

Estimating Contribution of Digital Economy in India

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Abstract

The COVID-19 pandemic has accelerated the process of digital transformation and intensified society's reliance on digital adoption. In spirit of this, various private institutions, academicians and Government organizations have given impetus to developing methods to capture digitalization in a measurable platform, making use of available information related to digital industries and products. The measurement framework delineated in this study is an attempt to capture the extent of digitization across 65 sectors in the economy. This builds upon on the idea to include certain industries belonging to core digital economy along with industries centered around digital dependent economy. The user defined industries belonging to digital dependent economy were based on analysis of digital occupation. The measurement framework is demonstrably feasible given the available data in National Account Statistics and Socio-economic surveys. For the year 2017-18, the contribution of digital economy to total Gross Value Added of India is obtained as 7.38 %. In the era of digital revolution, it is necessary and challenging to quantify digital presence in all the sectors of the economy, the article is an attempt towards it.

Keywords: Core digital economy, Digitally dependent Economy, Digital occupation

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1. Introduction

Measuring the *Digital Economy* in Gross Domestic Product (GDP) is one of the key global initiatives to cover broad range of digitized economic activities which claim to influence and foster the economic and social change at a rapid pace. But, measurement issue is prevailing in most of the developing, developed or underdeveloped economies. Mismeasurement is a problem, due to lack of standards and conceptual understanding in some of the broad definitions including “digital economy”, “digital sector”, “digital products”, “digital platform”, “digital intermediaries” etc. Underestimation is another issue, because digitized economic activities are not being either directly recorded or reflected in an industry output/outcome portfolio. Since in this decade, the industries around the world are undergoing transformative change (Industry 4.0) in terms of including Artificial Intelligence (AI), Internet-of-things (IoT) and other High-tech infrastructures in their production process. Therefore, accurate measurement or estimation of digital part of the economy is a challenge and necessity too.

A broader measurement framework for digital economy encompasses the contribution of key digital sectors in the economy which particularly aggregates certain digital products or industries. This approach builds upon a delineation of the Information and Communications Technology (ICT), Content and Media Sector of International Standard Industrial Classification (ISIC) of United Nations’. This is widely accepted technique of capturing the digital economy and rather computationally flexible to derive an initial picture of the digitized economy. But, it limits the interpretation of the whole digital economy as likely to exclude such economic activities which are enabled by ICT goods and services. Digitally-ordered products, Digitally-delivered products and platform-enabled services are example of some of these economic activities, whose measurement at a detail level is a challenge and hence may be understated in the measurement framework. The G20 Digital Economy Task Force (2020) declares to merge both the approaches, those defined as a digital sector (ICT, Content and Media Sector) and in addition economic activities which are enabled by ICT goods and services. It defines digital economy as "*all economic activity reliant on, or significantly enhanced by the use of digital inputs, including digital technologies, digital infrastructure, digital services, and data; it refers to all producers and consumers, including government, that are utilising these digital inputs in their economic activities.*" Digital Supply-Use Tables (SUTs) is a work in this line of the definition constructed encompassing digital supply or outputs and digital inputs.

Digital SUTs are able to provide the principal source of information for computation of internationally comparable data on the digital economy (Mitchell J., 2020). Compilation of digital SUT includes additional information on digital products and industries, particularly on various aspects of digital economy comprising e-commerce transactions, digitally delivered services, digital intermediation platforms, transactions in digital goods and services, digitally dependent and purely digital firms etc. Recently, Canada has made an attempt to compile Digital SUTs based on detail available information on these aspects (Statistics Canada, 2019). However, preparation of digital SUT is a continually evolving process with emergence of new and available data sources in most of the countries. The SUT framework will also be very useful for India in understanding penetration of digitization in the economy at both aggregated and disaggregated level. However, in the absence or limited availability of activity wise data on digital transactions, digitally enabled platforms etc., an intermediate step can be followed as mapping industries and products of SUTs with ICT and related industries (ISIC rev 4, 2008) and products (Central Product Classification ver 2.1, 2015) in Supply and Use Table. This article is an attempt to measure digital economy carried by the intriguing idea of Digital SUT to involve detailed industries in measurement framework. This is made possible through further inclusion of certain industries which uses initial or intermediate inputs as digitally enabled goods and services in addition to ICT industries.

Rest of the article is organized as follows. After Introduction, next section reviews some literatures on digital economy and measurement issues. Section 3. details data source and methodological framework. Section 4. describes the results and finally the article ends with relevant concluding remarks.

