# Significance of COVID-19 Pandemic disruptions in shaping a new consumer behavior: A Literature Review and Impacts

GHASSAN ABDEL KADER - MAYA DAHER–- NISREEN ABI FARRAJ - HAITHAM MAAROUF

**ABSTRACT:** January 2020 marked a reset to human life because of a COVID-19 virus pandemic that struck the world. Mankind is experiencing a transitional phase towards recovery but a new paradigm is redefining every aspect of human behavior. An era of Great Disruptions is the New Normal, where the way we lived, worked, interacted behaved and evolved during a pre- COVID-19 era resembles in nothing the new era of current and post COVID-19. Response measures imposed by the WHO globally had a dire direct impact on the world's economy and on the daily life pattern of every consumer around the globe. What started as precautionary and adaptive measures soon escalated to become closing of borders, of schools and universities, social distancing, travel restrictions, extended periods of confinement and lockdowns. Businesses/industries on a global scale suffered dearly the cost of lockdowns, of consumer loss of confidence and diminishing purchase power due to this pandemic.
These disruptions caused a change in the environment conditioning consumer behavior, and new behavioral patterns have emerged. The article digs into earlier academic research that had extensively examined the implications economic crisis or epidemic situations had on consumer behavior, comparing previously established theories to the never seen before crisis of COVID-19 pandemic that has created an irrevocable change to the definition of consumer behavior as we knew it. This article is published in afflilation with Beirut Arab University (g.abdelkader@bau.edu.lb).

**Index Terms: COVID-19, Epidemiology, Business, Consumer Behavior, Advertising, Economic Performance, Trade**

## 1- INTRODUCTION: ERA OF DISRUPTIONS

On December 31, 2019, the Chinese authorities alerted the World Health Organization on treating a cluster of pneumonia cases of an unknown cause, in Wuhan City, Hubei province, China. The disease started as mysterious and focalized. The Chinese authorities were monitoring the virus to prevent it from developing into a severe outbreak. On January 11th, China reported the first death of a 61-year-old man, a customer at the Wuhan wet market, due to the virus right before China's biggest holidays when hundreds of millions of people usually travel across the country. The virus spread globally at incredible speed. Aggravated by panic on social media, the world referred to the disease as the 2019-nCoV, which then became known as COVID-19. On March 11, 2020, the WHO declared the virus a pandemic.

This marked the very first disruption in a series of unsettling events and containment / restrictive measures with long-term impact that brought the world's economy to its knees and started shaping a new model of consumer behavior.

What started as hygienic precautionary recommendations and social distancing, became a mandatory obligation to wear masks, use disinfectants and sanitizers, abide by travel restrictions, compulsory PCR testing without which no crossing of borders is permitted, followed by nation-wide confinements and lockdowns for weeks, then for months.

More mutations accelerated the spread of the virus around the globe, and vaccination campaigns have been rolled out in parallel to attenuate the severity of the infection.

An unimaginable increase in the consumption of detergents in households and in public places, an insane increase in toilet paper consumption, new devices of vaporizer disinfectant machines installed as companies and building entrances. Massive production of disposable masks, protection suits, gloves and face shields, etc. an entire industry flourished beyond all expectations at a time China, the cheapest world factory went on total lockdown to contain the virus spread virus and eliminate it, leaving the world stranded, looking for a cheap and fast substitute.

The healthcare sector saw a staggering lack in respiratory machines, which called for the massive production of breathing support devices and respiratory machines around the world, this included individual and startup initiatives in product design.

The medical system's inaptitude to handle emergency cases and accommodate patients in Intensive Care Units (ICUs) mobilized the world's healthcare practitioners round the clock. Big pharma companies intensified their research in corona viruses and respiratory

diseases to avail vaccines and run massive scale productions to address the surging massive need. New temporary hospitals were erected in highly affected areas around the world. Aid equipment and donation for medicines was made to poorer incapacitated countries. Sort of war-like security enforcement measures took to the streets in major cities around the world. Security forces were deployed to intervene in most countries mainly in large cities, to ensure adherence to lockdown and curfew decisions and fine / apprehend those who do not comply.

