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Abstract

The past 3 years have been unkind towards humanity, with the birth of the novel COVID-19 pandemic crisis. The crisis has destroyed enormous number of human lives and proved itself as one of the major disruptors towards modern International Business after the Great Financial crisis of 2007. There has been numerous amounts of literature and research donated to this crisis from an international level. Research from a nationwide level with distinction between developed and developing nations was limited in the academia. This research paper tries to fill in that gap by studying how the developing nation of India responded to the COVID-19 crisis from an Industrial level. The topic of resiliency has been receiving greater attention after the crisis due to the various benefits and insight it holds towards disruptions. This research paper would take advantage of the topic of resilience as a measure to analyze the various response measures taken. The research project follows a multiple case study approach analyzing five different industries from India selected through various filters. Secondary data would be presented from a single company from each industry to be analyzed. Each company would be analyzed to what level of capital, strategic, relationship and learning resilience it holds. Finally, all the different levels of resilience are compared and overall learnings from the industries are showcased.

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1 Introduction

Over the last two years, the COVID-19 pandemic has dawned various avatars across the modern global economies. For some, it is portrayed as a destroyer, obliterating everything and everyone in its path, but for others, it is merely an opportunity to be seized for their personal and professional growth. The pandemic crisis has been a wake-up call to all major global industries to realize whether the opportunity cost seized from operating cost minimalization is worthy enough to offset the lack of resources on risk mitigation and business continuity. Moreover, in a short period of time, the pandemic crisis managed to conjure up on the biggest trick of all time on the global economy. The modern economy takes enormous pride in the interconnectedness of the whole world. The term supply chain management would be less prevalent without the previously stated advancement in the 21st century. Something that has been considered by the modern economists as one of the major strengths to be acquired by any organisation has been turned in to a weakness by the crisis (AIMS education, 2020).

In the wake of the COVID-19 pandemic crisis, the global travel revenue estimated a loss of $-810.7 billion and the rate of unemployed individuals jumped from 187 million to 220 million in 2019 and 2020 respectively (Statista Travel Spending, 2020) (Statista Unemployment, 2021). Moreover, according to the article from world bank, 25% of all companies saw a 50% decline in sales with an average sales decline of 21% globally (The World Bank, 2021).Furthermore, to add more misery on an otherwise cataclysmic event, the Financial Times Stock Exchange FTSE dropped by 14.3% in 2020, which is widely regarded as one of the worst of its performance since the financial crisis of 2008 (BBC, 2021). Finally, to make matters even worse, it was estimated that the global economy shrunk by 4.4% in 2020, which is a historical first ever since the great depression of the 1930s (BBC, 2021).

The Crisis has introduced the global economy with various atrocities in all sectors of the society as mentioned earlier but not all statistics are turning out to be that grim. There have been major recoveries recorded from various parts of the globe after the harsh full impact of the pandemic. By the end of 2020, major developed economies have already recovered their respective economies and the Gross Domestic Product (GDP) has fallen back to the aggregates before the crisis. Moreover, Multi-National Corporations (MNCs) have managed to be less effected by the crisis as MNCs like Amazon, Microsoft, Apple, Tesla and Tencent are recorded to be the respective top five rank holders in the most equity value added in 2020, at a record high of 401.1$ billion for Amazon and 93.1$ billion for Tencent. Furthermore, the top four industries that prospered in 2020 are pharma, cloud computing, ecommerce, and gaming respectively (Braithwaite, 2020).

The Crisis also sparked a motivation in the influx of new studies from various scholars around the topic of resilience. Furthermore, it has been recorded that an exorbitant amount of more than 87,000 scientific papers regarding COVID-19 were published in late 2020 after the pandemic (Ohio State News, 2021). Although from this number, only a fraction falls under the business context. A majority of this investigates the crisis from an international perspective rather than localized approach. In simpler terms, there exists a vast array of knowledge for how developed nations have dealt with the crisis but the same cannot be said for developing low-income nations. The level of research diminishes even further when the perspective is enhanced from a group of countries to a country wise investigation. Although this level of investigation is laborious and time consuming, understanding problems from a smaller perspective can in turn give the larger space more meaning, this ideology would be further discussed in brief in the philosophy of science section of the research paper.

This research paper tries to provide necessary knowledge on how the effects of COVID-19 were dealt by the leading industries in a developing country and measure the amount of resiliency in each of the industries. For this study, India is selected as the developing country due it to the following main motivators. Firstly, the diversity of the Indian economy also molded the types of different industries within the country and that makes the research much more meticulous and briefer. Secondly, it can be argued that India remains to be one the worstly affected countries by the pandemic, this is evident from -7.25% nosedive in Gross Domestic Product (GDP) that the Indian economy took in 2020. Thirdly, India bounced back miraculously to 9.5% in GDP after 2020 and these big fluctuation in the GDP can point the research in the direction of what went wrong and how were they rectified (Statista GDP India, 2021).

1.1 Research Question

Do the response measures taken by Indian Industries towards the effects of the COVID-19 pandemic crisis show resilience?

1.2 Important dates of the COVID-19 timeline in India (2020-2021)

2020 (The Indian Express, 2021)

- On January 30, India marked its first covid patient, reported from the southern state of Kerala.
- On February 5, the cancelation of exiting visas for Chinese and other foreigners who had visited China in the past two weeks have been declared in India.
- On February 11, the novel coronavirus was given the name COVID-19 (SARS-CoV2) by WHO.
- On March 11, The Covid-19 Virus spread was declared as a pandemic by the WHO.
- On March 22, the Prime Minister of India instructed a 14-hour voluntary lockdown term as 'Janata Curfew' to the masses.
- On March 25, the country entered a nationwide lockdown until April 14.
- On March 27, the Reserve Bank of India (RBI) released various policy changes and loan payment relaxation to the economy.
- On April 24, the Lockdown is extended until May 3.
- On May 1, the home minister of India, extends the lockdown to two more weeks with zone-wise restrictions and categorizing districts to red, orange, and green zones based on the severity of the pandemic spread.
- On May 17, the Home Ministry of Affairs of India, extended the lockdown till May 31 with further relaxations regarding movement between the states.
- On June 8, Slow reopening of various services including malls, hotels, restaurants, and places of worships took place with lowered restrictions.

- On July 15, the first phase of clinic trails for the Indian made COVID-19 vaccine (Covaxin) took place.
- On December 19, India crosses 1 Crore (10 million) in COVID-19 numbers.

2021 (The Indian Express, 2021)

- On January 16, the country begins the world's biggest COVID-19 vaccination programme.
- On March 15, the milestone of 3.15 Crore vaccinations is reached in the country.
- On March 22, the highest ever single day COVID-19 spread was recorder since November.

1.3 Important Acronyms used

- MNC- Multi-National Corporation
- Cr- Crore rupees (10,000,000 rupees) (1 Rupee = 0.014 Dollar)
- Ltd- Limited
- Pvt Ltd- Private Limited

2 Methodology

The methodology section would be divided into different sections. Firstly, the philosophy of science used throughout the project would be explored by understanding the ontological, epistemological perspectives of the research paper. Lastly, data selection methods for the literature review and the data presentation would be explained.

2.1 Philosophy of science

One of the core foundations of any valid research paper is understanding the ontological and epistemological stances made by the researcher. These are the ideologies taken by the researcher which helps in explaining the realities and the source of knowledge used in the entirety of the research paper. Moreover, in the research paper 'An Introduction to Research Paradigms', the authors explain ontology as understanding what kind of a reality exists in the research while epistemology is discussed as understanding the how the source of knowledge for conducting research is selected and validated (Rehman, Adil Abdul, & Khalid, 2006). Various philosophies exist which employs different ontological and epistemological stances, where positivism and interpretivism being the popular ones. These philosophies exist opposing each other in terms of the branch of realities and methods of research employed. The former believes in values of existence of a natural world, disregards human involvement and effects of natural laws. While the latter is founded on the premises of the over domination of the positivism philosophy and so opposes all the ideologies employed by the same.