2. Literature

Various international as well as national agencies have started developing methods to capture digitalization in a measurable platform, making use of available information related to digital industries and products. The Organization for Economic Co-operation and Development (OECD), International Monetary Fund (IMF), Asian Development Bank (ADB) and The United States Bureau of Economic Analysis (USBEA) have made attempts to provide digital economy measurement framework based on available and regular data sources of national accounts. In particular, both the OECD and the USBEA propose a method that utilizes the supply and use framework. To contrast the two, the former includes the entire value of transactions on digital

platforms as well as the value of the platforms, while the latter counts only the margins and broker fees on such transactions.

Further, penetration of digitization is increasingly being inked to the welfare of the households since most of the goods and services are being delivered using digital tools now a days. These digitally delivered services are either apparently non-market in nature or not priced separately. In view of this, attempts based on national accounts framework requires to move beyond GDP for an effective and reliable measurement, because rapid increases in free digital services and household non-market production made possible by digitalization have also widened the gap between GDP growth and household welfare growth. As noted in the IMF staff paper (2018), the definition of GDP should continue to be market and near-market production at market prices where these exist. Indicators “beyond GDP” are needed to understand the welfare from nonmarket production enabled by digitalization. The measurement framework proposed in Brynjolfsson et al. (2019) also tends to supplement national accounts statistics by proposing a welfare-based measurement, called GDP-B. Meanwhile, Huawei and Oxford Economics (2017) utilized digital spillover effects to estimate the global digital economy.

Broadly, the term digital economy is associated with terms such as internet economy, cloud economy, sharing economy and on-demand economy (ADB, 2021). While each pertains to a set of business activities, what is common among them is the use of digital technologies, including software applications, internet infrastructure, and advanced computers, to greatly enhance existing business processes or create new and innovative ones. The ADB document reports digital economy particularly constructed of core digital sectors and describes digitally enabled and enabling sectors through forward or backward linkages with core digital industries or products.

3. Data Sources and Methodology

This article involves broadly two steps for inclusion of certain industries/sectors contributing to digital economy in terms of share in total Gross Value Added (GVA) of India. Firstly, computation of Output, Intermediate Consumption (IC) at detailed activity level and therefore compilation of GVA at detailed activity level through SUT approach. Secondly, inclusion of industries which are involved in digitized economic activities and computation of share (in percentage) of such industries in total GVA. This is again done through two approaches, one encompassing ICT, Content and Media Sector which are broadly defined as core digital sector; second encompassing

digital dependent industries in addition to core digital sector using the data on digital occupation. The analysis has been done for the year 2017-18. The major data sources used in this computation are as follows,

- a) National Account Statistics (NAS)-2021
- b) Annual Survey of Industries (ASI) 2017-18 assisted in computation of output and input of industries in organized Manufacturing sector
- c) Periodic Labour Force Survey (PLFS) 2017-18 for the computation of the workers' (Usual status: (Principal+Subsidiary) workers) share of defined digital industries at disaggregated-level. This data is further used for computation of workers' share in digital occupation.

3.1. GVA based on SUT approach

In SUT, Supply/Output is recorded at Basic prices (BP) and Input/IC is recorded at Purchaser prices (PP). GVA at basic Prices is measured at disaggregated industry level by subtracting input from output. In the analysis, the computation of output and input across 123 sectors was considered. Annexure Table 2 provide the list of these 123 sectors/industries.

3.2. Core Digital Economy

Core digital economy encompasses the key industries which are mainly the producers of digital products. OECD refers it as core digital products with the main function of generating, processing, and/or storing digitized data (Burkett, 2017; ADB, 2021). The OECD framework summarizes such core digital products into five main product groupings: (i) hardware (ii) software publishing (iii) web publishing (iv) telecommunications services (v) specialized and support services. In the Indian economy, the industries in accordance to National Industrial Classification with (NIC)-2008 which have been identified to cover the core digital products are provided in Annexure Table 3. This identified industries basically includes the ICT, Content and Media sector as per ISIC rev 4. Broadly, the core digital economy spreads out in Manufacturing, Communication, Trade and Professional Services sectors. GVA of the core digital economy are computed using Labour Input (LI) proportion based on PLFS 2017-18 data. GVA prepared at detailed activity level for 123 sectors are utilized to multiply with the workers' share of core digital industries. Hence, Digital GVA ($Y_i, i = 1, 2, \dots, D$) of i^{th} sector would be,

$$Y_i = X_i * \frac{A_i}{(A_i + B_i)}$$

where, X_i is the GVA of i^{th} sector ($i=1,2,\dots,D$); A_i is the number of workers in core digital industries corresponding to i^{th} sector; $(A_i + B_i)$ be the number of total workers in i^{th} sector. In this study D is 123, cause initially we prepared GVA of 123 sectors followed by SUT approach. However, for the sake of brevity we sum up close sectors/industry-groups and report final result for 65 sectors (Annexure Table 4). In accordance to Table 1, core digital industries are contributing 966327 Crore GVA in 2017-18. The share of core digital economy is 6.23 % in total Indian economy in terms of GVA.