Schools and universities were shut down, and the education sector shifted to online, instating a new normal for parents and teachers and the academic system. Unemployment rates rose astronomically, entire sectors resorted to remote working, others reduced wages to half and many had to lay off staff and permanently close. Manufacturing sectors suffered the most due to the impossibility for workers to attend to work.

Remote work from home led to a dramatic increase in consumers' exposure to social media. Use of cash money was substituted by virtual money through credit / debit / prepaid cards, and digital currencies. The business of food delivery replaced all dine out habits. The disruptions have weighed heavily on all economy sectors, allowing new patterns to emerge and creating a completely new economic behavior for consumers all around the world. Literature review looks into pandemics and crisis situations in terms of human behavioral models associated with such situations, to depict the major changes characterizing a post pandemic consumer behavior and establish if the COVID-19 disruptive containment measures have significantly caused a change in today's consumer behavior model.

## 2- CONSUMER BEHAVIOR MODELS

In the 1960s the quest to understand the consumer behavior emanated from the need to know about how a consumer thinks and acts before making a decision, in order to develop better marketing strategies and sales approaches that influence that decision.

Consumer behavior is an important and constant decision-making process of searching, purchasing, using, evaluating, and disposing of products and services (Valaskova et al., 2015).

Approaches that explain consumer behavior are divided into three groups (Valaskova et al., 2015): A psychological approach based on the relationship between the psyche and consumer behavior; sociologically committed to consumer reactions in a variety of situations or social occasions, and economical relying on basic knowledge of the micro-economy in which consumers thrive, define and process their demands.

The traditional models identified in describing the consumer behavior are the economical, the learning, the psychoanalytic and the sociological models.

### *2-1- HOWARD SETH MODEL*

The Howard Seth Model, highlights rational behavior of consumers when the required data/criteria to evaluate the product/service is missing or incomplete. With three levels of decision making: extensive problem solving, limited problem solving and routine response behavior, this model borrowed from the learning theory concepts, by explaining how the consumer behavior goes through the learning process when moving from an extensive to a routinized problem-solving behavior, seeking the greatest potential of satisfying his motives.

### *2-2- EKB MODEL*

Engel, Kollat, and Blackwell (Engel, Kollat, & Blackwell, 1968) presented the EKB model in 1968 describing the decision-making process of buying behavior in five stages:

(1) recognizing the problem (4) purchase decision
(2) information search (5) Post-purchase evaluation
(3) alternatives evaluation

The EKB model emphasized the consumer's conscious decision-making process recognizing the bypass of many steps in repeated purchases.

This model has the limitation of including environmental variables and general motivating influences without specifying their effect on the consumer behavior.

### *2-3- THE EBM MODEL*

Engel, Blackwell, and Miniard (EBM) developed this into the EBM model in 1995, expanding it to include input of information, processing it in addition to other variables affecting the decision making. The EBM model considers the external factors affecting the buying decision.

### *2-4- THE MASLOW PYRAMID*

The most iconic graph illustrating the consumer's behavior known to every marketer is the Maslow pyramid. The Maslow theory is based on 5 basic levels of human needs, ranging from lower biogenic needs to higher psychogenic needs. And that in this respect humans will only look at higher level needs after satisfying their lower level needs. A back-to-basics behavior emerges during times of cataclysmic crisis, superseding any other level of need.

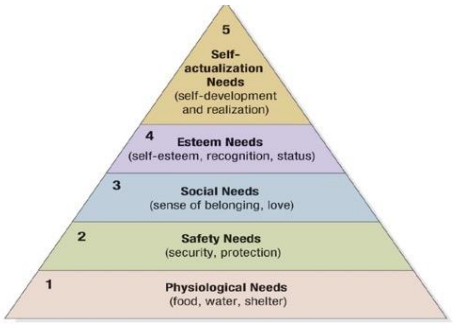


Figure 1: Maslow Pyramid.