When the content of the research paper is analyzed, it is quite certain that there exist different branches of philosophy throughout. This is due to the fact that the research paper follows a mixed version of philosophy namely, functional-constructivism paradigm. This paradigm is a combination of two different ideologies. The ontological side of the paradigm focuses mainly on cognitive ideals and individual behaviors and experiences while the epistemological stance focuses on the individual understanding of the natural world through various other social factors and validations. This paradigm is selected due to several reasons. Firstly, the paradigm believes in the importance of an individual in a society, and how the individual is impacted by the effects of the society. This ideology gives meaning to the research of single companies from different industries of country and how the different social elements of the country has impacted the company and thereby their industry. Secondly, constructivism focusses on social aspects of the world and so prefers qualitative research, which is the opposite of the functionalism philosophy, which gives respect to quantitative research. This gives the research paper the choice to conduct research through quantitative research and present findings in a qualitive manner (Kuada, 2012) (Amineh, & Asl, 2005).

2.2 Research Design

The research paper follows a multiple case study approach with a mix of qualitative and quantitative research. The multiple case study approach is utilized in this research paper in order to provide an overview of the various industries that would be analyzed. In the data presentation section, quantitative data is presented. For making the research paper more conclusive and efficient, the discussion section measures the quantitative as well as makes qualitive assumptions from the data. Finally in the conclusion, the data is presented in a qualitive interval level estimation including the values of low, medium, and high.

2.3 Data selection

Various methods were used in term of selecting data for the section of literature review and data presentation. In the literature review, a mix of pearl paper analysis and preferential selection is used to derive a sum of 16 research papers for reviewing the literature. Firstly, the pearl paper approach was selected due to a limitation of key words and the term 'resilience' brough about a huge amount of literature from public scholarly literature domains like google scholar and Scopus. The research paper (Linnenluecke M. K., 2017) was selected as a pearl paper due to several reasons being, a huge number of citations of the research paper and the lengthy bibliography included in it. A sum total of 12 amount of research papers were selected from the pearl paper by filtering through various aspects like definition, types, merits and demerits, drivers and usages. The preferential selection method was utilized to review extra data on the topic of resilience in regard to recent events like COVID-19 pandemic and give more data towards other aspects of the topic that was mentioned in the research paper.

In the data presentation stage, the selection of data was made possible through the reliance of secondary data. This was mainly through sources from reputable news broadcasting websites. The multiple case studies were selected through a series of processes. Firstly, various sources reported on the list of industries in India which got effected badly from the COVID-19 crisis, these were analyzed and selected (India Today, 2021). Secondly, each industry was researched about online and among the list of companies that reside under each industry, only one is selected per industry. This selection was through using the filters of increased market capitalization and being an Indian born company, which excluded various Multi-National Companies which were headquartered in India.

Lastly, the various financial and qualitative information regarding each company was sourced from it's own corporate websites and other news broadcasting websites.

3 Literature Review

3.1 Resilience

The term Resilience is both a multifaceted and multidimensional concept holding various definitions, depending on the context that is placed into (Burnard & Bhamra, 2011). The literature review would venture through the various important definitions picked from different fields of research. Afterwards various theories and applications along with the drivers concerned in the field would be discussed. Within this section, various historical events would be highlighted which strengthened the importance of the concept. There would also be a brief explanation of resilience concerned with its components and finally would end with the impact of the COVID-19 pandemic in a global scale.

3.2 Definition

Throughout the vast depths of research on the topic of resilience, the two popular definitions which has been discussed the most within the literature are of Staw and Meyer. These definitions are considered as the origination of the resilience concept in business and managements. While both the definitions take influence from the variation-selection-retention mechanisms discussed in the evolutionary theory by Campbell, they differ in response of external threats of organizations (Linnenluecke, 2017). Staw's definition focuses more on rigidity which portraits resilience as leaning towards a more educated dominant response, for maladaptive outcomes when faced under various conditions of threat (Staw, Sandelands, & Dutton, 1981). On the other hand, Meyer's definition, which was formed after conducting an empirical study on the threats faced by a hospital for doctor's strike and environmental jolts, he came up to the conclusion that Resilience is a matter of absorbing the impact of environmental jolts and undergoing first order change and single-loop learning. Meyer further labelled the term retention which learns new practices through second order change and double-loop learning (Meyer, 1982).

Resilience in the modern context exists in various other fields other than business and management. In the field of engineering, resilience is referred to as "the tendency of a material to return to its original shape after the removal of a stress that has produced elastic strain". Moreover, ecological science defined the term resiliency as the capability of an ecosystem to bounce back from a disturbance while considering the diversity, integrity, and ecological processes (Burnard & Bhamra, 2011) (Pettit, Fiksel, & Croxton, 2010, p. 3).

From its inception, the concept of resilience is more widely discussed in the field of organizational systems and supply chain management. Organizational resilience can be defined as adjusting positively to various challenging conditions, which results in the organisation coming out to be more resourceful and stronger (Pettit, Fiksel, & Croxton, 2010). On the other hand, Supply chain resilience refers to the ability of a supply chain to rebound to the performance efficiency before it has been disrupted by an event within a reasonable period (Brandon-Jones, Squire, Autry, & Petersen, 2014). These fields of research would be further discussed in the later sections.

One thing evident from all the definitions explained within this section is that all of them have acceptable common traits but differ in its conceptualization and operationalization (Linnenluecke M. K., 2017).

3.3 Drivers

Although resilience holds major factors that govern how resilient strategies are framed, there exists only one driver that motivates these factors, this is risk. In the initial stages of resilience development, Risk included unexpected High-Impact Low Probability (HILP) events and abrupt changes which includes naturally occurring disasters, economic downturn, industrial accidents, fluctuating market conditions, legal and regulatory conditions, fluctuating customer demands, scandals, and terrorist attacks. but in the modern context, the term risk is much wider (Burnard & Bhamra, 2011) (Linnenluecke M. K., 2017).

The term Risk has undergone various interpretations through time in numerous literatures but the one that has been cited the most is where risk is the "variation in the distribution of possible outcomes, their likelihoods and their subjective values". This definition is a variance-based definition developed in the classical decision theory (Christopher & Peck, 2004, pp. 3-4). Moreover, throughout the academia, the words risk, and uncertainty are considered one among the same entity, but that is hardly the truth. Uncertainty focusses more the possibility of a list of events that may occur in the future but hinders in predicting their relative likelihoods but in this context, risk targets the relative probability of a single event that might take place in the future (Burnard & Bhamra, 2011).

In the modern economy, globalization brought more challenges in the field of Risk Management than benefits. The vast linkages within a supply chain makes it harder for emergent risks of disruptions to be visible and the potential impacts of these disruptions would not be able to be assessed in time, which results in 'Black Swan' events. These events can only be measured and understood after it has occurred (Fiksel, 2015). These emerging risks may arise from any of the process or parts of the supply chains which includes but not limited to manufacturing, sourcing, inventory level, employee conditions, digital security and financial strength (Pettit, Fiksel, & Croxton, 2010).

Risk management strategies before resilience existed in two phases. In the beginning were traditional risk management strategies which highlighted more on the aspect of stability and motivated large private enterprises to seek insurance against early geographical and economic disasters (Fiksel, 2015). The next phase introduced a much more well intricately constructed approach of Enterprise Risk Management and Business Continuity Management in the mid-1990s which was widely implemented by large corporations. The former provided an insight for the managers to have a detailed and well-constructed look in various risks with different business activities which led them to make more informed choices while the latter highlights the response measures when faced with a disruption and compile backup measures for operational systems (Fiksel, 2015). These strategies are unproductive in the fields of assessing the complexities of supply chains and formulating the various intricate unpredictable threats (Pettit, Fiksel, & Croxton, 2010). A negative side towards these risk management strategies are the use of historic data. Since the supply chain management overlooks the sectors of supply, products, demand and information, it would be time consuming and a misuse of resources to analyze each sector for every possible disruptive cause (Christopher & Peck, 2004).

