

# VALUING THE DIGITAL ECONOMY OF NEW ZEALAND

*Jonathan Millar and Hamish Grant\**

The present paper provides estimates of the value of the digital economy of New Zealand through the use of the supply-use tables. By design, no changes are made to the production boundary as the products being assessed are already included within the production boundary and gross domestic product (GDP). The approach is a practical attempt at using the framework first presented in the paper entitled “Measuring digital trade: towards a conceptual framework”, and in particular, the “nature” component of the framework. This is extended to the whole economy to identify “digital” transactions in the country’s National Accounts Commodity Classification. The main finding from this paper is that the “digitally ordered” and “digitally delivered” aspects of the framework were able to be broadly applied. However, the significant material assumptions and the broad nature of the product classification at the aggregate level meant that our estimates were not of high quality. For the year ending March 2015, the estimate of the value of gross output of New Zealand that can be delivered digitally was 27.9 billion New Zealand dollars (NZ\$) (US\$18.8 billion), while for digitally ordered gross output, it was NZ\$109.2 billion

*JEL classification:* E01

*Keywords:* digital economy, supply-use tables, digitally ordered, digitally delivered, platform enabled, national accounts, gross domestic product, Statistics New Zealand

---

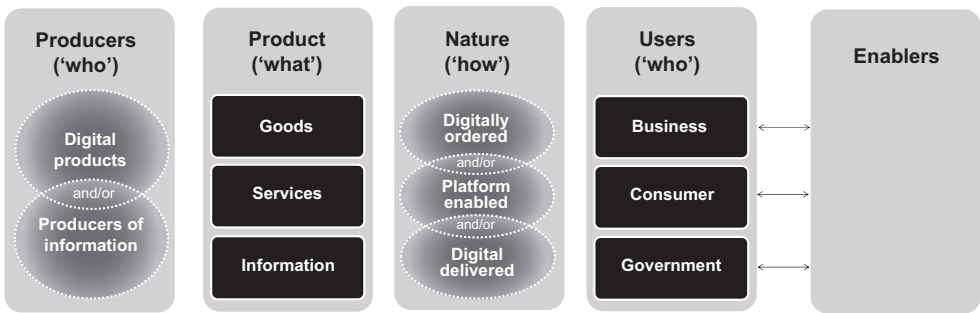
\* Jonathan Millar and Hamish Grant (email: hamish.grant@stats.govt.nz), National Accounts, Statistics New Zealand, Wellington, New Zealand. The opinions, findings, recommendations, and conclusions expressed in the present paper are those of the authors. They do not represent those of Statistics New Zealand, which takes no responsibility for any omissions or errors.

I. BACKGROUND

National statistical offices play a key role in providing information that supports and informs efforts aimed at making progress towards achieving the Sustainable Development Goals of the 2030 Agenda for Sustainable Development. A critical part of this role is to ensure that the relevance of the information is maintained. Otherwise, there is a risk that the information would be misleading, and any decisions based on this may not lead to the desired outcomes. The digital economy is an area that has developed quickly. The international statistical community, including national statistical offices, are exploring ways to show this development and understand the impacts on economic statistics as part of maintaining relevance and supporting the implementation of the 2030 Agenda.

The present paper entails a discussion on an attempted application of parts of the framework first proposed in the paper entitled “Measuring digital trade: towards a conceptual framework” (OECD, 2017b). It is assumed that readers are familiar with the framework and the work previously done by the OECD Informal Advisory Group on Measuring of GDP in a Digital Economy. The expanded framework is shown in figure 1.

Figure 1. Digital economy conceptual framework



Source: OECD (2017c).

Definitions of concepts, digitally ordered, platform enabled and digitally delivered, are taken from the aforementioned paper. These definitions along with the definitions others concepts mentioned in this paper are given in appendix 3.

