

IMPACT OF DIGITALIZATION OF ECONOMY IN THE INDIAN CONTEXT

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1. Introduction

It must have been few years back India considered going in to digitization. Now at the outset let me bring in the three terms which are commonly misinterpreted in this context, which are digitization, digitalization and digital transformation. In brief they are practically assigned the meanings quite different by popular perception. As a matter of concept digitization converts signals and media objects in to digital forms in order to process, store and transmit. As far as digitalization, it comprises of presentation and providing information, sales functions, and integration of business processes. Finally digital transformation in the context of economic activity is the total and largely collective upshot of digitalization. It is quite reflective that digitization prompted the process of digitalization and digital transformation by transforming traditional business, prevailing consumption patterns, economic structure.

It is quite natural to consider digital economy as engaging business through predominant use of digital platforms and internet. As a result it is often referred to as the network economy. Interestingly it is meshed in the overall process of traditional economy and logically they have an impact of millions of life. As apparent it takes along through its online connectedness billions of customers, commerce, process and devices. Probably the smart phone mobile technology and the internet of things (IoT) has been a great influencing factor. We have all reasons to infer that this revolution economy has changed the traditional concepts of business and regulatory changes.

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2. Literature Review

During the Japanese recession of 1990's the term first appeared brought in by an economics professor. As natural western world which keenly become accustomed to Japanese concepts adapted it and in 1995 the term made its way in to western economy and appeared in Don Tapscott's book (Don Tapscott, 1995 [Don Tapscott \(1995\)](#) According to (Thomas Mesenbourg 2001), [JTDEdelman.docx](#) certain components of digital economy such e-business infrastructure, process and transfer of goods and services can be acknowledged. Digital Economy has been ideally defined as the branch of economics studying zero marginal cost intangible goods over the Net. One of the important facilitator fro gig economy is digitization. Quite a lot of research has been carried out on this subject. It can be introduced that the birth of the gig economy has become desirable to those who want to have more flexibility in their schedule. Money flows in digital manner but the gig workers contrary to the expectations make just that much to exist (Russellia, 2019). [JTDEdelman.docx](#) U.S. government's actions towards electronic commerce so that the digital economy's growth potential remains high is based on five principles which include the leadership of the private sector, the government avoiding undue restrictions on e-commerce, limited government involvement, the government's recognition of the Internet's unique qualities, and the facilitation of e-commerce on a global basis. (Wienclaw, Ruth. 2013 [Wienclaw, Ruth, \(2013\)](#). As per (Malone and Laubacher 1998) [Malone and Laubacher \(1998\)](#) information revolution has changed the way we look at e commerce. Digital platforms are an online platform operator which is any natural or legal person. Tapscott (Tapscott 1996) [Don Tapscott \(1995\)](#) compares information networks of the new economy to highways and the power grid of the industrial economy. Schwartz (Schwartz (1999 writes that in the future, large companies will manage their activities through latest computational frameworks. Boyett and Boyett ([Boyett and Boyett, 2001](#)) point out that the larger the network, the greater its value and desirability. In a situation where there is transparency and interoperability in economy gains are greater. Kelly (Kelly, 1998) [JTDEdelman.docx](#) states that in a network economy, value is created and shared by all members of a network rather than by individual companies and those economies of scale stem from the size of the network – not the enterprise. Another area of study is estimating the degree to which GDP and other measures of economic activity are inaccurately placed due to open source software. For example, Greenstein and Nagle (Greenstein and Nagle, 2014) [Greenstein,](#)

[Shane Nagle \(2014\)](#) estimate that Apache alone accounts for a difference by six times.

3. Analysis on impact of digitalization of indian economy

Gig Economy

The current age probably due to favourable adaptation of networking and smart phone use has witnessed a new trend known as gig work. Gig work can be classified as labor that incorporates of impermanent and accommodating opportunities that are usually done over delivery apps and rideshare services. They include platforms such as Grubhub, Uber, Lyft, and Uber Eats. It provides an opportunity for those even with full-time employment to make some side money when they clock out of their day job or cases which are rampant in Indian economy where due to sporadic lockdown a person or platform starts a day on a job and possibly by the evening the firm has closed. Most people who chose to do gig work in the developed countries however, rarely make it more than a side hustle. That is not the case in India where it has a substantial presence in contributing to an individual's income which most of the time goes out of the purview of the taxation. The number of platforms and the size of the gig economy are yet to be accurately quantified, but then that can be a phenomenal number supplemented by the scare of Covid 19, lockdown. 0.5% of gig workers make most of their income off of platforms like Uber, Lyft, Grubhub, and Doordash. Definitely all is not well, in normal terms they appear to be exploited like the unorganized and migrant labour. As a result in many countries it has resulted in the formation of unions between gig and platform workers and various reforms within the industry. Since the 2007-2008 financial crises, there is an increase in 'uberization' of work. In India probably the trend has started recently but caught up very fast in the cities and spreading uniformly to the towns. As a result, online platforms encourage the accommodating timing of jobs and a higher volatility of the labor market rather than on traditional companies. It is generally followed that 'Gig economy' companies such as Deliveroo and Uber hire drivers which are self-employed and sign a contract with the digital platform but the way they work is much regular to a regular employee statute. Despite all these arguments for the first time in March 2020, France's top court (Cour de Cassation) ruling acknowledged the position of a gig worker. It

is likely to follow in a similar manner in India as well once this covid times are over or put under control.