The resilience concept holds its validity in the modern context mainly though the support of the Risk Management topic and the evolution it has gone through ever since the term's inception. The birth of Risk management can be traced back to the 1980s where large scale disasters like Chernobyl, Exxon Valdez, Bhopal gas tragedy and the space shuttle challenger incident shifted the flow of academic research from the cause and consequences to how small failures within organizational processes can escalate into high consequence events (Linnenluecke M. K., 2017). Even though these event kickstarted the topic of risk management, it was the tragic event of the 9/11 attack of 2001 that exposed the vulnerability of the interdependency of supply chain networks. This event effected the airline industry the hardest among all the other industries (Gittell, Cameron, Lim, & Rivas, 2006). The consequent effect it had on the literature came in phases, in the beginning the research was more focused on how companies and large organizations had to adapt, adjust and re-formulate their business models in accordance with the fluctuating nature of the environment. The next stream of research concentrated more on strengthening the supply chain designs and making it much more resilient to vulnerabilities as well as constructing resilience within the organisation through employee strengths and managerial control (Linnenluecke M. K., 2017).

The concept is constantly evolving and with the spread of the COVID-19 pandemic, the importance of adopting resilient strategies shifted from being an optional measure to a necessity (Mena, Karatzas, & Hansen, 2022). This particular disruption would be discussed in the end of this review.

3.4 Theories and frameworks

Normal Accident Theory:

It is considered as the first important contributions towards the field of resilience. Perrow considered resilience as reliability and stated that since high-risk technological systems are increasingly getting more complex and difficult for employees to operate, they pose as the most vulnerable to failure (Perrow, 1984). The theory came under the critique that since most functions are dependent on technology, all major accident would be automatically the cause of a technological issue and thereby the uncertain element within the accident is not valid (Linnenluecke M. K., 2017). But the theory acted as a steppingstone for the emergence of 'reliability paradigm' which put forth two strategies, in determining and avoiding potential threats, namely anticipation and resilience. These includes analyzing vulnerabilities and avoiding upcoming disruptions and then adapting to these unpredictable disruptions and then learning to rebound (Linnenluecke M. K., 2017).

High Reliability Organization:

HRO was created as a part High Reliability Theory to highlight the aspects of safety and reliability in the forefront and focusses on attaining medium and long-term goals over short-term efficiency gains. The origination HRO have similar backgrounds to that of Normal Accident Theory which is dealing with dangerous technologies (Smart, et al., 2003). The theory has been compared with Normal Accident Theory in various academic literature due to the same reason. Although there are some similarities between the two theories, there exist various discrepancies (Linnenluecke M. K., 2017). Some researchers even claim that HRO is considered as an extension of the Normal Accident Theory and both holds blind spots which can lead the organizations being more fragile towards failures (Linnenluecke M. K., 2017).

3.5 Merits and Demerits

Through the academia, there exists various merits for the concepts of resilience. One such merit is giving primary focus on long term goals of an enterprise and allowing the processes to be adjusted in order to hit these goals (Burnard & Bhamra, 2011). Resiliency has also seen to make the flow of information inside an organisation much more transparent, the same also applies to outside the organisation but internal to the supply chain (Brandon-Jones, Squire, Autry, & Petersen, 2014). Moreover, resiliency improves the desirability of the organisation towards shareholders and external investors (Limnios, Mazzarol, Ghadouani, & Schilizzi, 2014).

Contrastingly, being too much resilient holds its own demerits. Firstly, being resilient does not necessarily mean that necessary social welfare conditions are also met. To exemplify further, dictatorships can be considered as highly resilient. Secondly, focusing more on resiliency automatically demands more resources and financial support on crafting these strategies which can be undesirable for the shareholders. Thirdly, resilient strategies can often result in overstocking and wastage of precious resources (Limnios, Mazzarol, Ghadouani, & Schilizzi, 2014).

3.6 Resilience contents

Organizational Resilience:

In the present world with varying number of disruptions arising frequently, an organization's ability to send out the good and services even under these harsh circumstances remains as on the best abilities an organisation can possess. Organizational resilience is defined as the ability of an organisation to survive and withstand various disruptions and continue to bounce back to the period before the disruptions. There are various components that fall under organizational resilience, but the supply chain resilience would be the one discussed in this section due to the importance it holds on to the coming sections of the research paper (Pettit, Fiksel, & Croxton, 2010).

Supply Chain Resilience

The term supply chain was rarely used in the academia, where only a special subset of individuals understood the definition of the term. But with the onset of various supply chain disruptions in the international economic activity, the term became popular among politicians, managers and a wider set of the public (Brandon-Jones, Squire, Autry, & Petersen, 2014). Supply chain can be explained as a discipline which in hindsight opens up an organisation instead of focusing on internal functional self-interest. This makes the organisation much more efficient and appealing to the customers and shareholders. It can be summed up as amalgamating different process or links, starting from the initial supplier to the final customer, where the network of companies that act between the upstream and downstream flow of products, services, finances and information regarding the processes of manufacturing, packaging, transporting, warehousing, and customer service (Christopher & Peck, 2004) (Pettit, Fiksel, & Croxton, 2010). Supply chains are also prone to have disruptions, where the Supply Chain Risk Management assess this risk within the various links and mitigates these disruptions using resilience and robustness. Supply chain Resilience have already been defined in the earlier section of this literature review under the heading definition. Contrastingly, supply chain robustness refers to the ability of a supply chain to be unchanged in its functions while even facing internal and external disruptions (Brandon-Jones, Squire, Autry, & Petersen, 2014). With the advancement of research in the SCR field Supply Chain Visibility has also proved to be an effective tool in the arsenal of Supply chain risk management. Supply Chain Visibility focuses more on the transparency of the supply chain by facilitating the flow of information of inventory and demand level at a given point in time (Brandon-Jones, Squire, Autry, & Petersen, 2014).

Supply Chain Risk are categorized into three categories of risk and five subcategories.

Categories	Sub-categories
Internal to the firm	Processes, control
External to the firm but internal to the Supply Chain Network	Demand, supply
External to the network	Environment

Table 1 Supply Chain Risk Categorization adapted from (Christopher & Peck, 2004)

Supply chains are increasingly showing more disruptions with the advancement of each year. This can be due to the complex and wide nature of the supply chains as well as the cost cutting aspect behind it. All the Multi-National Corporations (MNC) are in a competition to go down in prices and strategizing their supply chains to yield the least amount of cost within the processes. This can be exemplified by exporting manufacturing to China and India were labor is the cheapest. These actions jeopardize the supply chain of the MNC making it much more vulnerable to risks. (Christopher & Peck, 2004) (Fiksel, 2015).

3.7 Resilience in COVID-19 pandemic

The Covid-19 pandemic has transformed into one of the most important crises of this generation, which impacted the trade, tourism, transportation, and health. It has been estimated that crisis will have after-effects, that would continue for a certain amount of year into the future (Fitriasari, 2020). Several research points to the fact that the pandemic has resulted in the end of globalization and also has exposed entities including individuals, firms as well as nations to the vulnerability of modern supply chain (Mena, Karatzas, & Hansen, 2022). This lack of resiliency within the supply chain should be taken into concern and more research on network analysis should be conducted (Golan, Jernegan, & Linkov, 2020). Moreover, the pandemic impacted the supply and demand factors and made it unstable, leading to product shortages and delays due to the extra pressure on logistical systems (Mena, Karatzas, & Hansen, 2022). Further adding to the impacts made by the pandemic in international trade. The Small Medium Enterprises (SME) faced a major blow since implementation of lockdowns and social distancing have hampered the daily sales and destroyed the limited cash flow leading to bankruptcy. Furthermore, researchers point out that, the pandemic would be a sizable impact on achieving the sustainability Development goals of 2030 (Fitriasari, 2020).

Although there has been a spike in the amount of research papers on resilience since the beginning of the pandemic, the area of research on how small scale and large-scale companies have put forth resiliency strategies are left to be desired for (Bryce, Ring, Ashby, & Wardman, 2020). Nevertheless, there has been signs of rebounds from various entities. State policies contributed to the society through loan tax payment relaxations as well as takeover of work or social security costs, which benefited individual as well as companies (Fitriasari, 2020). Moreover, countries which possessed the factors of efficient logistics, healthcare preparedness and high income-levels managed to be bounce back quicker than the countries without (Mena, Karatzas, & Hansen, 2022). In case of medium-large scale companies, adapting and re-formulating their Business Model have stabilized their process with signs of hyper profitability among various companies (Golan, Jernegan, & Linkov, 2020).