The digital economy is a growing area of interest for Statistics New Zealand (Stats NZ) customers, such as the Organization for Economic Cooperation and Development (OECD), government departments, and the private sector. The appetite for the measurement of the digital economy of New Zealand is driven by the desire to improve the understanding of its role within the country’s economic and social context.

Stats NZ has been working with the Ministry of Innovation and Employment in developing a “digital domain plan”. This project is focused on how New Zealanders, businesses and the public sector use digital technologies and will formalize questions of common interest across government to support better management of the digital economy. This initial scoping will be used to guide the country’s approach for measuring the digital economy.

Stats NZ continues to conduct research on the digital economy. Two particular areas mentioned here are on the consumer price index (CPI) and national accounts. Investigations within national accounts have been ad hoc and mainly in response to OECD requests. This paper is our first attempt at measuring the digital economy from a high-level macroeconomic perspective. Research on CPI is often focused on an individual enterprise or transaction basis as transactions representative of a larger group through weighting.

## **II. APPLYING THE FRAMEWORK**

### **Methodology**

The framework first proposed in the paper entitled “Measuring digital trade: towards a conceptual framework” and since adapted by the OECD Informal Advisory Group on Measuring GDP in a Digital Economy, has been used to compile initial estimates of gross output from the digital economy in New Zealand. The approach has been to classify products as digitally ordered, platform enabled and digitally delivered from the New Zealand supply-use tables.

The analytical interest in these estimates may be in understanding the extent to which a digital element is present in economic production. For the most part, the value for each product included represents the full value of production in the economy for that product, instead of only the part that has been digitally ordered, platform enabled or digitally delivered. As such, it could be interpreted that the product values presented in this paper are the maximum potential values, if those who do not already use digital ordering or digital delivery in production of the product, move to digital ordering or digital delivery.

In our calculation of gross output, we have excluded changes to work in progress and finished goods stock change, as stock changes are not split by product level, but we have included own account capital formation (OAKF) for software and information technology design and development-related services. Most of the products of interest are services and do not have a stock change element, but we assume that most industries have some level of in-house, capitalized information technology systems.

Appendix 1, table A.1 shows how we have applied the nature section of the framework in our estimates. This involved identifying products within the National Accounts 2006 Commodity Classification (NA06CC) that were digitally ordered, platform enabled and digitally delivered.

The level of detail presented in appendix 1 is the level that is available in the supply-use system, although we were able to further split the retail and wholesale trade classifications. Some products are sufficiently detailed to identify them as being mostly digital. Others are far broader and include significant non-digital output. The products captured are kept constant over the time series.

We also use the industrial sector when assessing the products identified in appendix 1. We remove industries that recorded some output of a product, which are not likely to have the digital aspect that is of interest to us.

Products sold from retail trade and wholesale trade industries are recorded only as margin and not as the gross product value. This is a divergence from the methodology of all other products where values are the gross total amount. This methodology has been selected because the range of goods able to be sold through retail and wholesale trade is vast, in particular for department stores and supermarkets. To include the value of all underlying products, we need to work with a much larger number of products, which, in turn, would result in a less useful final figure for digitally ordered.

### **Digitally ordered**

Our estimate of digitally ordered goods and services produced in the New Zealand economy were 109.2 billion New Zealand dollars (NZ\$) (US\$73.2 billion) in 2015. This is up from NZ\$81.6 billion in 2007, and has increased at an annual pace of 3.8 per cent over the period, largely mirroring growth in total gross output of New Zealand, at 4 per cent from 2007 to 2015.

The value of digitally ordered gross output makes up approximately 20 per cent of total gross output of New Zealand. This proportion remained consistent over the observed period. Future estimates must account for the introduction of products over the time series as they became digitally ordered. This is likely to be difficult to estimate with any certainty, which is why we have kept our products constant.

In estimating the value of digitally ordered, we assume a product is digitally ordered if it is likely that online orders make up a non-insignificant portion of the industries' output. This is a subjective estimate without the use of a "percentage sales made digitally" rule given that these data are not available.

