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Digitisation and Digital Economy- A Compiled Report

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Abstract—*The '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 digital economy contributes significantly to employment. The digital economy is unevenly distributed. The digital economy is growing faster than overall economies The term digitization is inter related to the concept of digital economy. The digital economy uses digital technologies for increasing competitiveness and business efficiency for new business models, processes, systems .Digitazation clearly defines business tasks, data and digital technologies and by using digital technologies through all aspects of business - processes, products and services, it is transforming business models, policies and social norms. The exponential growth in digitization and internet connectivity is the backbone of the Fourth Industrial Revolution. It has the potential to propel societies forward, enable innovative business models and help governments address legitimate policy concerns. According to OECD, the digital economy enables and executes the trade of goods and services through electronic commerce on the internet. European Union consider digital economy as "the single most important driver of innovation, competitiveness and growth in the world. Digital economy is the economy that "can provide a high quality of ICT infrastructure and harness the power of ICTs to benefit consumers. Three main components of the 'Digital Economy' concept are: e-business infrastructure, e-business and e-commerce. Industry 4.0 has the concept of digitization and integration of vertical and horizontal value chains. and, digitization of product and service offerings, and digital business models and customer access. It has four components: Cyber-physical system, Internet of Things, Internet of Service, and Smart Factory. Six major digital technologies are: Fifth-generation (5G) mobile phones, Artificial intelligence, Robotics, Autonomous vehicles, Internet of things, 3D printing.*

Introduction

The digital economy is growing faster than overall economies The term digitization is inter related to the concept of digital economy. The digital economy is unevenly distributed.

Data is the driver of most of the advances in the digital economy. Digital platform businesses such as Swiggy/Zomato, Ola/Uber, and Facebook/LinkedIn, which act as intermediaries between two or three different groups of users, generate their revenues by selling the data generated from the user interactions on their platforms to third parties. The increased use of sensors in devices and application-driven machines and the growth in networked devices (IoT) are continuously adding to data capture by private parties.

Digital Economy

The rapid spread of digital technologies is transforming many economic and social activities. While creating many new opportunities, widening digital divides threaten to leave developing countries, and especially least developed countries, further behind. A smart embrace of new technologies, enhanced partnerships and greater intellectual leadership are needed to redefine digital development strategies and the future contours of globalization.

The first edition of the Digital Economy Report examines the scope for value creation and capture in the digital economy by developing countries. It gives special attention to opportunities for these countries to take advantage of the data driven economy as producers and innovators – but also to the constraints they face – notably with regard to digital data and digital platforms.

Digital advances have already led to the creation of enormous wealth in record time, but this is highly concentrated in a small number of countries, companies and individuals. Meanwhile, digitalization has also given rise to fundamental challenges for policymakers in countries at all levels of development.

The Report presents recent trends and discusses key policies for value creation and capture in the digital economy, notably with regard to entrepreneurship, data, trade, competition, taxation, intellectual property and employment. Given the absence of relevant statistics and empirical evidence, as well as the rapid pace of technological change, decision-makers face a moving target when trying to adopt sound policies relating to the digital economy. The Report provides valuable insights and analyses to support policymakers at the national and international levels to ensure that no one is left behind by the fast-evolving digital economy.

Source:
https://unctad.org/en/PublicationChapters/DER2019_flyer.pdf)

According to the OECD, “Digital economy is an umbrella term used to describe markets that focus on digital technologies. It operates on a layered basis, with separate segments for data transportation and applications” (OECD 2012).

As social media, virtual reality and cloud services are expanding, the boundary between the traditional economy and digital economy is getting difficult to be identified. The OECD has included both ICT goods and services under digital economy. This means that software services are also part of the digital economy. India is the second largest (after Ireland) exporter of ICT services (mostly software) according to the UNCTAD. In the case of ICT goods export, China is the unquestionable global leader with 32% share.

Thomas Mesenbourg (2001) has provided three main components for Digital Economy.

e-business infrastructure (hardware, software, telecoms, networks, human capital, etc.),

e-business (how business is conducted, any process that an organization conducts over computer-mediated networks),

e-commerce (transfer of goods, for example when a book is sold online).

Digital economic activity results from billions of online connections among people, businesses, devices, data, and processes. The transition of traditional sectors to the digital economy is taking place at rapid pace, modifying established business models and generating new demands on innovation.

According to Workshop: “Innovation and the digital economy: What role for innovation policies?” 14 June 2017, Paris, OECD Headquarters :

-Networks and platforms are becoming ever more important and many manufacturing companies are trying to establish their own platforms;

- Innovation in a number of sectors increasingly requires combining different competencies as digital elements are added to traditional products as exemplified well by car manufacturing.

