

Digital Transformation and Sustainability: A Post-COVID Impact Analysis of Global Businesses

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Abstract: This paper outlines the impact the Covid-19 crisis currently on our economy and how digital transformation can help us get through it. The paper covers 3 main topics: global businesses, Digital Transformation and Sustainability. In the global business section, the Covid-19 impact on the economy is explained, with reasons why it has brought the economy to a literal standstill when compared to other crises. The second section shows how digital transformation, shines a bright light during such unpleasant times on how we have been thrust into a situation that will force us to modernize and improve technology in order to stay efficient and connected remotely. It covers the aspects of cost cutting, business intelligence and improved transparency. The third section of this paper is regarding sustainability and how these technologies help create a more sustainable future. As mentioned with the solutions above, due to lower wastage generated, we may end up in a world with less pollution, better public health and possibly, greater income equity, leading the improvement towards the United Nations Sustainable Development Goals (SDGs).

INTRODUCTION

Covid-19 is a virus that has affected hundreds of thousands of people worldwide. The disease's effects have directly projected onto the economy which has severely been affected between the last 4-5 months. The crisis not only ended the longest bull market run in the US but also was followed up with the steepest sell off since the stock crash of 1987¹(Investopedia). Many investors feared the Covid pandemic would lead to a recession – and with the economy in the United States shrinking by 5% in the first quarter²(CNBC), many experts categorize this as the worst recession of our lifetimes.

Global Businesses

Countries like India have been more greatly affected by the pandemic due to policies that have been enacted upon the country. Several economical policies enacted by the Modi party serve to improve the country's LRAS (long-run aggregate supply) but are negative for the SRAS (short-run aggregate supply). India's economy has slumped from 6-7% growth per annum to 4-5% (pre corona crisis). With the corona crisis ensuing, India's SRAS (Short Run Aggregate Supply) curve, which is already affected by the policies, is further shifted to the left. One of the biggest questions that looms the business world is how soon we can expect to recover from this recession. Experts believe it can take anywhere between a few months to years to fully recover from the crisis although the closest answer we can get is through experts from the medical field. A vaccine is the key to jumpstarting the world back to its former state, and until one is available it is hard to gauge how long the economy would take to recover. The reason why this pandemic has affected us much

differently from the others is due to the it is effects on both the supply and demand side of our economy. When compared to the 2008 housing recession or the Great depression, only the demand side of the economy was affected. In fact, supply was quite sustainable. In the case of Covid-19 both supply and demand chains were simultaneously affected. As China was the first country affected, their supply chains were quickly disrupted which rippled globally. Governments have also mandated a stay-at-home order or discouraged people from going out. With several businesses currently closed due to the crisis, employees have lost their jobs- which leads to a drop in demand as there is less disposable income to be used.

Digital Transformation

While we circle around solutions to recover from the crisis, a bright light shines upon digital transformation and how that will not only help us recover but pave the path for a more digital future. The core topics of the Digital Transformation sector is divided into 3 sub-topics: Cost-cutting, business intelligence and improved transparency. Digital transformation has already been in the works for the past 5-6 years, but the covid-19 crisis will help streamline it and become more utilized.

Cost-cutting:

Digital transformation is evident in platforms and technologies such as data science, blockchain, IoT, cloud services, auto- intelligence, 3D printing, drones. These platforms are expected to transform the global situation in multiple aspects, especially the first 3 mentioned above which will be expanded on. With lockdowns and stay at home orders in effect communication would have hit standstill a

few years ago. With growth in digital technology, reliable video communication is available for people to use to keep connected to their work and to others. For companies, this can reduce costs as employees are able to work remotely which cuts costs for building rent/maintenance or losing out on profits due to an inability to communicate. Working from home also increases the happiness of the employee as they have more flexible schedules and are able to dedicate more time to their home and families. Increased satisfaction amongst employees is an essential motivation technique which can in fact lead to high productivity of employees as described by business thinker Daniel Pink³(Harvard business school). Digital communication also eliminates the necessity several travel sequences. Valuable time that could be dedicated towards the project at hand is being diverted to variables such as travel time.

Data Science:

In its simplest terms, data science involves the study of data. The expected goal of data science is to gain insights and knowledge from structured and unstructured data that is collected. This technology is further discussed in the second subtopic- business intelligence. With greater insights onto information, more educated decisions can be made by companies allowing for them to cut on unnecessary costs that could be incurred.

IoT:

The results of IoT failures can be severe, therefore, the study and research in security issues in the IoT is of extreme significance. The main objective of IoT security is to preserve privacy, confidentiality, ensure the security of the users, infrastructures, data, and devices of the IoT, and guarantee the availability of the services offered by an IoT ecosystem. Thus, research in IoT security has recently been gaining much momentum with the help of the available simulation tools, modellers, and computational and analysis platforms. IoT, also known as the Internet of Things, is the network of interconnected devices through sensors, which collect statistics which can be processed into valuable data. The 3 technologies mentioned above will be the most pivotal in shaping the business world as they are the most accessible and widely implemented in 2020.