Most products could feasibly be ordered digitally, but only some products are likely to have been commonly purchased digitally. From a New Zealand perspective, this

equates to 49 products within our classification, 44 of which are services and the remaining five are goods (appendix 1).

Of the 49 digitally ordered products included here, there are 112 subindustries contributing to the NZ\$109 billion in total. Most of these values are small and relate to only one product. Appendix 2, table A.2, shows the industries that contribute more than NZ\$1 billion in gross output and that retail trade and financial services are the largest contributors.

These values of digitally delivered gross output illustrate that digitization is prevalent in a large part of New Zealand production. It shows that digitization in this form is not necessarily tied to innovation, but that the kind of digital ordering is the new normal for many industries. Most of the output included in the value of digitally ordered would still occur without the presence of digitization.

In terms of understanding the overall extent to which digital ordering is common among New Zealand industries, this measure is useful, especially for answering questions about the value of sales digitally versus brick and mortar store sales. How we have applied it in this paper has not resulted in accurate figures to answer this question; further splits are needed to be applied to product data.

### **Digitally delivered**

Gross output of digitally delivered products rose 39 per cent over the period 2007-2015 from NZ\$20 billion to 27.9 billion. On an annual basis, digitally delivered products increased more than the total economy gross output, with an average increase of 4.3 per cent over the period, as compared to 4 per cent for gross output. Digitally delivered products contributed between 5.7 and 6.1 percent of total gross output over the observed period.

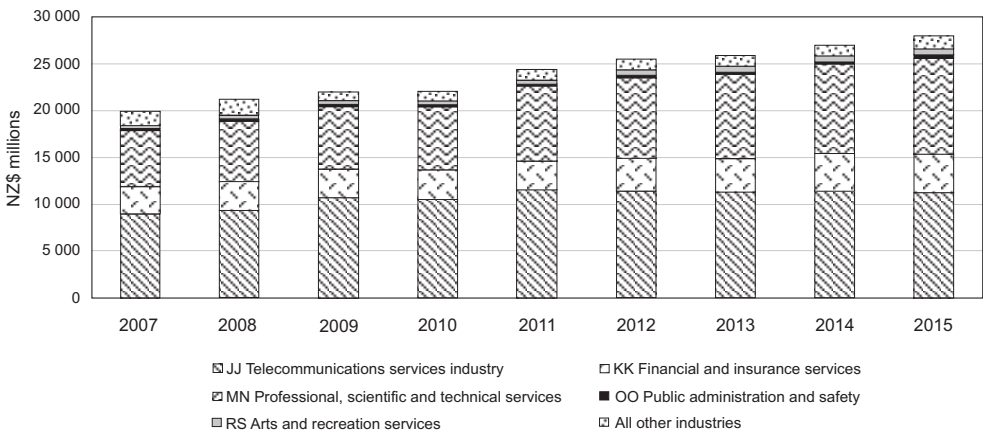
This increase in digitally delivered products was driven in part by a 10 per cent annual average change in the value of mobile and Internet telecommunications services and online content, information technology design and development-related services, and licensing services for the right to use computer software and databases.

The digitally delivered dimension narrowed the focus of the digital economy and resulted in the gross output associated with digital delivered being slightly more than 25 per cent of the value of digitally ordered transactions.

The major contributing industries were the telecommunications services industry, financial intermediation services directly measured from the banking and financing industry, and the computer system design and related services industry. The industry dimension is shown in figure 2. Digitally delivered services are dominated by a few large industries, with all other industries contributing a negligible amount.

The scope of digitally delivered products is an area that is challenging to interpret in some cases.

Figure 2. Digitally delivered industry composition



The note to OECD Informal Advisory Group members accompanying the second digital economy questionnaire indicated that digitally delivered would include examples, such as downloadable products and database services. Beyond these examples, however, there are activities that could be included as digitally delivered.

