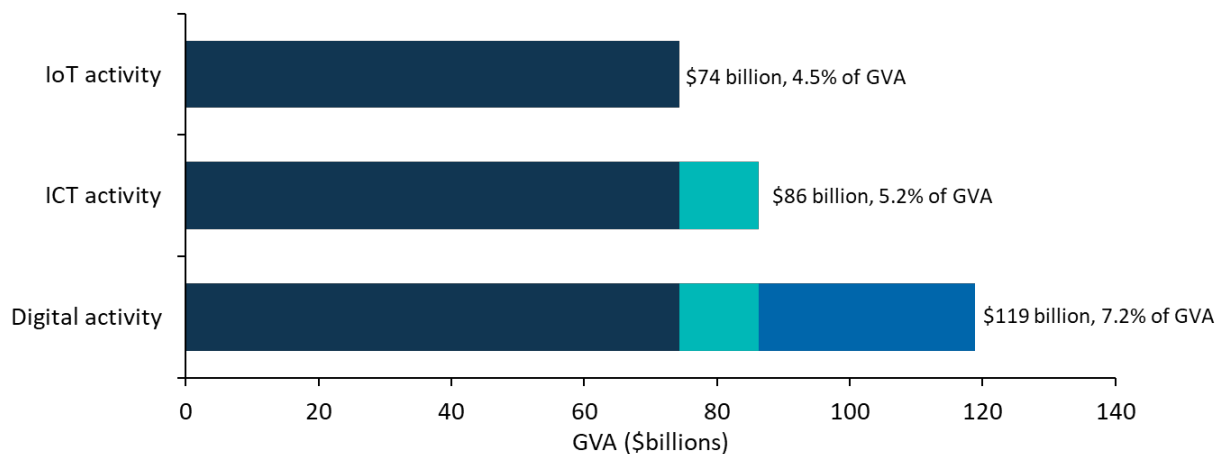
Fact sheet

Key findings

Digitalised goods and services represent a significant and growing share of the Australian economy according to the latest available data (Figure 1). In 2016–17:

- Digital activity contributed \$119 billion or 7.2 per cent to Australia’s economy. This includes information and communications technology (ICT) activity, and the Internet of Things (IoT) activity.
- ICT activity contributed \$86 billion or 5.2 per cent to Australia’s economy
- IoT activity contributed \$74 billion or 4.5 per cent to Australia’s economy.

Figure 1. IoT, ICT and digital activity estimates, gross value added (GVA) in 2016–17



Source: Australian Bureau of Statistics cat. 5215, 5217; BCAR estimates.

The prices of digitalised activities experienced a continuous decline over the 5-year period analysed (2012–13 to 2016–17). This was driven by advances in telecommunications technology and network infrastructure as well as strong domestic price competition in telecommunications services.

The contribution of international trade to digitalised products shows that imports to Australia were around four times larger than exports for each activity. Import growth for digitalised products was driven by growth in goods-based imports such as communications equipment, while export growth was sourced largely from services-based exports such as support services.