-Digital innovation has ambiguous impact on competition, as it tends to give rise both to active start-up creation connected to product innovation and low entry barriers, and to "winner-take-all" market structures due to economies of scale and network effects.

Digitisation

Industry 4.0 is a comprehensive concept as well as a new trend in manufacturing, based on the integration of a set of technologies that enable ecosystems of intelligent, autonomous and decentralized factories and integrated products and services. The term Industry 4.0 is linked to the smart collection and application of real time data and information by networking all individual elements, so as to reduce the complexity of operations, increase efficiency and effectiveness, and reduce costs in the long term.

Industry 4.0 is driven by 1) Digitisation and integration of vertical and horizontal value chains. 2) Digitisation of product and service offerings and 3) Digital business models and customer access

1) Digitisation and integration of vertical and horizontal value chains. Industry 4.0 digitises and integrates processes vertically across the entire organisation, from product development and purchasing, through manufacturing, logistics and service. All data about operations processes, process efficiency and quality management, as well as operations

2) Digitisation of product and service offerings

Digitisation of products includes the expansion of existing products, e.g. by adding smart sensors or communication devices that can be used with data analytics tools, as well as the creation of new digitised products which focus on completely integrated solutions. By integrating new methods of data collection and analysis, companies are able to generate data on product use and refine products to meet the increasing needs of end-customers.

3) Digital business models and customer access

Leading industrial companies also expand their offering by providing disruptive digital solutions such as complete, data-driven services and integrated platform solutions. Disruptive digital business models are often focused on generating additional digital revenues and optimising customer interaction and access. Digital products and services frequently look to serve customers with complete solutions in a distinct digital ecosystem.

The digitisation embodied in manufacturing and services improves efficiency, total factor productivity, spill-over effects, transparency etc

Fourth Industrial Revolution

Fourth Industrial Revolution is characterized by the fusion of digitalization and automation in order to make machines smart, interactive, and easy to use. These new technologies will be a central part of our lives and will have a tremendous impact on the way we work. There will be new types of robots, which are able to interact with humans. There will be a new software business in automation says the report “Industry 4.0: Opportunities Behind The Challenge. Background Paper”

The exponential growth in digitization and internet connectivity is the backbone of the Fourth Industrial Revolution. It has the potential to propel societies forward, enable innovative business models and help governments address legitimate policy concerns. Digitization is transforming business models, the policy landscape and social norms.

Industry 4.0 has the concept of digitization and integration of vertical and horizontal value chains. and, digitization of product and service offerings, and digital business models and customer access. It has four components: Cyber-physical system, Internet of Things, Internet of Service, and Smart Factory.Six major digital technologies are: Fifth-generation (5G) mobile phones, Artificial intelligence, Robotics, Autonomous vehicles, Internet of things, 3D printing.

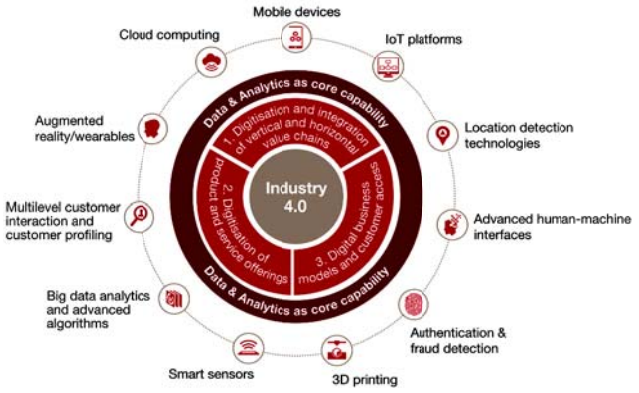

Figure 1: Industry 4.0 framework and contributing digital technologies

Source: Industry 4.0: Building the digital enterprise

Digital Technologies

Digital technologies have spread rapidly in all over the the world. Six major digital technologies are:

1. Fifth-generation (5G) mobile phones
2. Artificial intelligence
3. Robotics
4. Autonomous vehicles
5. Internet of things
6. 3D printing

Besides the internet and the internet of things, several new inventions are about to alter the way we live and economically engage.

Conclusion

India faces critical policy choices in shaping its development strategy in transformations by digital technologies. Digital start-ups like Ola, Flipkart, Zomato and Paytm, which epitomise service sector digitalisation, are only one part of the unfolding digital transformation story.

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