

**A Mixed Method Approach to Understanding a Virtual Revolution and How it
Could Impact the Survival of Our Global Workforce**

by

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Abstract

“The COVID-19 pandemic outbreak has forced many businesses to close, leading to an unprecedented disruption of commerce in most industry sectors” (Gustafsson, 2020). There have been many times where businesses have to adapt, whether it be a new strategy, reaching a different customer market, or moving locations. However, this pandemic has caused businesses to fully shutdown, which has made it tougher for businesses to adapt. This study will look further into the hardships that have been brought into the business environment and assess if remote working could be a long-term solution. or perhaps a hybrid model to split the workforce into cohorts to alternate between office and remote. Additionally, this study will look into the positive effects of the pandemic.

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Chapter 1: Introduction

Introduction

Thesis statement >>>

Covid-19, now recognized as a pandemic has spread to over 200 countries and territories across the globe. The virus is responsible for killing more than two million people and infecting more than ninety-four million worldwide. It has generated a global health crisis and world economic panic. The way we live, work, and relate to one another has fundamentally been altered. This mixed methods study will examine how the pandemic has drastically effected employees and businesses across the world and if a virtual revolution is the key to economic survival.

Research Problem

The research problem of our study focuses on the imminent collapse of many industries and how ineffective practices can prevent their survival. There is no longer a 'normal'. The impact on employees and our entire workforce has been astronomical and will continue to be felt for years.

Industries collapsed overnight. Entertainment venues, bars and clubs closed permanently. Salons and restaurants try to stay afloat as they await changing government mandates. Industries are forced to either adapt and evolve or diminish and disappear if they cannot adapt to the new normal that has been generated by COVID-19.

Background of the Problem

A lockdown that was implemented to help curb the spread of the deadly virus has been felt by businesses and industries around the globe, creating a vast array of unique challenges for both business owners and their employees. Overnight, the entire workforce became either “essential”, “work from home”, or “furloughed”. In the blink of an eye, the world was turned inside out. “Essential” employees; nurses, doctors, and first responders are putting their life on the line and immediately overworked. Their healthcare colleagues who are in non-emergency areas are employed but no longer seeing patients in person. The healthcare industry is growing and shrinking at the same time. Schools are closing and parents are asked to homeschool their children. Suddenly there is no more childcare. Employee who still have a job are asked to work remote but at the same time trying to balance everything. Then there are the laid off employees who are suddenly left with no benefits and no income.

Purpose Statement

Entire industries are at risk of collapse if they cannot adapt to the new normal that the pandemic has created. The purpose of this research proposal is to analyze if a virtual revolution is the key to economic success. We aim to study the post pandemic world and help define advancement in technologies that will help businesses evolve and prevent total economic collapse. Survival of our global economy affects the entire workforce and deserve to be studied.

In the first quantitative phase of study, we will collect data from the Office for National Statistics. Data used from remote workers before and during the pandemic lockdowns will help us determine if remote working is becoming more widely accepted.

The second qualitative phase will explain the data's results. We will look into the medical industry and some of the government regulations that have been lowered in order to adapt to the technology advancements that have allowed to industry to keep operating.

Research Questions

This study will aim to seek if remote working and virtual environments are a long-term solution for the impact that the virus has had on businesses and industries throughout the world. How can industries adapt and evolve in a post pandemic world? We realize the business world is an ever-changing environment, so that poses the question: what kinds of changes will provide positive impacts?

We will examine if the Pandemic is pushing us closer or farther away from a technological revolution. In times of wars or natural disasters, opportunities for change are accelerated. With the advancement of smart technology and the need to reduce human interaction, we stand on the brink of a virtual revolution.

Significance of Study

The significance of this study is to research the far-reaching implications of life during and after lockdowns. We will examine some of the best solution for moving forward. We aim to analyze the success of remote first companies and focus on how organizations will adjust their workplace strategy. Are remote operations fueling the future of economic survival during this unprecedented time? Much will depend on the practicalities of remote working, for some industries, it's not an option.

Assumptions, Limitations, and Delimitations

Assumptions. Assumptions within the study include that the pandemic has taken a large toll on the lives of many, including businesses. Our study will assume that many

of the current changes caused by the pandemic will continue in the future, such as digital living. Additionally, we will assume that the study's results will reflect the feelings of the public.