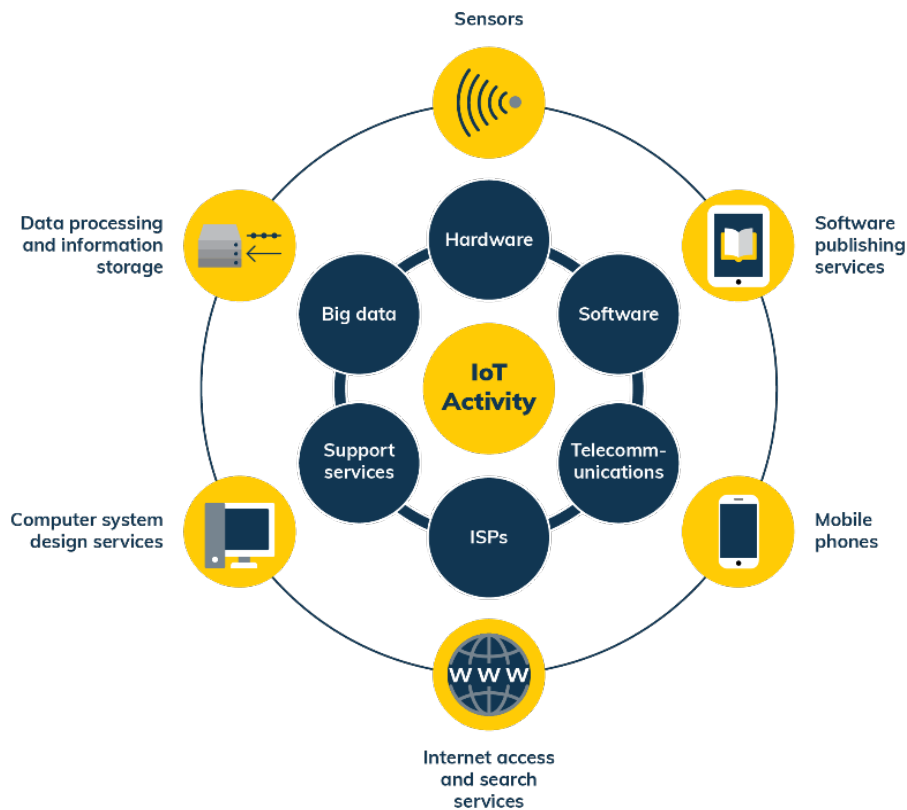
A new measure of digitalisation

The Bureau of Communications and Arts Research (BCAR) has developed experimental estimates to quantify the economic contribution of three measures of digitalised activity in Australia—digital activity, ICT activity, and IoT activity.

- Digital activity consists of digital enabling infrastructure, e-commerce and digital media. Digital activity includes all of ICT activity and IoT activity as well as e-commerce and construction activity in telecommunications infrastructure.
- ICT activity is defined as goods that capture, store, transmit and display data electronically and services that facilitate the use of these goods. ICT activity is a subset of digital activity that includes most forms of digital-enabling infrastructure as well as digital media.

- IoT activity is defined as economic activity from the production of goods or services that enable an internet connection, such as semi-conductors, sensors and software publishing services. IoT activity is a subset of both ICT activity and digital activity (Figure 2).

Figure 2. Components and examples of IoT activity



Source: BCAR analysis.

The estimates are calculated over a 5-year period, from 2012–13 to 2016–17, in order to track the pace at which these activities are growing over time and to show how emerging technologies are changing Australia’s economic structure.

The BCAR’s methodology builds on previous work done by the US Bureau of Economic Analysis (BEA)¹ and the Australian Bureau of Statistics² which constructs a ‘satellite account’ to estimate the direct contribution of digital activity to the economy.