An example of a product that was reviewed was fixed telecommunications services. In practice, this classification includes telecommunications package deals, which are effectively delivered over the Internet via Voice over Internet Protocol (VoIP), but are classified as fixed telecommunications services. It was decided that while this service (telecommunications) is not downloaded, its delivery through the Internet qualifies it as a digitally delivered product.

Another example is financial Internet services indirectly measured (FISIM). The degree to which the financial sector is delivered digitally is likely to differ by country. In New Zealand, the banking sector is fairly digitalized; consumer research agency Canstar Blue reported in 2015 that between 49 and 57 per cent of New Zealand consumers used online banking, depending on generational position (Davies, 2015). It is our assumption that this proportion of users has grown and that FISIM is a service that has a significantly digitally delivered element.

The scope of digitally delivered production in this paper is more about including production which likely would not take place, or would be significantly different, without digitization.

This dimension of the framework could also be useful in identifying industries that may experience changes in the short term with evolving technologies and potential disruptions to the way production is delivered and consumed.

### **Platform enabled**

Through our classifications, we are not able to provide the level of detail required to adequately identify output from platform enabled means. Platform enabled activities can be and are present in many industries still predominantly non-platform enabled. Using the methodology as presented above, we have not included any products because the platform enabled aspect of these activities is still likely to represent a relatively small proportion of total output for these sectors.

In this sense, it is not effective to include these transactions, as they would not provide any useful narrative. As was expected, to get reliable data on platform enabled production require additional data sources or breakdowns that are currently not available within the existing national accounts in New Zealand.

We still, however, consider this to be a useful part of the framework. Stats NZ is engaging and developing relationships with many digital intermediaries to obtain usable admin data. While these relationships are still very new, this presents a promising development for going forward.

Other potential methods for gathering data on platform enabled production are web-scraping and the use of application programme interfaces (APIs). Digitization makes it possible to use new methods of gathering information on this kind of activity, which we hope can improve deflators and estimates of household consumption expenditure within national accounts.

## **III. DIRECT VERSUS INDIRECT**

We found digitally delivered to be the easiest to identify when attempting to estimate the digital economy from existing macroeconomic data in the national accounts. At an aggregate level, there are few indicators of digital businesses and transactions.

Comparing the gross output of digitally delivered products with those that are digitally ordered leads us closer to a representation of the gross output directly attributable to the digital economy and the value indirectly attributable to the digital economy.

Direct contribution of the digital economy would likely include activities only made possible through digital means. For our purposes, digital means includes production in and over computer networks which cannot be produced through a non-computerized mechanism. The types of products included within digitally delivered and platform enabled dimensions of the framework would contribute most to a direct measure of the digital economy. Digitally ordered direct contribution is likely to be much smaller compared to its indirect contribution to the digital economy.

Products that may be included in a direct contribution estimate from our list of digitally delivered products are, for example, packaged software; mobile telecommunications services; telecommunications services and online content; and licensing services for the right to use computer software and databases.

The framework set out above is a useful concept in practically determining different types of digital economy production; however, the level of detail required to accurately identify and classify these activities is not available within current national accounts data.

Any potential digital economy satellite would benefit usability if it were to follow other satellites that estimate direct and indirect contributions to value added or gross output. The delineation of digitally ordered, digitally delivered and platform enabled is effective within a satellite account as additional estimates for aiding in analysis of the digital economy.