The traditional models represent the basis for understanding consumer behavior in general and are still used today by marketers in almost any study observing and analyzing consumers in action.

Consumers are not always rational in their behavior, but they are very predictable. Early 20th century Swiss psychologist and psychiatrist Carl Jung (founder of analytical psychology, and a major influencer in the fields of psychiatry, religion and literature) defined human behavior in 12 archetypes. (The word means "original pattern" in ancient Greek): Ruler, Creator/Artist, Sage, Innocent, Explorer, Rebel, Hero, Wizard, Jester, Everyman, Lover, Caregiver.

Jung saw that people as much as brands have personalities that fall under one or more of the 12 archetypes, with each having a set of criteria that differentiate it from the other. As such a behavior is always describable according to these parameters. (Jung, 2020).

## 3- CONSUMER BEHAVIOR IN CRISIS SITUATIONS

Amalia et al. (2012) in their study explained that people are not the same and not all the people have the same perception about a situation with negative effects like economic or any other crisis. In crisis times, new trends in consumer behavior emerge. Hoon Ang et al. (2001) in his work examined that changes in consumption behavior emerging from any economic crisis may be directed by personality characteristics. These personality characteristics incorporate measurements just like the degree to which buyers are unwilling to take risk, are value cognizant and materialistic.

Earlier studies discussed behavioral changes among consumers during times of crisis with noteworthy changes in patterns of utility.

Flatters and Willmott (2009) distinguished new patterns of behavior during times of crisis, such as simpler consumer demands due to limited offering, this pattern usually continued even after the crisis was over, as consumers became accustomed to simpler offering with better value.

### 3-1- FEAR APPEAL

The Fear appeal theory also comes into play in shaping the new post COVID-19 paradigm in consumer behavior. Fear appeals rely on a threat to an individual's well-being that triggers an action.

Fear appeal is derived from communication persuasive models (Hovland, Janis, and Kelley, 1953; McGuire, 1980).

McGuire's (1980) describes 10 stages for the persuasion effect model: exposure, information, reaction, understanding the information, believing the information, memorizing, recalling the information in a related situation, decide on action to take, act, anchor the belief. (Hankin, Firestone, Sloan, Ager et al., 1993, 11).

Leventhal (1970) and Rogers (1983) established the effectiveness of fear if: the information is credible and the alert warns of dire health repercussions if no action is made, second a method or recommendations of action is provided to be followed guaranteeing averting the harmful health outcome. (Hankin et al., 1993, 11)

The brain triggers a physical reaction in the human body when faced with a threat to either fight of flee. In such instances a person's behavior precedes his rational cognizance.

Fear can be easily sparked and can entail an irrational reactional behavior (Begley, et al., 2007; Maren, 2008).

(Gore et al., 1998, 36) Witte and Allen (2000) have concluded that fear appeals are most effective when they contain both high levels of threat and high levels of efficacy.

### 3-2-PANDEMICS AND BEHAVIORAL CHANGE

During modern history, the world saw the surge of numerous epidemic outbreaks which faded in no time, to name a few Ebola, SARS, MERS, Swine Flu, and Dengue Fever (Balinska and Rizzo, 2009).

These outbreaks had affected 2 aspects of the human behavior (Miri et al., 2020), health risk mitigation behavior (La Torre, 2019), and crisis endurance behavior due to the acute macroeconomic implications that befall the countries affected by a pandemic such as unemployment, uncertainty and vulnerability, and economic recession.

One of the interesting modern models used to trigger behavioral change is the RANA model, Risks, Attitudes, Norms, Abilities and Self-regulation (RANAS) model of systematic behavioral change. This approach designs and evaluates behavioral change strategies that target and change the factors influencing a specific behavior in a specific population (www.ranasmosler.com). The RANA model was developed to systematically understand health-related behavior by taking risks, attitudes, norms, abilities, and self-regulation into consideration (Mosler, 2012). The model has been already tested and applied to understand behavior during pandemics (www.ranasmosler.com)

Noticeable patterns of behavior characterizing times of crisis saw an increase in purchasing of food, face masks, hand sanitizer, and other items perceived to be important for surviving the pandemic (Goodwin et al., 2019).