Limitations. There may be some limitations within our research. In order to get a refined conclusion, our survey has to have a refined, solid purpose. Our research question and problem might not be as clear and if our means of research are unclear and disconnected from the study, our study will be limited.

Delimitations. Delimitations would include our research questions, our methods, research problems, and our research purpose. These are all aspects of the study that we have control over. If we do not have these aspects, and they are not clear or misunderstood by the researchers, we will have a limited study.

Mixed Methods Justification

When choosing mixed methods as our research approach, we knew that we wanted to use both quantitative and qualitative methods to tell a complete story. Mixed methods are especially useful in understanding contradictions between quantitative results and qualitative findings. Since we are looking into many different business, industries, and organizations, we also chose mixed methods to give a voice to study participants and ensures that our study findings are grounded in participants' experiences.

Chapter 2: Literature Review

Introduction

We present a broad view into e-commerce, medicine, tourism, small business, and the supply chain that feeds into them. We examine the necessity of emerging technology through a 4th industrial revolution and study how remote working, virtual environments and telehealth are fueling the future of economic survival during this unprecedented time.

Conceptual Framework

This proposal was written under the transformative worldview. We will focus on the solutions of our research and a great deal of importance of the need for change. Our transformative worldview will help us determine industry changes fueled by our quantitative and qualitative research methods. This research contains an action agenda for reform that may change lives of the participants, the institutions in which individuals work or live, and the researcher's life.

Tracking the Disruption

Several sources are reviewed to understand the impact that the coronavirus had on the most affected industries to date. The analysis shows a consistent theme: the most impacted industries experienced the most decline from February to mid-June, then a sharp improvement to mid-July and a plateauing throughout August.

Danny Haydon, an intelligence contributor from S&P Global Market Intelligence, conducted research on the industries least and most affected by the pandemic. His work is extremely helpful for anyone wanting to examine the historical view and the negative impact on supply chains that has disrupted so many industries around the world. Haydon explains that “we saw a plateau in the probability of defaults (PD) toward the end of March.

This plateau continued into the summer months, declined and then picked back up in a second increase that coincided with a second wave of virus infections.” (Heldon, Danny, 2020).

Airline Industry

Air transport is a small but important part of the economy. According to the OECD STAN database, the air transport sector only represents 0.3% OECD countries’ value-added but has a much stronger inter-industry linkage with both upstream and downstream sectors make it an important part of the economy. Air transportation enables several economic activities by way of trade in goods and especially in services through the movement of natural persons. When the Airlines suffer, it leads other industries to suffer at its expense.

Travel restrictions and the ensuing economic crisis have resulted in a dramatic drop in demand for airline services. According to IATA, passenger air transport measured as revenue passenger kilometre was down 90% year-on-year in April 2020 and still down 75% in August.

The industry remains exposed to a possible resurgence of the pandemic, as governments may impose new air travel restrictions to tackle flare-ups or a potential second wave of infections. This may threaten the existence of some firms in the industry, as production and revenues are likely to remain inferior to pre-crisis levels for some time.

Restaurants

It has never been easy to make money in restaurants but add in a global pandemic and you have a real problem. The restaurant industry is unique in that 70% are independent owners and operators, so the restaurant industry itself is predominantly small business owners.

The average restaurant's annual revenue hovers around \$1 million and generates an operating profit of just 4-5 percent. When a pandemic forces a restaurant to close, their revenue drops to zero overnight. Unlike the oligopoly of the airline industry, restaurant owners remain largely unaddressed by government programs designed to help small businesses.

At the beginning of the pandemic, 40 percent of America's restaurants were shuttered and 8 million employees out of work—three times the job losses seen by any other industry. The number of diners in June remained down more than 65 percent year over year, and the National Restaurant Association projected an industry revenue shortfall of \$240 billion for the year. The restaurant industry that emerges from the global pandemic will likely look fundamentally different from the one that existed in early March.

How did it deteriorate so quickly? Restaurants are labor intensive. Labor is required to both produce food in the kitchen and serve to consumers in the dining area spending about 30 percent of their revenue on labor. With increasing focus on fair wages and legislated wage increases, restaurants may easily exceed that average. Most restaurants had only two to three weeks of operating reserves and those reserves were quickly exhausted. With no end date in sight of mandatory closures, owners moved quickly to furlough or layoff almost all staff, maintaining skeleton crews.