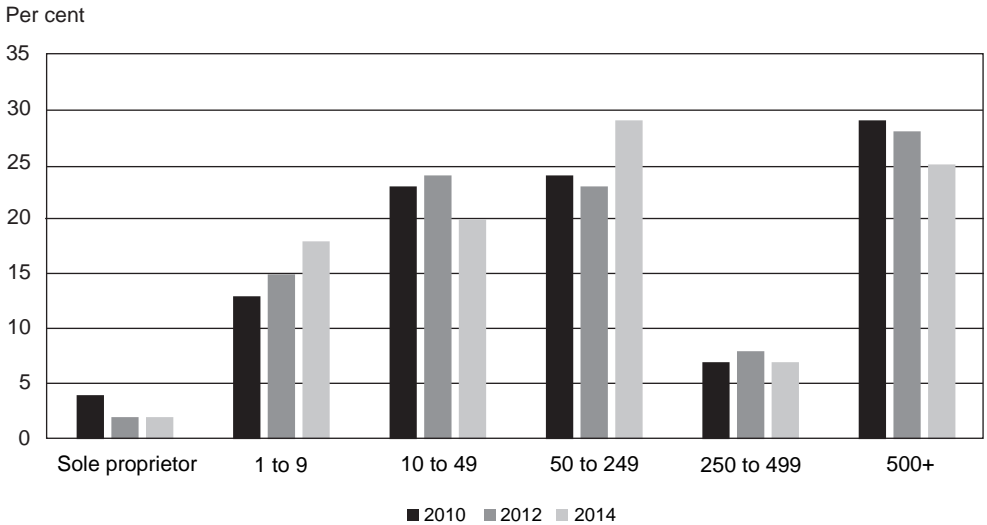
#### **IV. ENABLERS**

With the recent redevelopment of the ICT Supply (ICTS) survey at Stats NZ, we decided to also look at the enablers dimension of the framework, which was added to the framework by the OECD Advisory Group.

The ICTS survey run by Stats NZ is naturally suited to support this dimension. Until 2014, the biennial survey had been a census targeting all economically significant resident New Zealand businesses involved in producing and supplying information and communications technology (ICT) goods and services. In 2017, a redesigned ICT survey was put into the field, and renamed ICT Software and Services because of its stripped back nature. This survey is now a sample of businesses instead of a census and only focuses on the sales of software and services.

We find that in 2010 and 2012, the rolling mean employment (RME) group of 500+ employees contributed the most to total sales, but in 2014 the RME group of 50 to 249 contributed the most. This is reflective of the RME grouping of 50-249 being the second fastest growing segment behind businesses with an RME of 1-9 (figure 3).



**Figure 3. Total sales by rolling mean employment count**

The forthcoming data from the redesigned ICT Software and Services survey, due early 2018, will provide new insights on the changing nature of the companies acting as enablers of the digital economy in New Zealand. We will also be interested in the new figures relating to information telecommunication hosting and cloud computing services, which are expected to have increased since the survey was last conducted in 2014.

## V. OTHER DEVELOPMENTS AT STATS NZ

Within Stats NZ, work is also centred on the digital economy in particular, from the prices unit, and the International Business Statistics team from their contribution to the Digital Nation Domain Plan.

The prices development team at Stats NZ are looking at several additions from the digital economy to the consumer price index (CPI). The team is considering to add “private accommodation rented from others” and ride-sharing to the CPI basket of goods. The prices for this will most likely be collected through APIs and web-scraping with weights determined from a mixture of household expenditure surveys and market research.

The prices development team are also interested in digital downloads of films, music, and video games, which are currently included in the CPI basket, but are likely to be under-reported.

Over the past two years, the prices development team at Stats NZ increased their focus on new tools, such as web-scraping and APIs, to increase their coverage of not only new data sources, such as APIs, but also on traditional activities. It is thought that their work in this area and on the digital economy will be able to be incorporated into the national accounts in the future.

The Digital Nation Domain Plan is another significant activity that Stats NZ is involved in along with the Ministry of Business Innovation and Employment. To date, this work has involved a stock take of the enduring questions facing government. These questions have focused on what New Zealanders are doing with digital technologies; what New Zealanders want to do with digital technologies; and what policymakers would like New Zealanders to do with digital technologies. The Digital Nation programme has been developed across the government, with the support of country's digital community and is aligned closely with the OECD "Going Digital" projects Pillar 1, Horizontal activities.<sup>1</sup>

The OECD Going Digital project and the Digital Nation programme are aimed at increasing the accessibility and effective use of digital technologies to drive innovation, improve productivity and enhance quality of life. The cross government and stakeholder approach, suggested by the Going Digital project and already set in motion by Stats NZ and MBIE, positions New Zealand well in the digital policy environment internationally.