The research suggests various measures to be adopted to further stabilize the market and implementing resiliency measure within the supply chain

1. Over reliance towards 'lean production' and 'just in time' models, which both focused on cost minimization, are termed as one of the primary factors that disrupted the supply chain. This can be avoided by having more resource slack both tangible and intangible, within the companies and strategizing the supply chains closer to the source would be beneficial for any business going forward (Bryce, Ring, Ashby, & Wardman, 2020).
2. Injecting employee stimulus and government funding and policy development towards the growth of MSEs would result in a quick pulse in the economy and would slow down the rates of unemployment (Fitriasari, 2020).

4 Conceptualization

Before advancing to the next step of any research paper, it is vital to consolidate what has already been presented in the paper so far through the previous sections. Up until this section, the topics of Resilience and the COVID-19 pandemic has been explored separately, without a proper linkage between them. This process of conceptualization aims to provide the readers with that necessary linkage and give a deeper and better understanding of the terminologies and ideas used. Moreover, conceptualization also hold the merit of structuring all the different parts of a paper to make it much easier for the researcher as well as the readers to follow through.

In David Onen's scientific journal, conceptualization process is further explained as understanding the concepts and the different variables that goes along with it. When the same process is realised within this research paper, it is quite evident that there exists only one concept which is highlighted in the entire research paper, which is Resilience (Onen, 2016). Even though the topic is explored in length through previous sections, the term would be explained again with respect as the concept of the research paper in the next portion of this section. Now that the concept is established for the paper, the next steps would be to find the variables that shape up the concept. This paper explored the variables in a multi-layered approach, Firstly, the concept of resilience holds various dimensions which should be explored to make the research much more conclusive. Secondly, these various dimensions can be examined and analyzed through finding various quantitative measures or indicators.

The COVID-19 pandemic has been a popular area of research ever since its inception in 2019, but most of the research was conducted on a global scale with little to no data covering country wide effects. If the aspect of that previous statement is explored even further, various journals state the fact that, there exists a clear divide in how the effects of the pandemic crisis are endured in developed countries compared to developing countries (The World Bank, 2021). Although various researchers are keen on investigating about the former, the same cannot be said for the latter.

The research paper targets to add on to this research gap by analyzing the financials and the various strategic changes implemented by the companies in various industries that has been on the decline due to the effects of the COVID-19 pandemic.

4.1 Concept

As mentioned in the literature review section of this research paper, the term resilience holds different definitions based on which lens, it is being looked through. If the research question is broken down to its most basic elements, it is evident that the answer in which it seeks to find out is the proactive and reactive measures incorporated by the companies to offset the effects of the COVID-19 pandemic.

Organizational resilience has been discussed briefly in the literature review and that is primarily due to the importance it holds to this research paper. Organizational resilience focusses on the entire organisation that is, all the process, people, technologies, facilities and everything needed for the day-to-day operations of the business. The concept of organizational resilience acts as the perfect framework for conducting this research due to the sheer magnitude of the components that resides under the term (operational resilience, supply chain resilience, business continuity, disaster recovery). Following through this concept provides the researcher with various dimension that would be discussed in the brief in the dimensions section of the literature review (SearchDisasterRecovery, 2019).

4.2 Context

The context of the research paper has been briefly talked about in the introduction part. But in order to give it much more clarity, it would be explained further. It is quite evident that the topic of COVID-19 pandemic resides as one of the main pillars of the research paper. But researching just the topic alone would be too wide and aimless. Inorder to give a substantial answer to the research question other aspects of it should be explored. Thereby, there exist a subcategory, which allows the researcher to narrow down the research and provide a much more quantifiable result. This particular subcategory is the Indian industries. To summarize, it has been identified that the context of the research paper be the COVID-19 pandemic with the Indian industries as a subcategory.

4.3 Dimensions and Indicators

The dimensions can be understood as the extension of the concept. Understanding these dimensions and further identifying the various indicators that help quantify and legitimize these dimensions. they can be considered as the fundamentals of any quantitative research study. There can be any number of dimensions to any given concept and selecting the ones that also give meaning to the context of the research improves the overall accuracy of the findings. In this research paper, there exists multiple dimensions which make up the various components of the concepts. They are capital resilience, strategic resilience, relationship resilience and learning resilience. These dimensions are realised by loosely adapting the model presented by Ruijun Chen, Yaping Xie and Yingqi Liu in their research paper Defining, Conceptualizing, and Measuring Organizational Resilience: A Multiple Case Study (Chen, Xie, & & Liu, 2021). Although the explanations of the dimensions would be heavily influenced from their paper, the identifications of the indicators are self-constructed. The following section would explain the dimensions and its indicators in brief.

4.3.1 Capital Resilience

Capital resilience can be explained as the main ability of a business to remain financially sound in the presence of a disruptive crises. This can through a number of activities that is to maintaining good cash flow, procuring different sources of finances and to have an overall control over the total debt of the business. Capital Resilience can act either as a proactive or reactive measure for a disruptive crisis.

Indicators

The indicators that have been identified to realize the capital resiliency of a business are financial ratios (liquidity ratios, leverage ratios). The liquidity ratios include current ratio, acid-test ratio and cash ratio which are used as a tool to measure the company's ability to pay off short term as well as long borrowings. The leverage ratios include debt to equity ratio, interest coverage ratio and debt services coverage ratio. These ratios help the user to measure the proportional amount of capital that arises from the debt of a company.

Ratio	Formula	Optimum value	Definition
Current ratio	$\frac{current\ assets}{current\ liabilites}$	2:1	Pay off short term liabilities with current assets
Acid-test ratio	$\frac{Current\ assets - inventories}{current\ liabilites}$	1:2	Pay off short term liabilities with quick assets
Cash ratio	$\frac{cash\ and\ cash\ equivalents}{current\ liabilites}$	0.5:1	Pay off short term liabilities with cash or cash equivalents
Debt to equity ratio	$\frac{Total\ liabilities}{Shareholder's\ equilty}$	1:1.5	Total liabilities against shareholder's equity
Interest coverage ratio	$\frac{Operating\ Income}{Interest\ expenses}$	>2 :1	the ease of the company to pay back interest expenses
Debt services coverage ratio	$\frac{Operating\ income}{Debt\ services}$	>2:1	the ease of the company to pay back debt

Table 2 Financial Ratios (Source: own construction)

4.3.2 Strategic Resilience

Strategic Resilience can be explained as measures taken by a business to construct a strategic model that stays fairly consistent even through disruptive crises. Moreover, the strategic model should also be flexible enough that it can identify and rectify any problems that can be impacted by any internal or external forces. Strategic resilience helps out the business in two ways. Firstly, to predict future disruptions and adapt to it with the minimum amount of cost and time. Secondly, to bounce back to normal earning if a disruption manages to occur.

Indicators

It is a bit harder to identify strategic resilience in a quantitative manner, but it can be argued that in times of a disruption, if there is capital resilience, it can be influenced by the strategies employed into the business. Other indicators can be the consistency in the overall earning of the business before and after the disruption as well as the consistency in the cost of goods sold.

4.3.3 Relationship Resilience

Relationship Resilience can be viewed as the resiliency measures employed to increase the relationship of the business internally as well as externally. To simplify further, it can be explained as the measures taken to improve the relationship between the top level to the bottom level in the hierarchical chain of the business and improve the motivation to work for the business. Moreover, the relationship resilience also maintains the relationship of the business with its stakeholders.

Indicators

Some of the main indicators that can used to ascertain the relationship resilience of a business are, implementation of bonuses or compensations for workers in terms of disruptions, the amount of personnel downsizing, changes in market capitalization, support to staff in times of disruption support to the social community in terms of disruption and government involvements.

4.3.4 Learning Resilience

Learning Resilience can be defined as imparting know how on how the business can survive a disruption through its entire panel of personnel. Proper communication can be argued as one of the underrated processes in a business, learning resilience ensures that all personnel existing internal to the business is aware of the proactive or reactive measures put in place to face the effects of a disruption.

Indicators: The Indicators for learning resilience are quite vague in comparison with other indicators discussed. It can be the overall knowledge gained by the company as a whole from the disruption and this can be observed through analyzing the overall reliability of the responses made by the company after the disruption. Since the other resilient components are employed through proper understanding of the disruption, they can be a factor in estimating the learning resilience of a company.