Another theory has also been used to assess the underlying motives behind behavioral changes during times of pandemic, the protection motivation theory (PMT) (Farooq et al., 2020; Laato et al., 2020a; Sharifirad et al., 2014; Timpka et al., 2014). PMT (Joshua Hinkle, 2015, Georgia State University) model was developed by Ronald Rogers in 1983.

The theory aims to assess why and how individuals respond to potential safety and health threats.

Rogers saw that the environment and the individuals are interlaced and either or can encourage or discourage the adoption of protective behaviors employing cognitive processes as a filter to differentiate between emotional fear and actual need for protective responses.

PMT theory explains protective responses and behaviors associated to the health risks and threats (2 A.C. Clubb and J.C. Hinkle) and (Timpka et al., 2014),

Back in 2007, 36 or more variety of coronaviruses were known, SARS coronavirus (SARS-CoV) was extensively researched in more than 4000 studies (Cheng et al., 2007). It took about 18 years between SARS and the emergence of a coronavirus SARS-CoV-2, causing a respiratory disease called COVID-19.

| Author(s) | Country | Epidemic | Sample | Theory | Selected findings |
|---|---|---|---|---|---|
| Gamma et al. (2020) | Gambia | Ebola | 498 | RANAS model | Critical psychological factors influence the adoption of avoidance measures. Beliefs and social norms were identified as the two most important factors. |
| Gamma et al. (2017) | Guinea-Bissau | Ebola | 1369 | RANAS model | Perceived severity and health knowledge are predictors for adopting prevention behaviors. Campaigns propagating health knowledge had less impact than expected. |
| Laato et al. (2020a) | Finland | COVID-19 | 855 | Protection-motivation theory, self-determination theory | Individuals' acceptance of government measures for curbing the pandemic and perceived severity of the pandemic correlate with adoption of recommended health behaviors. |
| Rubin et al. (2009) | United Kingdom | Swine-flu (Influenza A H1N1) | 997 | No theory specified or explicitly mentioned | Few people changed their behavior during the early stage of the swine flu epidemic. Perceived severity increased action, while lack of trust in officials and self-efficacy lowered it. |
| Goodwin et al. (2009) | Malaysia | Swine-flu (Influenza A H1N1) | 328 | No theory specified or explicitly mentioned | Response to swine flu was seen at the population level with reduced travel and increased purchasing of face masks and food. |
| Seale et al. (2009) | Australia | Swine-flu (Influenza A H1N1) | 620 | No theory specified or explicitly mentioned | Quarantine and vaccines are perceived as better countermeasures than personal hygienic measures. |
| Timpka et al. (2014) | Sweden | None specified | 443 | Protection-motivation theory | The individual coping appraisal is a significant factor in influencing prevention behavior such as self-isolation. |
| Sharifirad et al. (2014) | Iran | Swine-flu (Influenza A H1N1) | 300 | Protection-motivation theory | Protection motivation leads to adoption of avoidance behavior. However, perceived severity was not related to protection motivation. |

Figure 2 – Summary of earlier pandemics and associated behavioral change

### 3-3-CRITICAL REVIEW OF MORE RECENT STUDIES

The COVID-19 pandemic is weighing seriously on the economies of all nations without any exception, establishing new market dynamics. Following is a review of a number of more recent studies published lately on the effects of COVID-19 on consumer behavior from various angles:

Abe (2020) in her study on 'Market Trends and D2C Opportunities in the COVID-19' highlighted new panic trends of the likes of people raiding grocery stores, stock piling (as per iRi POS data (2020)), cancellation of some of the most significant world events. Lockdowns and closing down of all 'non-essential' businesses in an attempt to limit the spread of infection. Abe (2020) also discerned that due to the pandemic, people reduced their spending on non-essential items, and that demand has increased for edible products as opposed to non-edible.