While the Digital Nation programme may not result in statistics that will be immediately implementable in the national accounts, it will help to further understand the digital economy within Stats NZ and across the government.

## VI. CONCLUSION

The central theme of this paper is to simply apply the framework we received with the second OECD questionnaire in May 2017. The digital economy is not only an area of interest to Stats NZ, but it is also of interest to many areas, which could benefit from additional focus and research related to it. The work presented in this paper is an interesting exercise at applying a very useful framework for understanding the digital economy in New Zealand using existing national accounts data.

Our work highlights the need for further discussion to improve the understanding around the scope of digitally ordered and digitally delivered. It also highlights one way of how this framework may be implemented on existing national accounts data, and the data gaps that hamstringing these estimates to a low level of quality.

---

<sup>1</sup> For more details, see [www.oecd.org/going-digital/project/](http://www.oecd.org/going-digital/project/).

Areas for future research that would be beneficial are exploring direct data collection from platforms to cover the facilitation part and the actual provider of the service. This would enable better estimates of the value of this activity and be more efficient than surveying a large number of households or businesses. Another approach to investigate is web-scraping for specific products, which may help to elaborate which products to include.

The continued work on the digital economy across Stats NZ and the developing data sources for key activities taking place in this area are exciting potential developments, which is intended to improve our coverage and ability to measure the digital economy in New Zealand.

## APPENDICES

### Appendix 1

#### **National Accounts 2006 Commodity Classification (NA06CC) – selection of products**

The table shows the products selected as having a significant digital aspect. That is, the nature of the transactions is digitally ordered, platform enabled or digitally delivered.

The approach taken for each product is to investigate the firms that supply this product and any existing New Zealand or international studies along with news articles to understand the nature of how a particular product is ordered, delivered or facilitated through a platform. As an example, NA06CC 322.00 includes “books” and “music”. These products can be purchased as a physical CD or book through retail firm’s websites or as a digital download or for music, as part of a streaming service from international companies. Hence, the product can be digitally ordered and digitally delivered. Note, platform enabled has not been considered as part of this work because of the underlying information not having sufficient detail to separate this out.

The groups of products selected tend to be predominantly service-related products rather than raw goods or intermediate goods. Goods are generally those with an NA06CC code of less than 500, while 500-999 codes are mostly service related. The three main reasons for services rather than goods being selected are the following:

- Selecting margin products only for products sold through retail and wholesale firms
- Digitally delivered or platform enabled tend to relate to services
- Many goods are used by firms as part of intermediate inputs to produce other goods

One of the main reasons for services being predominantly selected is because only the retail and wholesale margin value is included when a product is purchased through a retailer or wholesaler. For example, many food and beverage products are in the NA06CC 200 codes; however, none of these products are included as digital even though many of them can be digitally ordered through retailers, such as supermarkets that offer online shopping. Instead, the purchase of the good through a retailer or wholesaler is split into two products: the underlying good and the retail or wholesale margin product. Only the additional mark up or margin the supermarket adds on is recorded as being digitally ordered; this is shown as a retail or wholesale margin product

in the national accounts supply-use tables. Including the full value and the underlying products would significantly increase the value and number of products for digitally ordered, which limits the usefulness of this information.

Digitally delivered requires that the product being delivered can be received digitally only. This is not the case for goods. The only area where there has been some discussion internationally around digitally delivered goods is related to 3D printing. The argument for excluding this is that the plans are delivered digitally, but the actual printing part only would be a good. A platform enabled activity also tends to be service related, as it is easier to facilitate than the facilitation of actual goods.