3.3. Digitally Dependent Economy

The components and accessories which supports digital goods and services and considered necessary in the production of digital products, are not part of the core digital products. Further, products which use digital products as components or accessories are also not considered as core digital products. These products are referred to as respectively “digitally enabling” and “digitally enabled” products (ADB, 2021). For an example of digitally enabled products, car manufacturing companies are increasingly adding digital components into their vehicles, which includes connected in-car entertainment experiences, vehicle systems management, self-driving capabilities etc. Despite these novel features, highly digitalized cars are still considered to be transportation equipment, not digital hardware. Digitally dependent economy refers to those industries which are either dependent on digital sectors (digitally enabled) or on which digital sectors are dependent (digitally enabling). Ideally, total digital economy should include core digital industries as well as digitally dependent industries. But, exact estimation of the second counterpart is challenging in absence of regular and adequate data. In this article, this is mediated indirectly through identifying digitally dependent industries as those which involves digital occupation. For this purpose, we have delineated certain occupation as digital occupation based on the National Classification of Occupation (NCO) of India. These occupations are as follows,

a) 213: Computing Professionals

- 2131 Computer Systems Designers and Analysts;

- 2132 Computer Programmers;
- 2139 Computer Professionals, n.e.c.

b) 312: Computer Associate Professionals

- 3121 Computer Assistants
- 3122 Computer Equipment Operators
- 3123 Industrial Robot Controllers

c) 313: Optical and Electronic Equipment Operators

- 3131 Photographers and Image and Sound Recording Equipment Operators
- 3132 Broadcasting and Telecommunication Equipment Operators
- 3133 Medical Equipment Operators
- 3139 Other Optical and Electronic Equipment Operators, n.e.c.

d) 411: Secretaries and Key Board-Operating Clerks

- 4111 Stenographers and Typists
- 4112 Word Processor and Related Operators
- 4113 Data Entry Operators
- 4114 Calculating Machine Operators
- 4115 Secretaries

e) 817: Automated Assembly Line and Industrial Robot Operators

- 8171 Automated Assembly Line Operators
- 8172 Industrial Robot Operators

However, we do not claim that remaining NCO codes are not contributing to the digital dependent economy at all, rather it requires an assumption of contribution of different occupation to digital dependent economy. For the above mentioned occupations we postulate that, they are contributing fully to the digital dependent economy. LI proportions based on PLFS 2017-18 data is used to compute the share of digital dependent economy. Finally, the GVA at current prices of total digital

economy is sum of core digital economy and digital dependent economy. It is to note that, industries considered in core digital economy may involve above mentioned digital occupation too, hence mutually exclusive set of industries were prepared to avoid double counting of any industry.

4. Results and Discussion

The digital economy measurement framework described in the methodology section builds upon on the idea to include certain industries belonging to core digital economy along with industries centered around digital dependent economy. Industries belonging to digital dependent economy were based on the analysis of digital occupation data. The measurement framework is demonstrably feasible given the available data in NAS and socio-economic surveys. In the digital revolution era, digital adoption can be seen in almost all the sectors of the economy. The challenge is to quantify and capture the extent of digitization penetrated therein.

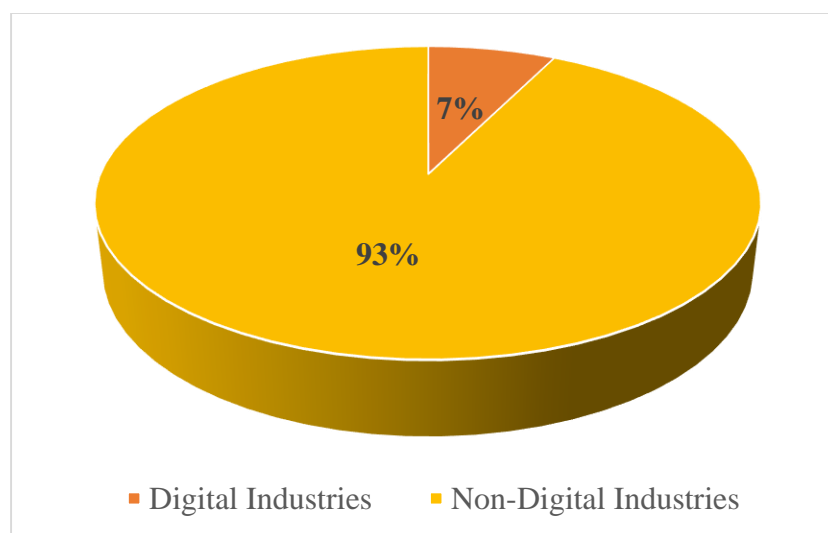


Fig. 1: Share of Digital Economy in India for the year 2017-18

For the year 2017-18, the contribution of digital economy to total Gross Value Added of India is obtained as 7.38 % (Fig. 1 and Fig. 2). Table 1 reports the major sector wise digital GVA of India. Further, Annexure Table 4 provides digital GVA across 65 sectors. For some of the sectors digital presence could have been quantified through identifying digital occupation in these sectors including Transport, Hotel and restaurants, Financial services, Public administration and defence,