5 Data presentation

5.1 Case study

This section of the research paper focuses on presenting on the secondary data collected from various prestigious new websites. In order to understand how Indian industries reacted to the COVID-19 crisis, it is beneficial to understand which industries where the crisis has hit the most. Various sources claim that the industries including Tourism, Real-Estate and construction, Automobile, Airline and Hospitality industries (India Today, 2021). Therefore, these industries were selected to be studied.

After selecting the industries, there were various candidates for understanding and analyzing the industry from a company level approach. After filtering through the various companies from the selected industries through their market capitalization one company from each industry was selected. These are Mahindra Holidays and Resorts India Pvt Ltd, DLF Ltd, TATA Motors Ltd, Interglobe Aviation Ltd and Indian Hotel Company Pvt Ltd (Indian Companies (Top 10 travel companies), 2021) (Indian Companies (Top 10 Real Estate Companies), 2021) (Indian Companies (Top 10 Automobile companies), 2021) (Indian Companies (Top 5 Airline companies), 2021) (Money Control (Top Companies hospitality sector), 2021).

5.1.1 Mahindra Holidays and Resorts India Ltd. (Tourism Industry)

Mahindra Holidays & Resorts India Ltd (MHRIL) was started in 1996 under the parent umbrella of Mahindra Group. The Mahindra Group is valued at USD 20.7 billion and overlooks primarily the travel and hospitality industry along with a plethora of other sections. MHRIL primarily provided tour packages throughout India with vacation ownership membership. There is an estimated 250,000 members and more than 100 resorts in India and abroad under this company. All the data presented from this company is sources from the club Mahindra website. (Club Mahindra, 2021).

	2021	2020	2019	2018
Net Sales (In Cr)	822.24	977.01	918.29	1,064.19

Table 3 Net Sales of Mahindra Holidays & Resorts India Ltd for the years 2018-21

source: (Moneycontrol (Mahindra Holidays and Resorts India Ltd.), 2021)

The table above talks about the fall in revenue for the company after the COVID-19 crisis hit. A slew of national lockdowns and restrictions towards the capacity of hotels that can be availed to members was the prime reason for the drop in revenue.

The crisis has brough forth various level of innovation from the strategic department of the company that focuses on varied parts of the business, which are enhancing customer trust, digitalization of services and improving customer experience. One of the initial responses towards the crisis from the company was the introduction of the 5C framework which can be elaborated to Compassion, Creative Restlessness, Customer Connect, Conserve and Capability. This framework was necessary to increase the drive and boost the morale of the personnel under the company to put their best foot forward and provide creative solution for the underwhelming problems brough forth by the pandemic. The framework also concentrated on creating a better atmosphere as well as a clearer connection between the business and its customers.

Moreover, other initiatives taken by the company were the introduction of the ‘Travel with Confidence’ Programme and ‘Safe Stay’ that provided travelers access to varied services like covid insurance, travel insurance, covid testing and car sanitation services as well as improving the hygiene of their stay respectively. These initiatives were targeted to eliminate the stress carried by the customers and improve their trust towards the company. A strategic partnership with Bureau Veritas, a global leader in all covid safety related services made it possible for the previously mentioned initiatives. Furthermore, along with the strategic investment decisions with Great Rockport Pvt Ltd (Asia's largest adventure program host), the guests and members were efficiently entertained in a grim period. Finally, the added advantage of MHRIL being a zero-debt organisation helped in taking risky independent decisions (The Hindu, 2020).

MHRIL took various actions and precautions to create a safe and trustworthy working experience for it's 200,000 employees and associates. Along with providing work from home facilities towards the employees and strictly abiding by the government health instructions and protocols, the company also provided support for the families of the personnel and employees. The initiative of 'People First' promised educational support and well-being programs as well as quarantine centers, medical and financial aids and vaccinations for the staff, associates, and their families.

MHRIL also took into responsibility to provide for the Indian community as well. Apart from handing out generous donations to various Covid-relief funds, the company reordered various of its own plants to manufacture and supply COVID-19 essentials like PPE kits, aerosol boxes, face masks, shields and sanitizers. Moreover, providing relief to the poorest sections of the society were also achieved through meals and other essential consumables, transport and even tractors for harvesting. Lastly, there was a collaboration between the government and local authorities to provide medical support like oxygen concentrators and setting up oxygen plants as well as isolation centers.

To conclude a selection of financial ratios would be presented in the table below

Industries	Companies	Ratio	2021	2020	2019
Tourism	Mahindra Holidays and Resorts India Ltd.	Current ratio	2.19	2.38	2.41
		Acid-test ratio	2.19	2.37	2.40
		Cash ratio	0.38	0.24	0.04
		Debt to equity ratio	17.28	35.44	19.38
		interest coverage ratio	63.44	61.10	45914.50
		Debt services coverage ratio	0.17	0.18	0.18

Table 4 Financial Ratios of Mahindra Holidays & Resorts India Ltd for the years 2019-2021

Source: (Moneycontrol (Mahindra Holidays and Resorts India Ltd.), 2021)

5.1.2 DLF ltd (Real-Estate & Construction Industry)

DLF Ltd is a 75-year-old legacy company which operated primarily in the Real-Estate and construction industry. The company takes pride in calling it as the largest in its industry in India. Along with real estate development, it also deals in acquisition of lands for constructions as well as marketing various projects. DLF Ltd mainly sources its income from developments and rentals. In 2021, it holds various residential, commercial, and retail properties in 15 states and 24 cities throughout India. Moreover, DLF ltd is a home to around 1608 employees. All the data regarding the company from collected from their home page and it's sustainability report 2020-2021 (DLF, 2021) (appendix 2).

	2021	2020	2019	2018
Net Sales (In Cr)	3,893.48	2,369.95	3,295.39	3,055.90

Table 5 Net Sales of DLF Ltd for the years 2018-2021

source: (Money Control (DLF Ltd), 2021)

The table presented above shows the net sales of DLF ltd from 2018 to 2021. The table shows a massive dip in earnings in the year 2020 due to the crisis but in the consecutive year, there is a significant bounce back to numbers even better than the pre-covid period.

In the time of decline of revenue for the company, the main strategic priority of the company was to secure a sound cash flow until restrictions and lockdowns are lowered. DLF ltd started selling early in the construction level or the plinth level for its residential projects in order to source some short-term earnings. It estimated a sum of 2500 crores rupees to be realised through this strategy. This sum was particularly important to lower the cost of the debt it was accruing.

The other side to the COVID-19 response of DLF ltd was to support their employees, contract workers and tenants. These were made through offering Covid related aids and finance opportunities towards their stakeholders. Employees were allowed to work from home while giving them access to free physical and mental healthcare services. Furthermore, employees as well as their families were even given various reimbursements in covid testing and health care. In the case of contract workers, they were provided with amble financial advances to be given to workers along with food and other essential commodities in labor camps. Throughout the whole tenancy side of the business, proper sanitization and adhering to the health code restrictions and advices were carried out.

DLF ltd was also courteous towards spreading resources into the Indian community. This was mainly done through the distribution of meals and other food products around the harshly effected sections of the country. Various collaborations were also made with charitable foundations like the local as well as national governments to distribute medical equipment like face marks, gloves, sanitizers, Covid testing kits etc. towards the masses. Furthermore, there was a sum total of Five Cr rupees donation towards relief funds from the company.

Industries	Companies	Ratio	2021	2020	2019
Construction and Real-estate	DLF Ltd.	Current ratio	1.37	1.78	1.83
		Acid-test ratio	0.31	0.89	0.80
		Cash ratio	0.07	0.14	0.33
		Debt to equity ratio	0.16	0.17	0.17
		interest coverage ratio	7.00	4.01	4.45
		Debt services coverage ratio	1.23	0.69	1.09

Table 6 Financial Ratios of DLF Ltd for the years 2019-2021

source: (Money Control (DLF Ltd), 2021)

To conclude a curated list of financial ratios of the company is presented in the table above.