Nielsen most recent investigation (Nielsen, 2020a) indicated that the COVID-19 pandemic outbreak had dire consequences and has led to changes in consumer behavior. The Nielsen investigation model suggested six key consumer behavior threshold levels that have showed a change in consumers' spending patterns for emergency items, health and food supply. Every threshold level correlates with different consumption levels.

The first level is called the proactive health-minded buying, in which consumers are more interested in buying products that support their overall maintenance of health and wellness.

2nd level the reactive health management in line with health campaigns, where priority is given to essential virus containment products (such as masks and hand sanitizer).

3rd level the stockpiling for quarantines and lockdowns.

4th level the increase in online shopping behavior and situations with out-of-stock in-stores.

5th level the restricted living, when consumers are price sensitive and limited stock is available affecting increase in prices.

6th level is the life in the new normal. This level will be attained according to the Nielsen study when lockdowns are lifted and life starts to go back to how it was before (Nielsen, 2020a).

A review of most recent studies about the COVID-19 and its implications on consumer behavior from various angles:

THE NEW CONSUMER BEHAVIOR PARADIGM AMID COVID-19, PERMENANT OR TRANSIENT - July 30, 2020:

This study observed the change in consumer behavior during the COVID-19 pandemic and analyzed the reason behind it.

The study identified a new normal in consumer behavior that will reshape the market, in addition to an incline towards spiritual considerations during times of crisis that drives economies of consumption, and health concerned decision making.

The study capitalized on the need to mobilize resources to respond to changes in consumers' behavior and decision making and highlighted the opportunities in rewiring the generation of COVID-19 to new principles and building a new segment of consumers that will neces-

sarily need a new set of products and services.

IMPACT OF COVID-19 CRISIS AND SHORT-AND-MEDIUM-TERM CONSUMER BEHAVIOR.
Monitor Deloitte - June 2020.
This study surveyed 2000 participants to assess if COVID-19 will create post pandemic lasting effects on consumers' consumption habits, tackling whether demand would move from global to local, and if preferences would shift from sharing to owning, if digital selling channels will prosper, if consumers will give less attention to security and if electronic services will become more convenient. The findings confirmed that COVID-19 led to changing consumer behavior with effects that will outlast the pandemic, and with new established habit notably in the shift to electronic services..

UNUSUAL PURCHASING BEHAVIOR DURING THE EARLY STAGES OF THE COVID-19 PANDEMIC: THE STIMULUS-ORGANISM-RESPONSE APPROACH - March 2020.
This study investigated unusual consumer behavior during the COVID-19 pandemic with the start of market disruptions, using the Stimulus Organism Response (SOR) to analyze the effect of online information stimuli on consumer behavior, surveying 211 respondents in Finland. The findings established a direct link between the intention to self-isolate and that of making unusual purchasing decisions. And that consumers exposure to excessive online information increased anxiety and created overload as well as a cyberchondria. The study also concluded that more research is required in order to draw accurate results in confirming whether such effects will outlive the COVID-19 crisis situation.

THE IMPACT OF COVID-19 CRISIS UPON THE CONSUMER BUYING BEHAVIOR OF FRESH PRODUCE DIRECTLY FROM LOCAL PRODUCERS.
Case study: the quarantined area of Suceava county, Romania - 29 July 2020.
A study about the impact of COVID-19 on consumers' buying behavior shifting to local production in the area of Suceava - Romania, and about how this would affect the digital transformation of short food supply chains (SFSC).
The findings established a direct relation between quarantine situation and behavioral changes in the purchase of local fresh produce and need for direct delivery. The study also identified the direct effect of these changes on the digital transformation of SFSC.