Another reason that there does not tend to be many goods selected is that often these goods are purchased by firms as intermediate inputs into subsequent processes to produce other goods. These purchases are much less likely to be done digitally than directly to consumer activity, as firms already have direct relationships with suppliers and there is less agglomeration benefit from setting up digital ordering. An additional factor here is that it is more difficult to identify these digital transactions for firms based on the current information available.

**Table A.1. National Accounts 2006 Commodity Classification (NA06CC) – selection of products**

NA06CC	Description	Digitally ordered	Platform enabled	Digitally delivered
322.00	Books, maps, music, cards, pictures and plans; excluding advertising material	Y	N	Y
323.00	Newspapers and periodicals, in print	Y	N	N
493.00	Games and toys; roundabouts, swings and other fairground amusements	Y	N	N
710.00	Wholesale trade services	Y	N	N
720.00	Retail trade services	Y	N	N
730.00	Accommodation services	Y	N	N
741.00	Meal serving services	Y	N	N
751.10	Road transport services of freight; transport services via pipeline	Y	N	N
751.20	Road passenger transport	Y	N	N
752.10	Railway transport services of freight	Y	N	N
752.20	Railway passenger transport	Y	N	N
753.20	Water passenger transport	Y	N	N
754.10	Air transport services of freight	Y	N	N
754.20	Air passenger transport	Y	N	N
755.00	Scenic and sightseeing transportation services	Y	N	N
756.00	Postal and courier services	Y	N	N
768.00	Freight transport agencies and other supporting transport services	Y	N	N
781.00	Publishing, printing and reproduction services	Y	N	N
782.00	Packaged software	Y	N	Y
783.00	Audio, video and other disks, tapes and other physical media, recorded	Y	N	N
784.00	Audio-visual and related services	Y	N	Y
785.00	Broadcasting, programming and programme distribution services	Y	N	Y
786.10	Fixed telecommunications services	Y	N	Y
786.20	Mobile telecommunications services	Y	N	Y
789.00	Internet telecommunications services and online content	Y	N	Y

Table A.1. (continued)

NA06CC	Description	Digitally ordered	Platform enabled	Digitally delivered
791.20	Library and archive services	Y	N	Y
811.10	Financial intermediation services directly measured	Y	N	Y
811.11	Financial intermediation services, insurance services and pension services	Y	N	N
812.10	Life insurance	Y	N	N
812.20	Accident and health insurance services	Y	N	N
812.30	Other insurance services	Y	N	N
813.00	Services auxiliary to financial services other than to insurance and pensions	Y	N	N
814.00	Services auxiliary to insurance and pensions	Y	N	N
821.10	Leasing or rental services concerning transport equipment without operator	Y	N	N
822.10	Licensing services for the right to use computer software and databases	Y	N	Y
831.10	Real estate services involving own or leased residential property	Y	N	N
915.00	Accounting, auditing, bookkeeping, insolvency, receivership and taxation services	Y	N	Y
916.00	Advertising services and provision of advertising space or time	Y	N	Y
917.00	Market research and public opinion polling services	Y	N	Y
923.10	Information technology design and development related services	Y	N	Y
924.00	Travel arrangement, tour operator and related services	Y	N	N
925.00	Employment services	Y	N	N
931.10	Local government administration services	Y	N	N
932.10	Central government administrative services	Y	N	N
961.00	Live entertainment event presentation and promotion services; services of performing and other arts; museum and preservation services	Y	N	N
962.10	Sports and recreational sports facility operation services	Y	N	N

Table A.1. (continued)

NA06CC	Description	Digitally ordered	Platform enabled	Digitally delivered
963.20	Lottery services	Y	N	N
963.30	Racing and sports betting services	Y	N	Y
963.40	Online gambling services; gaming machines outside of casinos; other gambling services	Y	N	N

Notes: Y, yes; N, no. The full classification can be found in the tab labelled "NA06CC to CPC". Available at <http://archive.stats.govt.nz/~media/Statistics/browse-categories/economic-indicators/national-accounts/supply-use-tables/na-input-output-tables-ye-mar13.xlsx>.