5.1.3 TATA Motors Ltd (Automobile Industry)

Tata Motors Ltd is a part of the 110 billion dollar valued TATA group that is founded in 1868. The company is valued at 34 billion dollars and is considered a leader in the global automobile manufacturing industrial space. TATA Motors Ltd also holds the prestige of being one of the largest Original Equipment Manufacturer (OEM) in the country offering integrated, smart, and e-mobility solutions. Furthermore, the company hosts 75,278 employees under its belt with more than 8800 sales and service points. The company offers a wide range of vehicles including a wide range of cars, sports utility vehicles, trucks, buses, and defense vehicles. All the data regarding the company was collected from their home page (TATA Motors, 2021).

	2021	2020	2019	2018
Net Sales (In Cr)	46,559.39	43,485.76	68,764.88	58,831.41

Table 7 Net Sales for TATA Motors Ltd for the years 2018-2021

source: (Money Control (TATA Motors Ltd), 2021)

The above table shows the Net sales of the company from 2018 to 2021. It is evident from the table that the revenue has dipped drastically after the crisis and has only managed to bounce back in a tiny margin.

After the incident of 2019, TATA Motors Ltd had some strategic changes that mainly focused on process and finance efficiency and enhancing internal trust. The former was established in a twofold manner, firstly to manage extra cost and control the investment spends by cancelling lower margin investments for a short period of time. Secondly, by adopting a ‘Business Agility Plan’ that focused on improving the relationship with the customers, dealers, and suppliers. This initiative helped the customers in extending the warranty period of their vehicles whose warranty expired on the lockdown period. The initiative also focused on proper inventory management of vehicles by matching it to the supplies and retail demand of the industry. The company also rolled out a cost savings program of 1500 Cr rupees and a cash improvement program of 6000 Cr rupees.

TATA Motors Ltd was highly attentive to its employees in the time of Crisis. One of the notable services put forth to the employees were a one-time payment of 20 months basic salary towards the family regardless of their passing after they were infected by the virus. Furthermore, the family also received a 50% contribution of their monthly salary until their superannuation date. The employees were also provided with various work from home related options and a plethora of Covid related services of testing, financial and well as mental aids. Each manufacturing plant also closely followed the guidelines set by the authorities for COVID safety.

A huge undertaking was done for the company to give back to the community in times of need. The company handed out 1500 Cr rupees along with various other funds arising from the employees to COVID relief around the country. Various collaborations with the local and municipal governments also made it possible to contribute a huge sum of beds for patients, treatment centers and isolation facilities. These services are hosted by the various real estate properties owned by the TATA group of companies. Apart from this, various research projects for the virus were funded and carried out by the series of hospitals owned by the TATA group. The company also helped in the manufacturing process of various medical equipment including PPE kits and helped with the distribution of the same.

Finally, a curated list of financial ratios would be presented as a table below.

Industries	Companies	Ratio	2021	2020	2019
Automobile	Tata Motors Ltd.	Current ratio	0.60	0.53	0.58
		Acid-test ratio	0.43	0.38	0.37
		Cash ratio	0.16	0.14	0.06
		Debt to equity ratio	2.41	2.40	1.75
		interest coverage ratio	19.94	22.26	38.58
		Debt services coverage ratio	2.38	2.39	4.38

Table 8Financial Ratios of TATA Motors Ltd for the years 2019-2021

source: (Money Control (TATA Motors Ltd), 2021)

5.1.4 Interglobe Aviation Ltd. (Airline Industry)

Interglobe Aviation Ltd or Indigo is the aviation side of business from the conglomerate of Interglobe Enterprises Pvt Ltd. Interglobe Aviation Ltd was founded on 2006 and holds a market share of 53.6% throughout India. The company mainly focuses their services on low fair air travels across the country and beyond. Moreover, the company has a sum of 278 aircrafts under it's belt and over 25000 people employed. All the data regarding the company was sourced from it’s home page (Interglobe, 2021).

	2021	2020	2019	2018
Net Sales (In Cr)	14,640.63	35,756.00	28,496.77	23,020.89

Table 9 Net Sales of Interglobe Aviation Ltd for the years 2018-2021

source: (Money Control (Interglobe Aviation Ltd), 2021)

The table above show the Net sales of the company from 2018 to 2021. The table shows a mix of rise and fall in the level of revenue across the four years. In order to stabilize the flow of revenue, the company relied on some basic strategic improvements. These improvements mainly circled around the aspects of cost saving, customer trust and digitalization of services. Under cost saving measures, there were a companywide employee layover of 10%. Moreover, through boosting the cargo and chartered flights along with other cost saving initiatives, the company was able to reduce cash burn and increase liquidity by around 6600 Cr rupees after the incident of Covid. In order to build more trust among the passenger and other customers, the initiative of ‘Lean Clean Flying Machine’ was introduced. This showcased all the raised standards in hygiene and social distance among the crews and staff that meets the Covid restriction guidelines. Furthermore, a push towards digitalization of various services was taken place to improve the customer experience in a nonphysical atmosphere. This initiative was laid out with the fundamentals of simplicity, understanding customer sentiments, embracing automation, and delivering tailored content. These fundamentals all together created the path for services like enhanced customer support through common social media platforms and increased selection and choices through online booking. As far as the cash burn of the company is concerned, there were plans to not pay dividend for the year of the crisis and other finance opportunities were being sought.

In the staff management side of the business, the company had to lay off 10% of its total staff and proceeded with 5-25 percent salary cuts from the staff with certain exclusions from lower pay grade employees. Moreover, various salary increments based on merit was deferred until further notice. On the contrary, the company provided the employees and their family with a plethora of services. These services were access to hospital supplies and isolation centers for Covid positive individuals which were made possible through the strategic collaborations with local hospitals and hotels. As a part of the Covid response, a mobile application was introduced in collaboration with Truworth Health Technologies, named ‘The Wellness Corner’ with 24 hour helpline for doctor consultations. With the disastrous decline in revenue due to the frequent lockdowns and constantly changing restrictions, it was the initiatives from the government like ‘Dekho Apna Desh’ and ‘Incredible India’ that become helpful towards the bounce back of the company.

Industries	Companies	Ratio	2021	2020	2019
Aviation	Interglobe Aviation Ltd.	Current ratio	1.10	1.37	2.26
		Acid-test ratio	1.08	1.35	2.24
		Cash ratio	0.59	0.66	1.08
		Debt to equity ratio	659.84	6.18	2.60
		interest coverage ratio	6.84	19.06	55.99
		Debt services coverage ratio	0.61	1.81	2.83

Table 10 Financial Ratios of Interglobe Aviation Ltd for the years 2019-2021

source: (Money Control (Interglobe Aviation Ltd), 2021)

To conclude this part a curated list of financial ratios is presented in the above table.

5.1.5 Indian Hotels Company Pvt Ltd (Hospitality Industry)

Indian Hotel Company Pvt Ltd is recognized as a holding company that was incorporated in 1902, where the company along with its subsidiaries are considered Asia's largest finest hotel company. The company is majorly owned by the TATA group of companies who holds a majority share in the company. Furthermore, the company specializes in the business of hoteliering with a sum of 145 hotels and 17145 rooms under its belt. The company also overlooks 21 subsidiaries, 8 joint ventures and 6 associates. The company is home to a total of over 25000 employees worldwide. The data for the company is sourced from it's home page and official covid response statement (appendix 3) (IHCL, 2021).

	2021	2020	2019	2018
Net Sales (In Cr)	1,133.15	2,743.47	2,780.41	2,583.95

Table 11 Net sales of Indian Hotels Company Pvt Ltd for the years 2019-2021

source: (Money Control (IHCL Ltd), 2021)

The table above shows the net sales of the company along the years from 2018 to 2021. The table shows the drop in revenue observed by the company after the crisis. There were various measures taken place as a direct response to the Covid-19 crisis. One of the main strategic measures was to cut back fixed cost. This was achieved through its ‘Asset-light growth strategy’, which opted to decrease their owned hotels in their portfolio and increase their capacity through management contracts. In the proceeding years, the company plans to increase their dependency towards these management contracts to generate a sum of 350 Cr rupees.

In the section of staff, the company has mandated the work from home guideline in order to stop infections. Moreover, the company also provided a safe and hygienic working atmosphere for the staff after the lockdowns and restrictions have been lowered. The staff of the company also had access to various financial, mental, and physical aid to combat the virus.