Education, Health, Legal Services, Real estate activities, Manufacture of machinery and equipments n.e.c., Manufacture of Transport etc.

Table 1: GVA (in Crore) at current Prices for Digital Economy in India

Sector	Gross Value Added (GVA)		
	Total	Core Digital	Total Digital
Agriculture, forestry & fishing	2829826	0	1821
Mining & quarrying	336109	0	14601
Manufacturing	2566623	76421	100976
Electricity, gas, water supply and other utility services	425718	0	9701
Construction	1200414	2698	3545
Trade, repair, hotels and restaurants	1881395	59961	63249
Transport, storage, communication & services related to broadcasting	997528	147952	157526
Financial services	846194	0	33685
Real estate, ownership of dwelling and professional services	2281018	679294	692100
Public administration and defence	945082	0	59862
Other services	1195759	0	7433
Total	15505665	966327	1144500
Share %		6.23	7.38

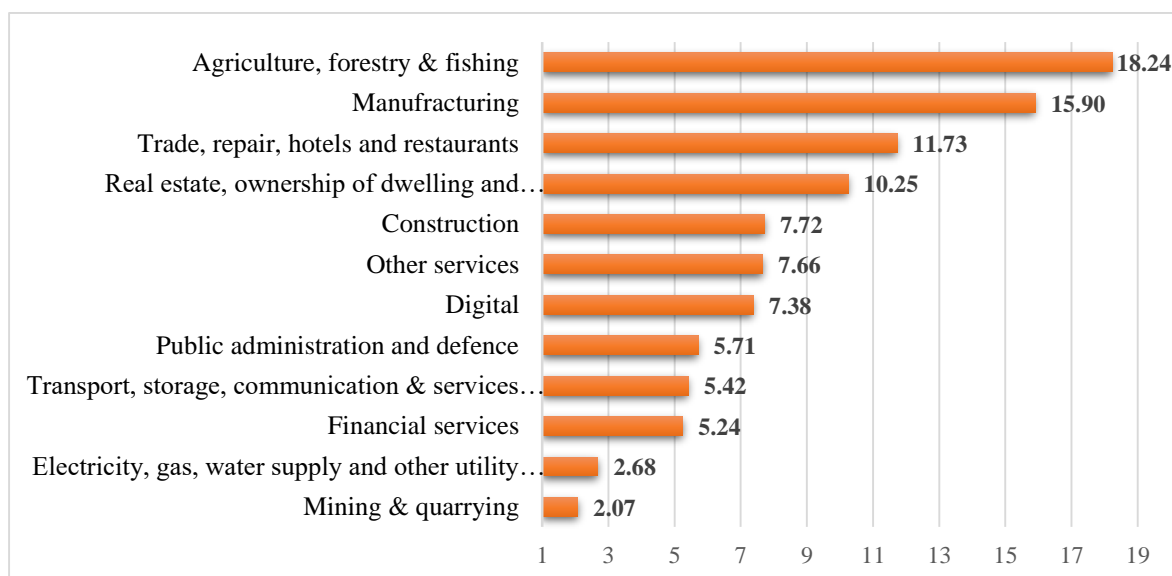


Fig. 2: Share of various major sectors in total economy (GVA at current Prices) of India including Digital sector for 2017-18

5. Concluding Remarks

As technological advancement accelerates and digitalization expands to affect more segments of the economy, there is a rapidly increasing need to accurately measure and assess its impacts. The estimates presented in this article, based on a sound framework for inclusion of digital dependent economy in addition to core digital sectors. But, under measurement of digital dependent economy may be an issue, cause exact contribution of various digital occupation (partial or full) could not have been assessed properly based on available data set. Same problem may also creep in identifying core digital industries for their contribution (partial or full). In addition, there are several other approaches discussed in OECD, IMF (e.g., Digital SUT) which may be conceptualized and explored for Indian economy in measurement of digital economy.