The National Restaurant Association said the industry was in "free fall," with more than 110,000 restaurants closing since the start of Covid-19. In these desperate situations, Chefs, restaurateurs, bartenders, and sommeliers have been rethinking the way restaurants can work from dynamic outdoor dining situations to take-away dinners and

touchless service. They're the changes that have made a bad situation better, creating alternative revenue streams for owners and providing new ways for customers to experience their favorite places.

Hudson Riehle, senior vice president of the research and knowledge group at the National Restaurant Association said that the industry prior to the coronavirus, one out of 20 orders were done digitally. Now, one out of five orders are digital. Technology offers a real competitive advantage to generate additional incremental restaurant sales demand and consumer's acceptance of technology is definitely growing as the months pass by," Riehle said.

Sean Peak of Good Company explains how A few restaurant owners have been able to successfully pivot by sparking some incredible innovation. The Cookie Cups came up with a plan: creating cooking kits that could be shipped nationwide, the spin however, that these kits were geared toward families with small children. The kits included a Unicorn Cookie Cup Baking Kit and Pizza Making Kit, sold online, nationwide. By pivoting and using tools available to them, The Cookie Cups has expanded its geographical footprint.

Another pivoting restaurant is Chicago's Frontier. Pre-pandemic, the restaurant was in person dining only. In an act of desperation, Brian Jupiter developed take home meal kits for customers to eat at home which quickly became about 70% of Frontier's revenue. The restaurant also started offering virtual meal kits. This is a perfect example of innovation and a way to stand out from competition.

While some creative restaurant owners have been able to find success for themselves during the pandemic, the industry as a whole is still far from pre-pandemic numbers. Recovery will be an uphill battle with a loss of about 240 billion in 2020.

Tourism and Hospitality

Ishmael Mensah, the Associate Professor at the Department of Hospitality and Tourism Management for University of Cape Coast explains how the tourism industry has always been one of industries hardest hit by pandemics and crises. “Throughout history, the industry has borne the brunt of major pandemics and plagues, notably, the Black Death (1346-1353), Spanish Flu (1918-1920), SARS (2002-2004), H1N1 Swine Flu (2009-2010) and Ebola Virus (2014-2016). “He explains that, “the swine flu pandemic led to the Mexican tourism industry alone losing almost a million overseas visitors over a five-month period which translated into losses of about US\$2.8 billion.”

The American Hotel and Lodging Association's State of the Hotel Industry 2021 report found that the pandemic brought hotel occupancy to a historic low of 24.5% in April 2020. Annual occupancy in the United States fell to roughly 44% for the full year. Additionally, the total number of rooms occupied fell by 458 million from 2019 figures.

A survey of hotels on financial crisis again conducted by the American Hotel & Lodging Association states that 71% of hotels won't make it another 6 months without further federal assistance given current and projected travel demand. 77% will be forced to lay off more workers. More than one-third of hotels will be bankrupt or be forced to and nearly 4 million hospitality jobs were lost in 2020 due to the pandemic.

In 2019, Italy was the fifth most visited country in the world, with 94 million foreign tourists. In 2020 it registered 55% less admissions. Although Italy was the first

western country to discover they had spreading cases, the pandemic's rapid spread slowed down after just a few weeks. This allowed much of the country, in particular central, Southern and the island regions of Italy to be less affected. As soon as the borders reopened, tourist were ready to visit in no time.

Maria Giovanna Argiolas, a customer success expert for revenue-hub explains the “growing demand for contactless solutions during the travel experience. “She explains “This is sought after not only for payment but also, for example, for check-in and check-out. This will likely also lead to the need for new levels of security for digital services and identity protection.” Maria predicts that we will see the further spread of online concierge solutions and robots, already present to a lesser degree before the pandemic.