Indian Hotel Company Ltd also donated various services and aids for the people without access to proper protection from the virus. This was carried out through distribution of nutritious meals in various cities around the nation along with medical personnel in various hospitals. The company took charge of the production and distribution of these meals by utilizing it’s chains of hotels.

Finally, a curated list of financial ratios is presented in the table below

Industries	Companies	Ratio	2021	2020	2019
Hospitality	Indian Hotels Company Ltd.	Current ratio	0.53	0.93	0.57
		Acid-test ratio	0.50	0.88	0.54
		Cash ratio	0.02	0.12	0.06
		Debt to equity ratio	1.17	0.94	0.76
		interest coverage ratio	3.84	11.55	17.53
		Debt services coverage ratio	0.37	0.88	1.49

Table 12 Financial Ratios of Indian Hotels Company Pvt Ltd for the years 2019-2021

source: (Money Control (IHCL Ltd), 2021)

6 Discussion

In this section, each company from the respective industries would be discussed under the types of resilience namely Capital Resilience, Strategic resilience, Relationship resilience and Learning resilience as talked in the conceptualization section of the research paper

6.1 Capital and Strategic Resilience

It can be argued that both capital resilience and strategic resilience are linked to each other more than other two resiliency divisions. This is due to the fact that good strategic resilience exists as one of the drivers of good capital resilience. Thus, it would be easy for the readers if both are analyzed together.

Mahindra Holidays and Resorts India Ltd: To start off, there seems to be a various strategic innovations introduced by the company when compared with the other companies mentioned. These strategies are focused on keeping the customer trust alive on the company and this evident from the number of initiatives introduced by the company to do the same. From Table 3, the net sales of the company show some discrepancies from the success of these strategic changes. Although there should have been a marginal increase in revenue after the drop in 2019, in this case, the company bounces back in 2020 to 977 Cr rupees but fell back to 822.24 Cr rupees. It can be argued that this fall in revenue may be due to the second wave of covid and the lockdowns and restrictions that followed. But this particular fact questions the reliability of the strategic measures taken by the company and the resiliency of the entire company. Furthermore, when the financial ratios are analyzed, all the ratios except two sticks out and these are the cash ratio, and the debt services coverage ratio. All these ratios are below the optimum level need for a sound cash flow.

Although, slight upward movement in the cash ratio can be observed signifying that the cash and cash equivalents of the company to its current liabilities is increasing, the deb services coverage ratio is dropping even further. Although the latter presumes the fact that there exist more long-term liabilities compared to the operating income, the fact remains that throughout the three years, the rate of operating income has fell along with the rate of long term liabilities. To conclude, with all these evidence, one can argue that, although the company showcased innovative solutions to adapt to the new change in the market, it was not quite enough for the company to bounce back to the level of earning before the covid. On the contrary, the level of revenue loss remains to be less when compared with the other companies mentioned and this can be a factor pointing to the fact that there was already some level of capital and strategic resiliency existing in the company before covid. Thereby, to conclude, the company shows a medium level of capital and strategic resilience.

DLF ltd: when the strategic decisions made by DLF Ltd is analyzed, it is certain that the decisions made by the company are less in numbers compared to others. The prime target behind the decisions of the company was to earn quick earnings to stay afloat during the crisis. From Table 5, showing net sales of the company, the level of earnings dip further into the 2020 to 2369 Cr rupees but then was quick enough to bounce back to 3893 Cr rupees in 2021. When looked at this numbers alone, it seems grounded to assume that the strategic decisions of the company were successful and reached resilience, but such a claim is complicated to be certain. It is a fact that the company has bounced back to even better earning before the crisis, but it can also be argued that the strategic implements by the company only yield results for a short period of time. Since the main strategic change of the company is to sell the unit of housing at an earlier period of its development, more revenue cannot be attained from the same customer after the development of the housing unit, and this can tip off the balance between the operational revenue and all expenses in the future. Furthermore, when the financial ratios are analyzed, all the ratios except the current ratio and interest coverage ratio falls under the optimum value but a handful of the ratios have drastically fluctuated within these three years. Some observations that can be made from this, firstly the cash ratio has dipped extremely low, which can be evident from the fall in cash and cash equivalence of the company. This will pose as a major liquidity problem for the company until a solution is achieved, furthermore the drop in current assets (appendix 1) also caters to this statement. Secondly, there seems to be an incline in the debt services coverage ratio and this change shows potential in the company's capacity to cover it's long-term obligations. To Conclude, the company shows growth in revenue after the crisis but the same cannot be said for long term growth but with lack in focus for long term growth and the stagnation on the levels of long-term debts, the company can be classified and medium in term of capital and strategic resiliency.

TATA Motors Ltd: The strategic decisions made by the company focuses on the short-term sustainability as well as long term prospects as well. But one can argue that the strategies center around securing the stakeholders and increasing their trust. This particular strategy even though is cost enhancing, it can be fruitful in the future business relationships of the company. When Table 7 is analyzed, the drop in revenue from 2019 to 2020 is huge in margins yet in 2021 there seems to be some bounce back. One can argue that the strategy implemented by the company does not focus on an immediate bounce back to the earning before the crisis but a gradual sustainable growth spanning across the following years after 2021. This is evident when the financial ratios are analyzed. Even though not all ratios are near the optimum level, these ratios have been on a slight incline in the three years, showcasing slow levels of growth. Furthermore, the strategy of achieving a fluctuating inventory management dependent on the demand of the industry can be argued as a long-term cost cutting strategy for the company. Moreover, the debt services coverage ratio is more than the optimum point for the company, and this provides a sense of protection for the company against long term debts. In conclusion, the company exhibits a High level of capital and strategic resilience, focusing on long term growth and proper debt management.

Interglobe Aviation Ltd: Upon analyzing the strategic measures developed by the company in order to tackle the Covid crisis, it seems futile when the data of the net sales is also compared. The strategic decisions made by the company focused more on cost cutting and surviving. Table 9 shows are big spike in revenue after the crisis in 2019 but further slumped down extremely in the following year in 2021. It can be argued that the rise in revenue of 2020 can be a result of the increase in interest of passengers for air travel after the initial trauma of the passengers are relieved. The hygiene and customer trust strategies of the company can be a support for this. But the big slump in 2021 can be arguably a result of the implementation of the further lock down and increased restrictions. When the financial ratios are analyzed, it is evident that all the liquidity ratios remain above the optimum level, although the same cannot be said about the other ratios except Debt-equity ratio. The Interest Coverage Ratio as well as Debt Services Coverage ratio are in a decline in the three years and if this is kept untreated, the company would face debt issues. The debt equity is ratio shows a big change in the year 2021 and this is a result of the drop in shareholders equity in the past year of 2020. This decline can be either due to the buyback of shares from the shareholders or a heavy loss suffered in the previous year of 2020, where both the incidents are bad for the company in its growth. To conclude, the company achieved in what it was trying to do with its strategic changes which was the survival of the company in its dark times. But with the increase in debt and the decline in revenue and assets, it can be evaluated that these strategic changes would not help the company in its long-term growth and thus the company can be classified as low in capital and strategic resilience.

Indian Hotels Company Ltd: The strategic implementations of the company can be seen as quite basic but interesting. The asset light growth strategy makes the company less reliant on fixed costs and this can be beneficial for surviving the crisis as well as for future growth. But upon analyzing the net sales revenue of the company, a decline in revenue after the crisis and a final drop to 1133 Cr rupees can be observed. This data questions the reliability of the strategy implemented. This drop in revenue can be due to a number of factors including, the second wave and the lockdowns and restriction that followed, other competitive strategies from other companies of the industry. Furthermore, the cash ratio has dropped to a dangerous level and when the drop in current ratio is also taken into consideration, the liquidity of the company is threatened in the coming years. The debt services coverage ratio is also showing signs of climbing long term debt as well the decline in operating income for the company. To conclude, the company can be classified as low in terms of capital and strategic resilience supported by the fact that there is a limitation is the quality and the quantity of the strategies employed as well as improper management of the company's long term debt.