Retail sector

Another major area where the digital economy has made substantial impact is on retail sales of consumer product goods. The consumer tendency to select a product off line has been replaced by on line selection. Many brick and mortar stores have become online stores reflecting the change and customer practices. Some retailers have declared bankruptcy as a result of their failure to anticipate and adapt to a digital economy. Others have worked with outside vendors to completely convert their business one to that is exclusively digital. Many have even changed the product line based on the change in governmental policies.

Asset Intangibility

What is an asset of a firm which is into digital economy? Precisely the data it holds which is intangible. Both development and exploitation of intangible assets is the most pertinent feature of the digital economy. This investment in and development of intangibles such as software is a mainstay provider for value creation and economic growth for companies in the digital economy. As far back as 2000, companies started substantially increase the amount of capital advocated to intangibles such as branding. Now this has another angle from the perspective of loan sanction, because intangible cannot become collaterals for loan. With the availability of ICT and profitability of net communication dominant businesses have been able to manage their global operations on an integrated basis from a central location that may be away from the locations where the operations are carried out and the one with their suppliers or customers. As a result, it has helped in expanding access to remote markets and thus, provided an opportunity to provide those goods and services across the borders.

Personal Data Collection

Next important consideration in digital economy is the dominant intangibles which it relies on and that are personal data collection. As per a directive made available in 1995 data can be confined to few words as “any information relating to a person”. This definition was found to be sufficient and self regulating at that point of time but then by adopting common European data protection standards, the EU was able to naturalize conflicting national laws that were emerging as a trade barrier, restricting

inhibiting commerce in Europe. Such a view went on to the concept of digital single market (DSM), which in effect was deemed at providing unrestricted within the specified market. Thus it was able to bridge the information asymmetry between supply and demand data now has an economic value. Leveraging data can be fruitful in several ways such as transparency, analyzing variability in performance, segmenting customers, improve decision making and creating new business models. It has been estimated by BCG that the personal data collected in Europe was worth 315 billion Euros.

New Economic Model

As a result of the digital economy the new economic model has been created which is based on the 'Network effect'. In all these cases attractiveness relies here on the snowball effect. Another feature of digital economy is transforming market as a 'multi-sided' market. Probably taking a cue from the notion developed by French Nobel prize laureate Jean Tirole on the idea that platforms are transparent it is found customers on one side and the software developers. In such a market it has been found that multiple groups of persons interact through platforms as intermediaries, the decisions of each group affect the outcome of the other group of persons through a positive or negative. The digital enterprises apparently do not collect revenue from the user side but from the advertiser side, thanks to the sale of online advertisement.

Its expected broad impact leads to the fact that traditional firms are competitively assessing how to respond to the changes brought about by the digital economy. Another fall out is tax evasion. The existence of large space to operate and to switch form locations which are encompassed with difficult tax structure to easier areas digital multinational enterprises can carry out high volume of sales from a soft tax jurisdiction set up. Further this optimization would put the government in a dichotomy as far as extent and scope of jurisdiction. At the same time governments face MNE fiscal optimization from companies locating their activity in the countries where tax is the lowest.

Cashless Society

Whenever physical currency transaction is replaced by electronic means the movement of economy is towards a cashless society. Those of the firms which have in the past undertaken cash transaction would move or transform to electronic transaction. It is a desirable and current topic

because the world is increasingly using digital or virtual currencies for transactions through electronic platforms.

DSM in Countries

In Europe it was included as part of the SMA I and SMA II initiatives. The crisis opened a window for opportunities to place this aspect upfront in the agenda and was aimed to resolve two issues: financial supervision and economic coordination. Digital Market is characterized by its heterogeneity which is primarily the reason that European Market has a disadvantage.

Encouragement to Invisible Capitalism

With its peculiarity of being intangible and other elements surrounding it the digital economy is also qualified as "intangible capitalism" or "invisible capitalism" which fosters inequality and social division. As opposed to the traditional production where the marginal cost of production decreases after the first unit produced which does not apply to the software. As the proportion digital economy as a part of the world's economy that does not fit the old model keeps getting larger, it has implications for a wide range of policies. The intangibility of assets is widening the gap between small, medium, multinationals enterprises. The other peculiarity is the ineptness of the current bank system struggles to value and monitor immaterial assets. The digital economy has accelerated the spread of global value chains in which enterprises integrate their worldwide operations.