Zain Jaffer with Zain Ventures explains that the pandemic has accelerated the tech adoption in the hotel industry. “Smart technology can help hotels overcome barriers by using digital labor as the first line of defense. By using app platforms to track spaces used by guests, they can ensure a thorough sanitation before their next use. App platforms can show management where guests have been and guests can receive notifications when their room has been cleaned, with specific details regarding sanitation practices available at their fingertips. Zain elaborates “Smart tech makes it possible to execute new health and safety protocol without needing more staff or impossible capital. The sector is already changing to adopt new long term tech strategies, and vendors are racing to be the smart solution of choice.”

From product design to virtual checklists, many tech vendors have stepped up to offer their services in technology to solve the post pandemic needs of the hospitality industry.

The environment

The monumental loss on the tourism and hospitality industry could be the environment's gain. There has been such a concomitant fall in greenhouse gas emissions that we can see the improvement from satellite images around the world. Emissions fell by 25% in China when factories were shut, and cities were on lockdown. The use of coal fell by 40% in the six largest power plants in the country. While there is a lot of panic about the pandemic, nature is undergoing a healing process. We could see long-lasting positive environmental change, but it's all down to how we move on after lockdown.

Telehealth

Traditionally, people that need a doctor's appointment have been able to walk-in and make one when necessary. However, because of the unique effects of the corona virus, that pleasure has essentially been taken away. To protect healthcare workers, there have been several changes to the healthcare industry. For instance, because of the pandemic, appointments are encouraged to be made remotely. Similar to an online college course, doctors are now able to see patients remotely. Telehealth is a new, emerging industry caused by the Covid-19 pandemic. Authors of a recent study explain that telehealth has its pros and cons: "The reported benefits of telehealth have focused on cost, choice, and convenience." (Fisk, Livingstone, 2020) They also argue that even though these telehealth services are convenient, "telehealth did not "seem to be a cost-effective addition to standard support and treatment." (Fisk, Livingstone, 2020) The purpose of health centers going remote is to help prevent the spread of Covid-19, but also it helps curb the spread of other illnesses too. The authors convey that many of these traditional health offices are causes for many to get sick from others because people go in

and get in contact with others. “the delivery of services in bricks-and-mortar campuses and clinics,” where infection transmission is too easily facilitated, could be loosened and even make such institutions “largely unusable” (Fisk, Livingstone, 2020) Telehealth, like many other industries that went remote, is here to stay in large part to its benefits and convenience.

Ecommerce

There were several industries that were negatively impacted by Covid-19, such as the tourism industry. However, one could make the argument that the Covid-19 pandemic actually boosted several industries, including Ecommerce. In the last 20 years, Ecommerce has emerged as one of the most popular business trends. According to authors from Romania, “Electronic commerce, abbreviated as ecommerce, represents the economic activity of buying and selling products and services through online platforms.” (Pantelimon, Georgescu, 2020) This study looks into Electronic and Mobile commerce before and during the Covid-19 pandemic, and how it relates to the GDP of certain nations heavily affected by the pandemic. The Covid-19 pandemic caused many businesses to shut down, and people to work from home. While many retail businesses were negatively impacted, businesses that have a strong e-commerce presence thrived. Demand for Consumer-Packaged Goods (products that are replaced frequently) increased from 8-10% because of consumers buying online during the pandemic. The authors also present a graph that displays “corona virus global online traffic impact as of April 2020, by industry” that shows what kind online traffic certain industries were generating during the pandemic. The e-commerce boom of 2019-2020 will most likely be a trend that stays in the future.

Digital Labor

More and more challenges are arising for businesses around the world. For the health and safety of employees, it is essential that if they feel symptoms or are exposed to the virus, they stay home and take the necessary precautions. This has caused more businesses to invest in digital labor. Digital labor can be defined as “Digital labor is work that is performed by robotic process automation (RPA) systems. The digitization of labor is being facilitated by technologies such as cloud computing, social media, big data, mobility, data analytics and machine learning.” (Francesca Sales, 2016.) RPA systems take out the need for IT specialists and save the company money because they integrate multiple systems and can adapt to the scenarios presented to them. Digital labor is another solution to many problems presented by this pandemic.

Technology advancements

Technology has driven many aspects of life for the last century. Rapidly improving, technology has made life easier for millions around the world. Cars, computers, ubiquitous internet, robotics, and countless examples have advanced the standard of living and will continue to do so. Late 2019 and 2020 have not been different than years past in regard to technological advances. Typically, vaccines take anywhere from 10-15 years to develop. However, due to the severity of the Covid-19 situation, and available technology, a vaccine was developed in 1 year. “The mRNA1273-COVID-19 vaccine has set a record time by reaching trials (NCT04283461) in only 69 days after the identification of the SARS-CoV-2 as the causative agent of the current outbreak.” (Kim, Dema, Sandoval, 2020.)