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Annexure

Table 2: List of 123 sectors initially considered for compilation of GVA and Digital GVA

	Sector		Sector
1	Agriculture	62	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines (2811)
2	Horticulture	63	Manufacture of machinery and equipment n.e.c. except 2811
3	Livestock	64	Manufacture of agricultural and forestry machinery (2821)
4	Forestry and Logging	65	Manufacture of special-purpose machinery except 2821
5	Fishing & Aquaculture	66	Manufacture of passenger cars (29101)
6	Coal & Lignite	67	Manufacture of motor vehicles except 29101
7	Crude Petroleum	68	Manufacture of diverse parts and accessories for motor vehicles such as brakes, gearboxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes, catalysers, clutches, steering wheels, steering columns and steering boxes etc. (29301)
8	Natural Gas	69	Manufacture of parts and accessories for motor vehicles except 29301
9	Iron Ore	70	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
10	Non ferrous metal ores	71	Manufacture of other transport equipment
11	Non-metallic minerals	72	Manufacture of coke and refined petroleum products
12	Other Mining	73	Manufacture of basic chemicals
13	Processing and preserving of meat	74	Manufacture of fertilizers and nitrogen compounds
14	Processing and preserving of fish, crustaceans and molluscs and products thereof	75	Manufacture of plastics and synthetic rubber in primary forms
15	Processing and preserving of fruit and vegetables	76	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations (2023)
16	Manufacture of hydrogenated oil and vanaspati ghee (10401)	77	Manufacture of other chemical products except 2023
17	Manufacture of vegetable oils and fats excluding corn oil (10402)	78	Manufacture of man-made fibres

18	Manufacture of vegetable and animal oils and fats except 10401 & 10402	79	Manufacture of medicinal substances used in the manufacture of pharmaceuticals: antibiotics, endocrine products, basic vitamins; opium derivatives; sulph drugs; serums and plasmas; salicylic acid, its salts and esters; glycosides and vegetable alkaloids; chemically pure suger etc. (21001)
19	Manufacture of pasteurised milk whether or not in bottles/ polythene packs etc. (plain or flavoured) (10501)	80	Manufacture of allopathic pharmaceutical preparations (21002)
20	Manufacture of cream, butter, cheese, curd, ghee, khoya etc. (10504)	81	Manufacture of pharmaceuticals, medicinal chemical and botanical products except 21001 & 21002
21	Manufacture of dairy products except 10501 & 10504	82	Manufacture of rubber products
22	Flour milling (10611)	83	Manufacture of plastic articles for the packing of goods (plastic bags, sacks, containers, boxes, cases, carboys, bottles etc. (22203)
23	Rice Milling (10612)	84	Manufacture of plastics products except 22203
24	Dal (Pulses milling) (10613)	85	Manufacture of glass and glass products
25	Manufacture of grain mill products, starches and starch products except 10611, 10612 & 10613	86	Manufacture of cement, lime and plaster (2394)
26	Manufacture of prepared animal feeds	87	Manufacture of non-metallic mineral products n.e.c. except 2394
27	Manufacture of bakery products (1071)	88	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
28	Manufacture or refining of sugar (sucrose) from sugarcane (10721)	89	Manufacture of pulp, paper and paperboard (1701)
29	Manufacture of sugar except 1071 & 10721	90	Manufacture of paper and paper products except 1701
30	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials (1101)	91	Printing and reproduction of recorded media (This division excludes publishing activities, see section J for publishing activities)
31	Manufacture of beverages except 1101	92	Manufacture of furniture
32	Manufacture of tobacco products	93	Manufacture of jewellery of gold, silver and other precious or base metal clad with precious metals or precious or semi-precious stones, or of combinations of precious metal and precious or semi-precious stones or of other materials (32111)
33	Cotton ginning, cleaning and bailing	94	Manufacture of jewellery, bijouterie and related articles except 32111 (321)
34	Preparation and spinning of cotton fiber including blended cotton (13111)	95	Other manufacturing except 321
35	Preparation and spinning of man-made fiber including blended man-made fiber (13114)	96	Repair and installation of machinery and equipment
36	Preparation and spinning of textile fibres except 13111 & 13114	97	Construction and Construction Services
37	Weaving, manufacture of cotton and cotton mixture fabrics (13121)	98	Electricity
38	Weaving of textiles except 13121	99	Gas
39	Finishing of cotton and blended cotton textiles (13131)	100	Water Supply
40	Finishing of textiles except 13131	101	Other Utility Services