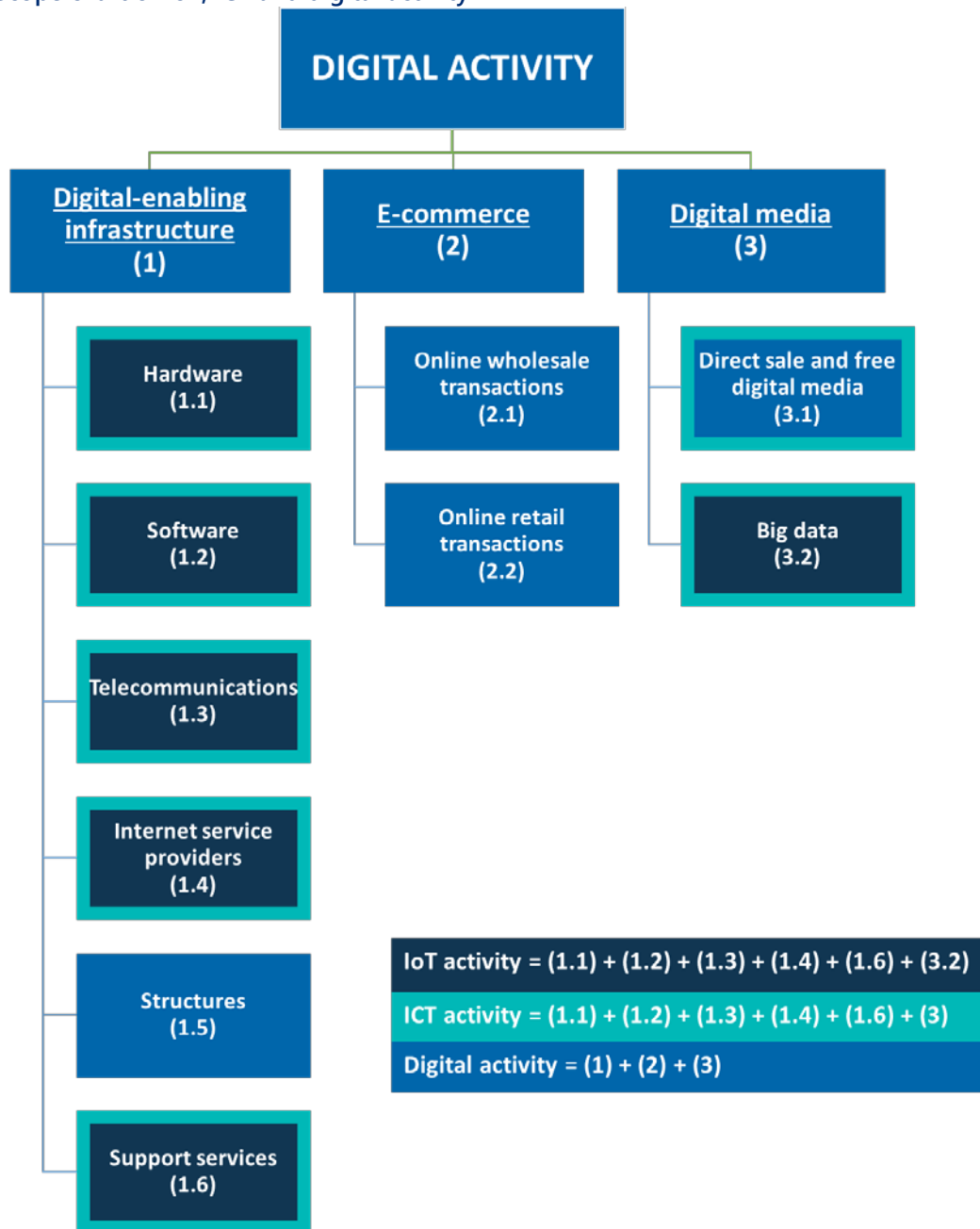
The BCAR has adopted the BEA’s structure of digital activity which is split into three categories of digital economy goods and services (Figure 3). This structure served as a starting point for the BCAR to define and estimate IoT activity.

The BCAR’s definition of IoT activity is based on the goods and services that underpin an internet connection. This type of satellite account for IoT activity is experimental and provides the first measure of IoT activity’s contribution to the Australian economy.

¹ Bureau of Economic Analysis (2018), [Defining and measuring the digital economy](#), United States, March 2018

² Australian Bureau of Statistics (2019), [Measuring digital activity in the Australian economy](#), Australia, February 2019

Figure 3. Scope chart of IoT, ICT and digital activity



Source: BCAR analysis based on the structure used by the US Bureau of Economic Analysis.

The BCAR's research aims to provide a resource for government and industry on the role and influence of digitalised parts of the economy and contribute to the discussion on how to measure these activities within the Australian economy.

Using this methodology

The BCAR's estimate of IoT activity can be considered an estimate of the economic value of the products that underpin an internet connection.

As is the case generally for the analysis of technologies, economic attribution that comes as a direct result of IoT can be difficult to quantify. This is because technologies act as enablers, both within and across industries, and are used in conjunction with other emerging technologies—in IoT's case, with artificial intelligence, cloud and edge computing. Caution should, therefore, be taken when attributing the direct impact of digital technologies on economic growth and productivity, particularly for emerging technologies such as IoT.

The BCAR's estimates of digitalisation include only market transactions of final goods and services. These estimates are limited by the detail that products are classified in Australia's national accounts. The products were selected using the supply-use framework of the national accounts which was further split into input-output product classifications to obtain more granular product detail. This was sourced from the latest national accounts data that details these product classifications.

The BCAR's approach to measuring digital activity is broadly consistent with the experimental approach used by the Australian Bureau of Statistics.³ However, the BCAR's measure of digital activity also includes construction in telecommunications infrastructure to capture the significant economic activity involved in the rollout of network infrastructure, such as the National Broadband Network.

³ Australian Bureau of Statistics (2019), [Measuring digital activity in the Australian economy](#), Australia, February 2019