Conclusion

In conclusion, our research study will examine if remote working could lead to widespread, sustained acceptance in a post pandemic world. We will also exam how organizations are adjusting their workplace strategy by incorporating technology. We will also try to predict if remote operations are the main change fueling the future of economic survival during this unprecedented time.

Definition of Terms

Within this research proposal, it is important to understand several terms that relate to our topic. COVID-19 refers to the corona virus disease that broke out in 2019. There have been approximately 99.1 million recorded cases world-wide, 25 million cases in the United States. The corona virus pandemic roughly began in October of 2019 and quickly spread around the world throughout 2020. Because the virus is very easily spread, people have been advised to wear masks around others and to socially distance themselves at least 6 feet. Social distancing refers people staying away from other people to help prevent the spread of disease, namely the corona virus. Because saliva and germs can travel up to six feet after leaving the nose or mouth, it is advised that people social distance themselves at least six feet away from others. These COVID-19 provisions have caused several lockdowns throughout the year, especially early on in the pandemic. Early on in the pandemic, when little was known about the virus, many businesses had to shut down (depending on what state they were in) and many places had to limit the number of customers in the store at one time. These provisions put a damper on many brick-and-mortar stores and small businesses. These state laws that constantly change during the

pandemic are a big reason why many businesses have had to adapt, struggle, and even close permanently, especially hurting small businesses. In addition, the pandemic has defined some as ‘essential’ workers. This refers to, for example, energy workers, childcare, water and wastewater, construction, doctors/nurses, and critical retail such as grocery. Another term that this study will look at is PPP loans. This term refers to the Paycheck Protection Program, which is designed to provide forgivable loans to small businesses during the pandemic.

References:

Phillips, Stephen. “Working through the pandemic: Accelerating the transition to remote working.” Sage Journals. 1 Sept 2020. Web. 27 Jan 2021.

<https://journals.sagepub.com/doi/full/10.1177/0266382120953087>

Maese, John R. MD, MACP. “Perspective: What a Difference a Disaster Makes: The Telehealth Revolution in the Age of COVID-19 Pandemic” Sage Journals. 11 June 2020. Web 27 Jan 2021.

<https://journals.sagepub.com/doi/full/10.1177/1062860620933587>

Schwab, KLAUS “Fourth Industrial Revolution: what it means, how to respond. “World Economic Forum. 14 Jan 2016. Web. 27 Jan 2021.

Cristina-Andrada BABA, Aurelia-Felicia STĂNCIOIU, Manuela Rozalia GABOR, Florin-Alexandru ALEXE, Flavia Dana OLTEAN, & Alexandra Cristina DINU. (2020).

Considerations regarding the effects of COVID-19 on the tourism market. *Theoretical and Applied Economics*, XXVII(3), 271–284.

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of business research*, 117, 284–289.

<https://doi.org/10.1016/j.jbusres.2020.06.008>

Fairlie, R. (2020). The Impact of COVID-19 on Small Business Owners: The First Three Months after Social-Distancing Restrictions. doi:10.3386/w27462

Anam Bhatti¹ , Hamza Akram² , Hafiz Muhammad Basit³ , Ahmed Usman Khan⁴ , Syeda Mahwish Raza Naqvi⁵ , Muhammad Bilal⁶ (2020) E-commerce trends during COVID-19 Pandemic *International Journal of Future Generation Communication and Networking* vol 13. 1449-1452

Rejeb, A., Rejeb, K., & Keogh, J. G. (2020). Covid-19 and the Food Chain? Impacts and Future Research Trends. *LogForum*, 16(4), 475–485. <https://doi->

[org.schreiner.idm.oclc.org/10.17270/J.LOG.2020.502](https://doi-)

<https://www.iata.org/en/iata-repository/publications/economic-reports/air-passenger-monthly-analysis---apr-20202/>

Haydon, Danny. "Industries Most and Least Impacted by COVID-19 from a Probability of Default Perspective." S&P Global Market Intelligence. 21 Sept, 2020. Web. 25 Nov 2021.