41	Manufacture of made-up textile articles, except apparel (1392)	102	Railway Transport
42	Manufacture of other textiles except 1392	103	Land Transport
43	Manufacture of wearing apparel, except fur apparel	104	Water Transport
44	Manufacture of wearing apparel except 141	105	Air Transport
45	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness; dressing and dyeing of fur	106	Supportive & Auxiliary transport activities
46	Manufacture of footwear	107	Storage & warehousing
47	Manufacture of basic iron and steel	108	Communication
48	Casting of iron and steel	109	Trade
49	Manufacture of basic precious and other non-ferrous metals	110	Hotels & Restaurant
50	Casting of non-ferrous metals	111	Financial Services
51	Manufacture of structural metal products (2511)	112	Insurance Services
52	Manufacture of fabricated metal products, except machinery and equipment except 2511	113	Ownership of dwellings
53	Manufacture of electronic components, consumer electronics, magnetic and optical media	114	Real Estate Activities
54	Manufacture of computers and peripheral equipment	115	Legal Services
55	Manufacture of pagers, cellular phones and other mobile communication equipment (26305)	116	Computer and related services
56	Manufacture of communication equipment except 26305	117	Other Business services
57	Manufacture of measuring, testing, navigating and control equipment; watches and clocks, irradiation, electromedical and electrotherapeutic equipment, optical instruments and equipment,	118	Education
58	Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus (271)	119	Research
59	Manufacture of batteries and accumulators (272)	120	Medical and Health
60	Manufacture of other electronic and electric wires and cables (2732)	121	Community, Social & personal services
61	Manufacture of electrical equipment except 271, 272 & 2732	122	Other services
		123	Public administration & defence

Table 3: List of industries identified for core Digital Economy

Major Industry groups	Core digital Industries
Manufacture of electronic components, consumer electronics, magnetic and optical media	<p>26101 Manufacture of electronic capacitors, resistors, chokes, coils, transformers (electronic) and similar components</p> <p>26102 Manufacture of electron tubes, diodes, transistors and related discrete devices</p> <p>26103 Manufacture of integrated circuits (analog, digital or hybrid)</p> <p>26104 Manufacture of bare printed circuit boards, loading of components onto printed circuit boards; manufacture of interface cards (e.g. sound, video, controllers, network, modems)</p> <p>26105 Manufacture of display components (plasma, polymer, LCD, LED)</p> <p>26106 Manufacture of printer cables, monitor cables, USB cables, connectors etc.</p> <p>26107 Manufacture of microprocessors</p> <p>26109 Manufacture of other electronic components n.e.c</p> <p>26401 Manufacture of televisions, television monitors and displays</p> <p>26402 Manufacture video cassette recorders and duplicating equipment</p> <p>26403 Manufacture of audio recording and duplicating systems</p> <p>26404 Manufacture of radio receivers</p> <p>26405 Manufacture of stereo equipment, speaker systems, amplifiers for musical instruments and public address systems, microphones, karaoke machines, headphones (e.g. radio, stereo, computer)</p> <p>26406 Manufacture of CD and DVD players</p> <p>26409 Manufacture of other electronic consumer goods n.e.c. (this includes non-television video camera)</p> <p>26800 Manufacture of magnetic and optical media</p>
Manufacture of computers and peripheral equipment	<p>26201 Manufacture of desktop computers, laptop computers, hand-held computers (e.g. PDA),mainframe computers and computer servers</p> <p>26202 Manufacture of magnetic and optical storage devices such as magnetic disk drives, flash drives, CD, DVD and other storage devices</p> <p>26203 Manufacture of monitors, keyboards, all types of mice, joysticks, and trackball accessories, dedicated computer terminals etc.</p> <p>26204 Manufacture of printers, scanners, including bar code scanners, smart card readers, virtual reality helmets, computer projectors (video beamers)</p> <p>26205 Manufacture of computer terminals, like automatic teller machines (ATM's), point-of-sale (POS) terminals not mechanically operated</p> <p>26209 Manufacture of computers and peripheral equipment n.e.c.</p>
Manufacture of pagers, cellular phones and other mobile communication equipment	<p>26301 Manufacture of radio and television studio and broadcasting equipment, including television cameras</p> <p>26302 Manufacture of telephone and facsimile equipment, including telephone answering machines, PBX</p> <p>26303 Manufacture of data communications equipment, such as bridges, routers, and gateways</p> <p>26304 Manufacture of cable television equipment, transmitting and receiving antenna including dish, VSAT</p> <p>26305 Manufacture of pagers, cellular phones and other mobile communication equipment</p> <p>26309 Manufacture of other communication equipments n.e.c.</p>
Manufacture of measuring, testing, navigating and control equipment; watches and clocks, irradiation, electro medical and	<p>26512 Manufacture of automotive emissions testing equipment</p> <p>26513 Manufacture of consumption meters for electricity, water or gas, flow meters and counting meters</p> <p>26514 Manufacture of meteorological instruments</p>