IMPACT OF COVID-19 ON CONSUMER BEHAVIOR MARKETXCEL Data Matrix Company - June 2020
This study's aim was to understand the change in behavior among the respondents because of the COVID-19 pandemic.
Surveying 3075 respondents from different age segments in India across 4 zones to ensure nationwide representation.
The study found that the spread of COVID-19 and the imposed measures of lockdown caused an unprecedented effect and had an unsettling influence on the world. And that it led to altering consumer behavior, highlighting the surge of panic buying and stockpiling on grocery items, medicine and personal care items.
The study also concluded that the post-pandemic era will be marked by a change in buying behavior and a shift to online shopping.

CONSUMER BEHAVIOR DURING CRISES: PRELIMINARY RESEARCH ON HOW CORONAVIRUS HAS MANIFESTED CONSUMER PANIC BUYING, HERD MENTALITY, CHANGING DISCRETIONARY SPENDING AND THE ROLE OF THE MEDIA IN INFLUENCING BEHAVIOR, China - July 30, 2020.
This study tested:
The hypothesis that Consumer behavior during COVID-19 era adopted panic-buying patterns witnessed during previous crises.
The hypothesis that consumers demonstrated herd mentality behaviors during the COVID-19 pandemic.
The hypothesis that during the COVID-19 pandemic consumers will prioritize essential goods in their consumption, in line with Maslow's hierarchy of needs.
The hypothesis that consumer sentiment was highly affected by media framing during the COVID-19 crisis.
The study analyzed the change in consumer behavior in panic buying using spending patterns to identify panicked and irrational purchasing and compared the results to consumer behaviors exhibited during previous crisis.
The study concluded that the changes affecting consumer behavior during the COVID-19 pandemic could be compared to those witnessed during previous crises, but that COVID-19 is a rather broader healthcare crisis than any witnessed before, with a global spectrum, which makes it difficult to predict the consumers' behavior.
The study identified panic buying, herd mentality and discretionary spending (Maslow's Hierarchy of Needs) as the main characteristics of the COVID-19 era, and saw that these characteristics can be compared to behaviors exhibited during earlier crises.

### 3-4-A NEW REALITY, A NEW MODEL

Studies and research before 2019 focused on analyzing consumer behavior in the shadow of earlier experiences epidemics and crisis. The past 2 years of COVID-19 showed us that contrarily to what we knew, consumer behavior can change radically and become unpredictable under unprecedented circumstances, leading to a change in the decision-making process.
Older theories that represent the basis of consumer behavior analysis are today challenged by a new paradigm of a global pandemic that brought major disruptions to

the lives of humans and caused changes at so many levels.
The severity of the situation of COVID-19 pandemic is an ongoing threat, mutating by the hour, making it very difficult for any study or research to generalize, draw or expand on findings just about yet and predict the new consumer behavior.
Analyzing this new situation of crisis will draw new theories and models, with the following prevailing terms to retain: Fear Appeal, panic buying, hoarding and stockpiling, safety, health concerns, hygienic concerns, social distancing, reprioritization of consumption habits, basic needs, etc.
It is still early at this stage to conclude on new theories, this will actually be work in process for the business communities.

## 4- COVID 19 IMPACT ON BUSINESS AND ECONOMY

COVID-19 is an acute resolved disease that can be lethal. Death rate estimates range from 0.4% to 3% for those infected (Xu et al., 2020). SARS, an earlier infectious coronavirus disease, caused 8098 reported human infections and 774 deaths in 32 countries (McAleer, 2020). As of March 27, 2020 there were 465,915 confirmed COVID-19 cases in 199 different countries, with 21,031 direct deaths caused by the virus.
On May 16, 2020, there were 4.3 million confirmed cases and more than 79,000 deaths (WHO,2020).
Apart from the origin country China, massive outbreaks were reported around the world, in the United States, Italy, Iran, Spain, France, and Germany (WHO, 2020), before spreading globally.
The below figure tracks the development of the outbreak in numbers of cases between January 2019 and December 2020.

### 4-1-THE REPERCUSSIONS OF THE PANDEMIC

In 100 days COVID-19 brought the world down on its knees.