## Appendix 2

**Table A.2. Digitally ordered industries Industries >NZ\$1 billion**

Digitally ordered industries (NZ\$ millions)		2015	2014	2013	2008	2007
GH	Retail trade	20 643	19 217	18 449	16 117	15 279
KK	Financial and insurance services	19 899	18 314	16 822	16 403	15 442
II	Transport, postal and warehousing	17 487	16 511	15 691	14 946	13 866
MN	Professional, scientific and technical services	12 558	11 950	11 199	8 436	7 823
LL	Rental, hiring and real estate services	11 586	10 799	10 001	7 540	7 235
JJ	Information media and telecommunications	11 812	11 926	11 929	10 377	9 993
FF	Wholesale trade	7 601	7 324	7 274	6 662	6 039
RS	Arts and recreation services	3 411	3 258	3 201	3 098	3 013
CC	Manufacturing	1 746	1 656	1 763	1 522	1 498

## Appendix 3

### Definitions

#### *Digitally ordered*

“An e-commerce transaction is the sale or purchase of a good or service, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders. The goods or services are ordered by those methods, but the payment and ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organizations. To be included are orders made over the web, extranet or electronic data interchange. To be excluded are orders made by phone, fax or manually typed email.” (OECD, 2011).

#### *Platform enabled*

An important characteristic of digitalization is peer-to-peer services intermediated by digital intermediary platforms (“sharing economy”, “gig economy”, “collaborative economy”), such as Airbnb, Uber and eBay, that facilitate transactions in goods and services (OECD, 2017a, p. 5).

#### *Digitally delivered*

The third dimension is referred to as *digitally delivered*; in other words, it captures those services and data flows that are delivered digitally as downloadable products. Examples include software, e-books, data and database services. Goods, as physical items, are not very likely to be digitally delivered *en masse*. However, 3D printing may possibly result in a (future) category of transactions that could be classified under digitally delivered goods, if these transactions are deemed to be fundamentally different from trade in services (of 3D blueprints) transactions.

#### *Direct versus indirect contribution*

Direct contribution is where the use of digital mediums is the reason for the activity and accounts for all or most of the value of the activity. Indirect contribution is simply activity facilitated by digital mediums where the product or service is carried out physically (non-digitally).

#### *Calculation used for gross output*

Gross output (GO) = Sales + Margin on goods purchases for resale + Own account capital formation (OAKF) + Service for own use (SFOU) + Fringe benefit value excluding GST (FBVEXGST) + Work in progress and finished good stock change

## REFERENCES

- Davies, J. (2015). How much banking do we do online? *Canstar Blue*, 18 May. Available at [www.canstarblue.co.nz/banking-insurance/banking/how-much-online-banking/](http://www.canstarblue.co.nz/banking-insurance/banking/how-much-online-banking/).
- Organization for Economic Cooperation and Development (OECD) (2011). *Guide to Measuring the Information Society*. Paris: OECD Publishing.
- \_\_\_\_\_ (2017a). Issue paper on a proposed framework for a satellite account for measuring the digital economy. Paper prepared for the Meeting of Advisory Group on Measuring GDP in a Digitalised Economy. OECD Conference Centre, Paris, 10 November. Available at [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPNA\(2017\)10&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPNA(2017)10&docLanguage=En).
- \_\_\_\_\_ (2017b). Measuring digital trade: towards a conceptual framework. Working Paper on International Trade in Goods and Trade in Services. Available at [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPTGS\(2017\)3&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPTGS(2017)3&docLanguage=En).
- \_\_\_\_\_ (2017c). Summary of responses of the Advisory Group: survey on digital economy typology. Paper prepared for the Committee on Statistics and Statistical Policy. Paris, 9-10 November.