<https://www.spglobal.com/marketintelligence/en/news-insights/blog/industries-most-and-least-impacted-by-covid19-from-a-probability-of-default-perspective-september-2020-update>

Kaufman, Michael S. "Restaurant Revolution: How the Industry Is Fighting To Stay Alive." Forbes. HBS Working Knowledge. 10 Aug. 2020. Web. 23 Jan. 2021.

<https://www.forbes.com/sites/hbsworkingknowledge/2020/08/10/restaurant-revolution-how-the-industry-is-fighting-to-stay-alive/?sh=118ae720f1eb>

Peak, Sean. "5 Restaurant Industry Pandemic Pivots" Good Company. Growth Studio. 5 Nov. 2020. Web. Jan 20 2021.

<https://www.uschamber.com/co/good-company/growth-studio/restaurant-industry-pandemic-pivots>

Littman, Julie. "7 months later: Where the restaurant industry stands." Restaurant Dive. 13 Oct. 2020. Web. 21 Jan 2021.

<https://www.restaurantdive.com/news/7-months-later-where-the-restaurant-industry-stands/586860/>

Krader, Kate. "Restaurant Industry Changes I Want to Keep After the Pandemic"

Bloomberg. 18 Dec. 2020. Web. 10 Jan 2021.

<https://www.bloomberg.com/news/articles/2020-12-18/restaurant-industry-changes-i-want-to-keep-after-the-pandemic>

Mensa, Ishmael. "Unpacking The Impacts Of COVID-19 On Tourism And Repackaging

The Hotel Service" HospitalityNet. 13 May 2020. Web. 21 Jan 2021.

<https://www.hospitalitynet.org/opinion/4098657.html>

Lardieri, Alexa. "Coronavirus Pandemic Sets Hotel Industry Back 10 Years, Report

Finds" U.S. News & World Report. 27 Jan 2021. Web. 31 Jan. 2021

<https://www.usnews.com/news/national-news/articles/2021-01-27/coronavirus-pandemic-sets-hotel-industry-back-10-years-report-finds>

Argiolas, Maria G. "The Impact of Covid-19 on the Italian Hospitality Market." Revenue

Hub. N.D. Web. 21 Jan. 2021.

<https://revenue-hub.com/the-impact-of-covid-19-on-the-italian-hospitality-market/>

Gursoy, Dogan. "Effects of COVID-19 pandemic on hospitality industry: review of the

current situations and a research agenda" Taylor & Francis Online. 5 Jul 2020. Web. 12

Jan 2021.

<https://www.tandfonline.com/doi/full/10.1080/19368623.2020.1788231>

Jaffer, Zain. "How COVID-19 has accelerated tech adoption in the hotel industry"

Hotel Management. 8 Jan 2021. Web. 27 Jan 2021.

<https://www.hotelmanagement.net/tech/how-covid-19-has-accelerated-tech-adoption-hotel-industry>

Jaffer, Zain. "Impersonally personal: Guest connection through technology" Hotel

Management. 4 Sept 2020. Web. 27 Jan 2021.

<https://www.hotelmanagement.net/tech/impersonally-personal-guest-connection-through-technology>

Pantelimon, F., Georgescu, T. M., & Posedaru, B. (2020). The Impact of Mobile e-Commerce on GDP: A Comparative Analysis between Romania and Germany and how Covid-19 Influences the e-Commerce Activity Worldwide. *Informatica Economica*, 24(2/2020), 27-41. doi:10.24818/issn14531305/24.2.2020.03

Fisk M, Livingstone A, Pit SW

Telehealth in the Context of COVID-19: Changing Perspectives in Australia, the United Kingdom, and the United States

J Med Internet Res 2020;22(6):e19264

Sales, F. (2016, February 29). What is digital labor? - Definition from WhatIs.com.

Retrieved from <https://searchcio.techtarget.com/definition/digital-labor>

Kim, Y.C., Dema, B. & Reyes-Sandoval, A. COVID-19 vaccines: breaking record times to first-in-human trials. *npj Vaccines* 5, 34 (2020). <https://doi.org/10.1038/s41541-020-0188-3>