Economics of Digitization

The economics of digitization encompasses evolving strategies which can be incorporated in digitization, digitalization and digital transformation. How it affects markets and how digital data can be used to study economics. In simpler terms digitization is the process by which technology lowers the costs of storing, sharing, and analyzing data. However in its journey fallout has been that it has changed how consumers behave, how industrial activity is organized, and how governments operate. Hence it is opportune to find that economics of digitization encompasses the unique economic models because many traditional assumptions about information no longer hold in a digitized world and evolution of new types of data generated by digitization require new methods to analyze. This drives home the point that existing government regulation of copyright, security, and antitrust is inappropriate in the modern world.

4. Findings

Dependency on internet and its spread in India

Digital economy hinges around internet which is operated by several participants and several structural layers. As a result it can be assessed as or viewed as a combination of standards, networks, and web applications, among other components, that have accumulated around networking. Economists are interested in how these organizational structures make decisions and whether those decisions are optimal which is provided through internet. From this emerges the economic value of the internet services which is that part of the ice berg which is hidden. So the monopolistic structure combined with predatory attitude of established companies may have to be understood. It is clear that the customers get their pound of flesh but then there are no standards of measuring them. Can it be form the details provided by the internet provided? Possibly not because of the conflicting positioning each firm takes on this complement. Internet service contributes quite a lot to the growth of GDP in developed economy and maintaining substantial presence in developing economy which is yet to be realized. Digital economy has essentially a capacity to start with a zero input price which is unusual and then maintain it with practically no capital expenditure in the terms of tangible assets and due to its transparency can operate from diverse location in different business models. Increased importance of platforms for digital activity brings out the issue of unrealized compensation for software production which is the heart and soul of digital economy. It would be important to consider the value of incentives to these two elements and its role and percentile contribution to GDP and growth.

Advertising

This invisible economy works on another important structure which is the efficiency or attractiveness of digital marketing, branding and advertising. Hence these aspects generate quite a lot of revenue which goes unnoticed due to the absence of measuring standards which lags behind technologically compared to the growth of these advertising or marketing softwares. The finer way online advertising is able to target the heterogeneous market or consumers keeping in mind the rationalistic, demographic and behavioural pattern brings in to being its attractiveness. This ability potentially affects the ability of new and small firms to gain exposure to customers and to grow.

Autonomation

Digitization has partially or fully replaced many tasks that were previously done by human laborers. Furthermore, the use of information technology only increases productivity when it's complemented by organization changes. One of the blessings of demonetization in India has been the attractiveness of online banking. Compelled by this transition many or all the banks have already invested heavily in technology and infrastructure. The cash rich transaction which was the way everywhere in India has been compelled by circumstances and the citizens irrespective of their knowledge on technical implications of digital economy. Starting from a barber shop to even a fruit seller with a make shift trolley moving around the market place of housing societies all are equipped with platforms to engage in cashless transaction. But then such a transition was after a practical digital transformation strategy which involved the overhaul of organization.

Healthcare

Digital transformation within healthcare concentrates on the application of IT-reliant services for facilitating the management and delivery.

Supply chain

New types of AI, based on neural organizations, would be able to analyze how students perform and help teachers improve their technique.

Digital transformation initiatives by government

Many governments across the world are also focusing on digital transformation. One example is the government of India going all the way out for digitalization of personal data through Adhar card system or UDAI. Similar is the case when the covid vaccination was processed through the cowin portal.

Transparency

Digital economy brings in accountability by way of its transparency, because the transaction goes above the surface and nothing is under the table. Imagine the accuracy of state of economic indulgence of people when transaction goes completely digital. One of the biggest areas of invisible financial transaction is real estate. As identified almost all the major real estate transaction has an under reporting status to keep away from various taxes which may be one time and there after yearly recurring taxes. On top of it the mandatory disclosure of source of income puts many defaulters in