Business Intelligence:

Through the usage of blockchain and intelligence, greater intelligence can be accumulated which have several benefits. Usage of big data helps companies use data to forecast demand, supply chain behavior, macroeconomic aspects and business cycles. Uses of big data:

1. Big data can also be used to analyze micro level aspects to deeply analyze and comprehend statistics. These analytics can be used by factories for example on predictive maintenance. The statistics help the company to be prepared at all time to deal with a situation and prevent errors or shortcomings.
2. Organizations also have data known as “dark data” which is categorized as unclassified data that is not picked up by analytics. Research has shown that the average organization has as much as 52% of unclassified data within their systems⁴(Gartner). Some of this data could serve as critical information and cost the business customers. Additionally dark data makes the company vulnerable to security breaches via backdoor hackers. Big data is constantly improving with greater usage, and can pick up on dark data to address customers needs more effectively and improve security
3. Big data also leads to a productivity boost amongst employees. Data is on target to double every couple of years⁵(Investopedia) While sorting through data is time consuming softwares help workers find the information they require. The ability to access these reports in a system allows employees to work remotely and prevent lost time required to contact other departments.
4. Data can also be directly collected through IoT and uploaded onto a system allowing for quick remote access instead of the older methods of collecting and transferring data through devices such as USB.

This allows for better and more educated decisions to be made at a macro level within the company which can lead to higher profits for the company and fewer errors committed.

Improved and Greater Transparency:

Thirdly, digital transformation can be enacted through the utilization of greater transparency amongst companies and easier certification to be attained. With the supply chain having multiple layers and processes, it becomes easier for information to be lost along the way and red flags could be raised about the transparency regarding the situation. Blockchain provides the effective solution to help solve this problem. One of the most prominent situations this is witnessed in is within the food industry. With corporations pawning on tactics such as false advertising, it is very difficult to legitimize the credibility of a company unless you are an expert/well-versed in the field. For example, when the statement “cage-free eggs” are made, the public perceives that the chickens are allowed to

roam free on a farm, but regulations require that cage free eggs are given at least one square foot of space which defies public perception⁶ (vox). Companies such as Transparent Path⁷ (transparent path) aim to combat such issues, by utilizing blockchain and IoT to dictate the food's path from original stages to the consumer's supermarket. As blockchain is not owned by a single company or user and all information is transparent, consumers can be sure to know that the information they are being provided with is accurate and not tampered with.

Easier certification:

Exporters have to bid by country's policies which tend to be extremely stringent. In order to be allowed to export a product to a country, several companies place policies such as producing x% of the product in a country. If unable to prove with concrete evidence, the exporters are not given the opportunity to conduct business. In fact, studies show that 50% of exporting firms are unable to capitalize export schemes due to their inability to prove or worse still choose not to export their products. However, utilization of blockchain and IoT can vastly help these companies collect concrete data which can be shown as justifiable proof and giving them the certification to export.

Sustainability

Sustainability is a way of development and prosperity in economies and wealth without compromising the positive things. In this case, positive can be described in various ways, such as the environments wellbeing, public health or equitable distribution of wealth. The goal of sustainability is for the population to be happy. Sustainable goals are more clearly put forth and defined by the UN⁸ (United Nations). One of the biggest arguments brought forth about sustainability is regarding the environment in the Covid-19 crisis and how it has prospered with less pollution, more wildlife teeming etc. Of course, this is unsustainable as lockdowns have affected the wealth distribution and have brought forth problems such as hunger. Thus, technology's mentioned in the digital transformation sector can help curb the situation.

Blockchain:

Blockchain, the foundation of Bitcoin, has received extensive attentions recently. Blockchain serves as an immutable ledger which allows transactions take place in a decentralized manner. Blockchain-based applications are springing up, covering numerous fields including financial services, reputation system and Internet of Things (IoT), and so on. However, there are still many challenges of blockchain technology such as scalability and security problems

waiting to be overcome. Blockchain serves as the platform with the most sustainability attached to it. For starters it helps promote cost reductions, which could lead companies to either invest in more research and development creating opportunities for new jobs or increase wages of current employees. Efficiency of worker systems helps improve employee morale which leads to higher worker productivity and improvement of public health as there is more satisfaction attained. For businesses, blockchain, combined with IoT and big data help reduce the number of inefficiencies, such as ordering too much of a product leading for it to go to waste. Not only does this save the company money but reduces wastage which is positive for the environment. Approximately 25% of food is wasted in the food supply cycle and the implementation of blockchain can mitigate the wastage drastically⁹ (IBM)

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