6.2 Relationship Resilience

Mahindra Holidays and Resorts India Ltd: Firstly, the employees of the company were given enough priority with various helpful services and aids, and these extended not only to the employees but their families as well. This is established with little to no signs of downsizing from the company. Furthermore, the company also reached out to the public with various medical equipment and other services for Covid aid and underwent collaborations with the local and national governments on various services to the society. On the contrary, there was a limitation in information regarding the company's outreach to other sections of the stakeholders including suppliers and other contractors. To conclude, after considering all the evidence, the company can be classified as medium in terms of relationship resilience.

DLF ltd: When the relationship of the company towards its stakeholders in analyzed, firstly the entire staff and their families were supported with access to covid related aids both physical and mental. Secondly, due consideration is given to contract workers by providing them with financial advances to obtain a cash flow for their workers. Furthermore, the company has donated various services and aids for social purposes with various collaborations from charitable foundations and local governments. From all the evidence presented, it can be estimated that the company shows a high level of relationship resilience with providing support for a majority of their stakeholders.

Tata Motors Ltd: it should be pointed out that the company treats the welfare of the staff as a priority, this can be evident from the intensity in the policies and aids it has provided for the staff. From the lump sum amount of money received upfront to a recurring paycheck of 50% of their basic towards the covid victims and their families, should be highlighted for this analysis. Furthermore, the company was adamant in donating funds and services to the Indian society through meals, medical equipment, research and other services. Since, the company is owned the huge conglomerate TATA group, most of the services came from inhouse using their hotels and restaurant chain as well as their hospitals. To conclude, even though reports of the company reaching out to the other parts of their stakeholders are minimum, the severity of the initiatives they introduced shows a high level of relationship resilience in the company.

Interglobe Aviation Ltd: The analysis of the relationship of the company towards its stakeholders under the crisis of COVID presents some glaring facts. The treatment of the company towards their staff can be summed up as less than desirable. The downsizing and the salary cuts of employees can be seen as direct evidence to this fact. On the contrary, there were some levels of

Covid support of the staff and their families with access to medical care equipment and services. Although reports regarding the relationship with other links of the stakeholders are absent, the collaboration with a medical technological company to digital consultations should also be noted. To conclude, the company shows low level of relationship resilience based on the evidence presented above.

Indian Hotels Company Pvt Ltd: The level of stakeholder communication from the company is limited. The company has provided various aids and services to the staff and there seems to be little to no reports on downsizing of the company. Moreover, the company has reached out socially for donating meals to the public as well other medical care and services. This can be concluded by saying that the company shows a medium level of relationship resilience.

6.3 Learning resilience

It can be argued that the learning resilience can be seen as an extension of the other divisions of resilience. If the company has gained capital, strategic and relationship resilience, it safe to assume that this is due to proper research on the crisis and proper communication of the finding throughout the entire company.

Mahindra Holidays & Resorts India Ltd: With the data presented, analyzing the learning resilience of the company can be quite difficult. Nevertheless, by analyzing all the responses the company has made after the COVID crisis, it can be argued that the company has done its own research regarding the crisis. This is evident in the shift in focus of its newly introduced initiatives after the crisis. It can also be evident that with the increased focus towards customer safety and trust, the staff has been trained to provide services abiding to the latest restrictions. Moreover, the capital and strategic resilience and relationship resilience are found to be medium level and high level for this company. To conclude, the company shows high levels of Learning resilience

DLF ltd: Although the capital and strategic resiliency of the company is medium, the relationship resilience is found to be high. This can be analyzed in two different ways, firstly the strategic measures made to improve the capital of the company was efficient in attaining short term funds but not for long term growth and secondly there is some level of research done on the crisis as the company devoted a major portion of their resources to strengthen the relationship between the stakeholders. To conclude, the company shows medium level of learning resilience.

Tata Motors Ltd: when the capital and strategic resilience as well as the relationship resilience of the company is analyzed, both show high levels respectively. This can be seen as a positive implementation of strategies and decisions from the company as a response towards the COVID-19 crisis. Moreover, a steady growth in the net sales of the company can be seen after the crisis. The level of resources spend on the giving support to the various links of the stakeholders should also be highlighted here. All these implementations of such successful initiatives require proper understanding and knowledge about the crisis. Thus, to conclude, the company shows high level of Learning resilience.

Interglobe Aviation Ltd: The company shows low levels in capital and strategic resilience and relationship resilience. This glaring fact states that the company was unsuccessful in their growth after the crisis. Although a formidable growth in 2020 as seen from the Table 9, can be seen as a step in the right direction, it was unsustainable. It can be argued that the company was unable to employ creative and resilient measures as a response towards the crisis. This underpins the lack of knowledge it had towards the crisis; therefore, the company shows low levels of learning resilience.

Indian Hotel Company Pvt Ltd: The company shows low levels in capital and strategic resilience but medium levels in relationship resilience. It is evident that the company focused its resources and capital on improving the relationships of the stakeholders more than attaining the needed growth of the company. This is reflected on the dip in the net sales of the company. But it can be argued that with proper care and knowledge transfer towards the other links of the stakeholders, the company would achieve slow growth in a longer period. Therefore, it is safe to assume that the company shows a medium level of learning resilience.

7 Conclusion

Industry	Company	Capital and Strategic Resilience	Relationship Resilience	Learning Resilience
Tourism	Mahindra Holidays & Resorts India Ltd	Medium	High	High
Real-Estate and construction	DLF Ltd	Medium	High	Medium
Automobile	Tata Motors Ltd	High	High	High
Aviation	Interglobe Aviation Ltd	Low	Low	Low
Hospitality	Indian Hotel Company Pvt Ltd	Low	Medium	Medium

Table 13 Levels of resiliency classified by the industry

After the discussion Made in the research paper, various conclusions towards the research question can be answered. Firstly, before the COVID-19 crisis, there existed little to no resilience measures within any industry, and this can be evident from the initial drop in revenue from all industries. As far as attaining resiliency after the crisis is concerned, the research provides a mixed answer.

Industries such as Tourism and Automobile shows high levels of overall resiliency in average while the Tourism and Hospitality industries show medium levels of resiliency in average. The biggest offender in adopting resiliency measures was the Airline Industry with a low level of resiliency in average. In simpler term, All the industries explored with in this project has submitted resiliency after the crisis but in different levels. When each component of resilience is compared different perspectives can be observed from a nationwide perspective. The capital and strategic resilience were split into two factions of decisions among the selected industries, this was the focus towards implementing new initiatives to collect different sources of income and the focus towards lowering the overall cost of the company. A balance between both the factions of initiatives can be observed from the automobile industry. All the industries were not negligent towards strengthening their relationship resilience. There were various measures from all industries that supported their stakeholders ranging from the staff level, links in the supply chain and social donations. Lastly, it should also be highlighted that all the industries have prioritized in training their staff to follow and abide by the frequent restrictions rolled out form the local and national governments.

8 Further Investigation

The research paper can be utilized to conduct various further studies and researched.

- Each industry can be selected as an area of research and much briefer studies can be conducted on the same.
- The research presented here can be further studied either to test the validity or find different conclusions by conducting primary data collection through interviews, surveys, and other forms.

- Different frameworks can be utilized by the researcher to find deeper insights of the research.
- Various alterations like changing the industries, companies can be explored.

9 Implications

The research data and finding obtained from this multiple case study can be beneficial to various entities. Firstly, this data can be useful for the companies studied in this research paper as well as other companies form the same industry of India. This data can provide them with different perspectives from the decisions made by them and ultimately lead them to increase efficiency in decision making. Lastly, this data can be utilized by various Small and Medium Enterprises within the country since they lack similar resources when compared to the MNCs.

10 Limitations

Although there exist various positives in adoption a multiple case study approach towards doing research, there were a number of negatives as well. To exemplify, all the industries that have been selected in the study can only be compared to a certain limit. It is hard to ignore the fact that each industry has suffered the COVID-19 crisis differently and several factors come in to play when they are compared. But in order to estimate an unbiased opinion from the researcher, a certain uniformity in the effects on each industry has been assumed prior to the research.

In the data collection stage, the research paper follows a secondary collection method. This limited the researcher to the access of various knowledge and internal decisions made by each company. Although, all the collected data are procured from trusted news websites and official home pages, more confidential or internal information from a company could have had the potential to alter some of the finding made in this research paper.

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