jeopardy. Take for example a real estate property which is valued at one Crore. Many a times it would offered in two types of transaction with the popular understanding, how much black and how much white. So the invisible amount in this would be generally more than fifty to sixty percent of the entire amount. The ability to restrict flow of money by preventing availability of liquid currency has to completely stop. The ability to stop such things is inherent in the digital economy platforms and customers are aware of the procedures but the great stumbling block is inadequate infrastructure for ensuring safety. When the customers are convinced on the security of digital transaction then there would be liberal use of the platforms which translates in to correct data on the status of economy. Apparently the ability of the government to regulate the flow of liquid currency requires improvement. As a matter of fact when the man with a vegetable or fruit trolley in the hosing society can equip with a digital platform for e-commerce it is lack of will or ability of the government machinery to work overtime to bring in a system that can monitor all transaction by bringing in obligatory digital transaction. Realistically the revenue generated on this account would be phenomenal. How can it be implemented is not a brain storming exercise. It can start with removal of big denomination currencies starting with ₹ 2000 and moving on to ₹ 500. Possibly each is given at least a year's time each for transition, at the end of which the highest liquid currency would be ₹ 100. The step to fully digitalize does not end there, but moving step further which would definitely take two years wherein the ₹ 100 currency is also withdrawn. This would make more than fifty five to sixty percent of customers to resort to digital transaction rather than liquid currency dealing. As far as high end liquid transaction and invisible money the end would be visible with such a step.

Compulsive buying

The current population of India has 22% youth which is a phenomenal number and has great potential on many fronts. On the supply chain side they are great movers by improving the value chain and bringing in product redundancy and moving up the CODP. An essential feature of the youth is compulsive buying. The reason maybe many but primarily it is because of the fact that in most of the Indian urban class youth in the Maslow's hierarchy of needs, existence needs no longer exists because in their case parents have secured these needs for them. As a result they are at a stage sandwiched between the current ability and realization of the achievable standard of living with the present income level. Many do not

venture out to risky propositions like the dominant start ups India had or will have in future. As a result they are contented with the present set up and has lots of real money for short time purchases, which may many times lead on to compulsive buying. Compulsive buying generates finances for the economy and brings in higher turnover for the business. This may be a peculiar situation which is India specific by the enormity of the youth population which can be equated to the total current population of Pakistan.

Gig economy

The digital economy has brought in the concept of gig economy. It can be safely said that in a country like India the number of people utilizing gig economy jobs is 15-20 million. These workers are a sizable force which can have the potential to accumulate their strength to 90 million. In clear economic terms the addition to GDP would be 1.25%, which is realistically a substantial amount for a country like India. From the employment side it can account for about 30% of the non-farm work force of India. Here the requirement would then be in two ways. One is by removing the restrictions on products and services which can be traded by gig workers and liberalization of opportunities by certain incentives to firms generating employment in gig sector. Gig working is intended to grow because of its flexible nature and free lancing approach of the youth who are generally employed. Gig workers can be ideally suited for IT jobs to education and training, but then it takes talent and conscientiousness to progress the work beyond a level because the job is associated with burnout cases, absence of benefits, inconsistent income and many a times loneliness which is a compounding factor to many youth.

Banking hurdles

To successfully position its place the existing banking hurdles need to be addressed. These include equipping banks with access to latest technology in its operations and improving security systems in the digital transactions. Other issues which the banking industry will come up against are increasing competition generated by banks of various configurations, the cultural shift which the employees of the bank have to accommodate, higher cost. In addition the customer expectations are changing at a reasonably faster pace and in case the banks are not able to match customer retention becomes a challenge. Another technical issue is the change in mobile banking technology which is very rapid.

Safety and security

Digital economy provided quite a lot of safety and security features when compared with traditional economy and transaction. It as a matter of fact evolves a comprehensive security cover to the customers and the benefactors. The flip side of the coin is that the customer should be constantly up dated on the pit falls and cases of security breaches. Uniqueness of security breaches in banking has been periodically up dated in the IT Act 2000 of the country incorporating liability issues.

5. Conclusion

Digital economy has the inherent advantage in any economy. Its enormity and penetration in India is still far behind advanced countries some of which have become totally cashless society. USA, China and some of the European countries are way ahead in the digital transformation from traditional economy. Since demonetization India has moved forward but there is much to be done. The invisible transaction prevalent in most of the facets of the economy can be regularized with total or near say complete transformation to digital economy. As per RBI this portion of our economy which is signature as M3 is estimated to be about ₹600 Lakh Crores of which 30% is considered to be held have been recovered. The share of black money in Swiss bank is barely 0.06% of the total amount, so if the data is correct much of it is the country and can be profitably reduced by digital transformation of Indian economy.

REFERENCES

- Boyett and Boyett (2001), *Guru guide to the Knowledge Economy*.
Don Tapscott (1995), *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*.
Greenstein, Shane Nagle (2014), *Digital dark matter and the economic contribution of Apache*.
Kevin Kelly (1998), *New Rules for the New Economy*.
Malone and Laubacher (1998), *The Dawn of E-Lance Economy*.
Russel, Lia (2019), *The Silicon Valley economy is here. And it is a nightmare*.
Some precepts of the digital economy (2008), *Productivity, Innovation and Technology eJournal*.
Thomas L. Mesenbourg (2001), *Measuring the Digital Economy*.
Wienclaw, Ruth A. (2013), *B2B Business models*.