electrotherapeutic equipment, optical instruments and equipment	26515 Manufacture of radar equipment, GPS devices, search, detection, navigation, aeronautical and nautical equipment 26516 Manufacture of laboratory analytical instruments and miscellaneous laboratory apparatus for measuring and testing such as scales, balances, incubators etc. 26519 Manufacture of other measuring n.e.c. 26521 Manufacture of watches and clocks, including instrument panel clocks (except time-recording equipment) 26523 Manufacture of time-recording equipments such as time-clock, parking meters etc. 26600 Manufacture of irradiation, electromedical and electrotherapeutic equipment 26700 Manufacture of optical instruments and equipment
Manufacture of other electronic and electric wires and cables	27310 Manufacture of fibre optic cables for data transmission or live transmission of images 27320 Manufacture of other electronic and electric wires and cables (insulated wire and cable made of steel, copper, aluminium)
Printing and reproduction of recorded media	18200 Reproduction of recorded media
Other manufacturing	32204 Manufacture of musical instruments, the sound of which is produced electronically 32405 Manufacture of electronic games
Repair and installation of machinery and equipment	33132 Repair and maintenance of irradiation, electromedical and electro therapeutic equipments of class 2660 33133 Repair and maintenance of optical instruments and equipment of class 2670
Construction	43212 Installation of telecommunications wiring, computer network and cable television wiring, including fibre optic, satellite dishes
Communication	58191 On-line publishing of statistics and other information 58201 Publishing of operating systems and system software 58202 Publishing of operating business and other applications 58203 Publishing of computer games for all platforms 59111 Production of motion picture 59112 Video production 59113 Production of television programmes or television commercials 59121 Post production activities of motion picture 59122 Post production activities of television programmes or television commercials 59123 Post production activities of video production 59131 Motion picture distribution 59132 Distribution of video tapes, CD and DVDs 59133 Distribution of television programme 59141 Motion picture or video tape projection in cinemas, in the open air or in other projection facilities 59142 Activities of cine-clubs 59201 Activities of sound recording in studio or elsewhere 59202 Activities of music publishing 60100 Radio broadcasting 60200 Television programming and broadcasting activities 61101 Activities of basic telecom services: telephone, telex and telegraph (includes the activities of STD/ISD booths) 61102 Maintenance of telecom network 61103 Activities of the cable operators 61104 Activities of providing internet access by the operator of the wired infrastructure 61201 Activities of Internet access by the operator of the wireless infrastructure

	<p>61202 Activities of maintaining and operating paging, cellular and other telecommunication networks</p> <p>61209 Activities of other wireless telecommunications activities</p> <p>61301 Activity of Internet access by the operator of the satellite infrastructure</p> <p>61309 Other satellite telecommunications activities</p> <p>61900 Other telecommunications activities</p>
Trade	<p>46495 Wholesale of recorded audio or video tapes, CDs and DVDs</p> <p>46511 Wholesale of computers and computer peripheral equipment</p> <p>46512 Wholesale of software</p> <p>46521 Wholesale of electronic valves and tubes, semiconductor devices, microchips, integrated circuits and printed circuits</p> <p>46522 Wholesale of radio, television and other consumer electronics including CD/DVD players and recorders</p> <p>46523 Wholesale of blank audio and video tapes and diskettes, magnetic and optical disks (CDs, DVDs) and parts</p> <p>46524 Wholesale of telephone, mobile phone and communications equipment and parts</p> <p>46529 Wholesale of other electronic equipments and parts thereof</p> <p>46599 Wholesale of other machinery, equipment and supplies n.e.c. including computer-controlled machine tools and computer-controlled sewing and knitting machines</p> <p>46901 Wholesale trade via e-commerce excluding activities of commission agents</p> <p>47411 Retail sale of computers and computer peripherals</p> <p>47412 Retail sale of video games</p> <p>47413 Retail sale of non-customized software</p> <p>47414 Retail sale of telecommunication equipment</p> <p>47420 Retail sale of audio and video equipment in specialized stores</p> <p>47620 Retail sale of music and video recordings in specialized stores</p> <p>47731 Retail sale of photographic, optical and precision equipment</p> <p>47912 Retail sale via e-commerce</p> <p>95111 Repair and maintenance of computer and peripheral equipment</p> <p>95112 Repair and maintenance of automated terminals like automatic teller machines, point-of-sale (POS) terminals, not mechanically operated</p> <p>95120 Repair of communication equipment</p>
Computer and related services	<p>62011 Writing, modifying, testing of computer program to meet the needs of a particular client excluding web-page designing</p> <p>62012 Web-page designing</p> <p>62013 Providing software support and maintenance to the clients</p> <p>62020 Computer consultancy and computer facilities management activities</p> <p>62091 Software installation</p> <p>62092 Computer disaster recovery</p> <p>62099 Other information technology and computer service activities n.e.c</p> <p>63111 Data processing activities including report writing</p> <p>63112 Web hosting activities</p> <p>63113 Providing general time-share mainframe facilities to clients</p> <p>63114 Providing data entry services</p> <p>63119 Other data processing, hosting and related activities n.e.c.</p> <p>63121 Operation of web sites that use a search engine to generate and maintain extensive databases of internet addresses and content in an easily searchable format</p>

	63122 Operation of other websites that act as portals to the Internet, such as media sites providing periodically updated content
	63991 Telephone based information services
	63992 Activities of cyber cafe
	63999 Other information service activities n.e.c.
Other Business services	74103 Services of graphic designers
	74201 Commercial and consumer photograph production
	74202 Photographic film processing
	74203 Activities of photojournalists
	74204 Microfilming of documents
	74209 Other photographic activities
	77220 Renting of video tapes and disks
	82192 Document preparation, typing, word processing and desktop publishing services
	82200 Activities of call centres

Table 4: GVA (in Crore) at current prices across 65 sectors for Digital Economy in India

Sl. No.	Sector	Gross Value Added (GVA)		
		All	Core Digital	Total Digital
1	Crops	1633264	0	0
2	Livestock	785683	0	124
3	Forestry and Logging	217603	0	1697
4	Fishing & Aquaculture	193275	0	0
5	Coal & Lignite	81414	0	1987
6	Crude Petroleum	71293	0	4965
7	Natural Gas	24761	0	0
8	Iron Ore	28990	0	0
9	Nonferrous metal ores	25521	0	177
10	Other Mining	104130	0	7471
11	Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats	35560	0	241
12	Manufacture of dairy products	21122	0	0
13	Manufacture of grain mill products, etc. and animal feeds	51745	0	284
14	Manufacture of other food products	102873	0	1956
15	Manufacture of beverages	34382	0	565
16	Manufacture of tobacco products	32406	0	0
17	Manufacture of textiles + cotton ginning	231201	0	178
18	Manufacture of wearing apparel, except custom tailoring	68596	0	52
19	Manufacture of leather and related products	32673	0	47
20	Manufacture of Basic Iron and Steel + Casting of iron and steel	170130	0	981
21	Manufacture of basic precious and non-ferrous metals + Casting of non-ferrous metals	59502	0	1038

22	Manufacture of fabricated metal products, except machinery and equipments	103545	0	1022
23	Manufacture of electronic component, consumer electronics, magnetic and optical media	18599	18599	18599
24	Manufacture of computer and peripheral equipment	9537	9537	9537
25	Manufacture of communication equipments	15843	15843	15843
26	Manufacture of optical and electronics products n.e.c.	14734	14562	14562
27	Manufacture of Electrical equipments	86842	16850	19225
28	Manufacture of machinery and equipments n.e.c.	178805	0	3750
29	Manufacture of Transport	262800	0	3000
30	Manufacture of coke and refined petroleum products	201980	0	623
31	Manufacture of chemical and chemical products except pharmaceuticals, medicinal and botanical products	216564	0	3857
32	Manufacture of pharmaceutical; medicinal chemicals and botanical products	159664	0	1409
33	Manufacture of rubber & plastic products	91388	0	260
34	Manufacture of other non-metallic mineral products	163471	0	161
35	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting material	38471	0	30
36	Manufacture of paper and paper products	39016	0	417
37	Printing and reproduction of recorded media except publishing	28597	819	2573
38	Manufacture of furniture	52953	0	108
39	Other Manufacturing	38559	169	496
40	Repair and installation of machinery and equipments	5063	43	162
41	Construction	1200414	2698	3545
42	Electricity	332025	0	8330
43	Gas	23885	0	1348
44	Water supply	69808	0	23
45	Railway Transport	116584	0	2343
46	Land Transport	484132	0	1290
47	Water Transport	13021	0	1185
48	Air Transport	22443	0	751
49	Supportive & Auxiliary transport activities	97603	0	1812
50	Storage & warehousing	16194	0	299
51	Communication	247549	147952	149847
52	Trade	1722671	59961	63083
53	Hotels & Restaurant	158723	0	166
54	Financial Services	719581	0	32109
55	Insurance Services	126614	0	1576
56	Ownership of dwellings	978876	0	0
57	Legal Services	91295	0	1700

58	Computer related services	657998	643778	643872
59	Other Business services	445046	35516	45125
60	Real estate activities	107803	0	1404
61	Education	632406	0	3505
62	Medical and Health	246141	0	3829
63	Community, Social & personal services	226755	0	0
64	Other services	90458	0	100
65	Public administration. & defence	945082	0	59862
Total		15505665	966327	1144500
Share (%)			6.23	7.38