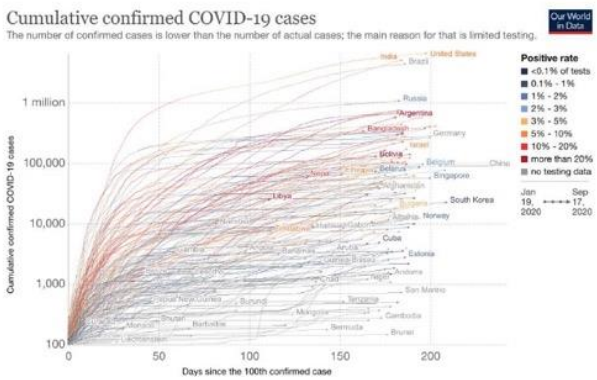


**FIGURE 3 – 100 days of pandemic – Source: European CDC.**

It took 3 months of global panic before the WHO announced that the COVID-19 is considered a pandemic.
Globally, as of 12:05pm CET, 19 February 2021, there have been 109,594,835 confirmed cases of COVID-19, including 2,424,060 deaths, reported to WHO.

As the pandemic laid down its toll on the world, some forceful measures were imposed in an effort to limit the spread or contain it until a cure was found.
Closed borders, travel bans / restrictions, 14-day quarantines, shutdowns and lockdowns, social distancing, masks, sanitization,…
Although the lockdowns have helped to flatten the curve of the virus spikes according to various WHO and CDC reports, but the price was enormous and at the detriment of the global economy which shrank by 5.2% during 2020.
The measures that had started as adaptive have fast evolved to become incarcerating to citizens and cities from around the world causing dire repercussions to the world economy.
These measures represent the independent variable in our case study and can be detailed as follows:
Precautionary hygiene measures that added face masks to cover the nostrils and the mouth became mandatory and subject to fines.
Temperature monitoring in public places, or else refusal of admission.
Excessive use of disinfectants and sanitizers in liquid or tissue form, as indispensable carry-on products. Disinfecting was also carried out on a larger scale in streets and in public places. New devices of vaporizer disinfectant machines in various sizes either for personal use or as full entrance disinfecting machines placed at companies and buildings' entrances for public use.
The unimaginable increase in consumption of detergents in households and in public places, and the insane increase in toilet paper consumption, In addition to the production of disposable protection body suits, gloves and face shields, etc.
All of the above accrued additional unaccounted-for costs to almost every sector, business, individual and country.
A major disruption crippled the medical systems in all countries developed or underdeveloped, no one foresaw a crisis of such a magnitude. Hospitals limited number of ICU beds and inaptitude to handle the excess of emergency cases or accommodate patients called for the mobilization of the world's healthcare practitioners round the clock in every corner of the world.
For Big Pharma all major research was halted to prioritize research in the area of corona viruses and respiratory diseases and accelerate the development of a vaccine or cure.
New temporary hospitals were erected in highly affected areas around the world. Aid equipment and donation of medicine was activated and sent to poorer and incapacitated countries.

The WHO focused all of its attention on containment and emergency and response programs.
War-like security enforcement measures took to the streets in major cities around the world. Security forces were deployed to intervene in most countries mainly in large cities, in order to ensure the strict adherence to lockdowns and curfew decisions and to fine or apprehend those who do not comply.
Countries closed their borders and airports intermittently.
Restricted travel regulations, obligatory PCR tests upon departure and arrival, constantly changing restrictions and regulations have killed the travel industry and even drove a number of airlines to bankruptcy. The catastrophic repercussions entailed a free fall for the hotels, entertainment and tourism sectors.
Schools and universities were shut down, and the education sector was shifted to online learning, instating a new normal for parents and teachers and the academic system. Working parents, who were not on lockdown became in need of help at home with their children/dependents while they still needed to attend to their work be it online or in person.
Lockdown of all business sectors except for vital businesses needed for daily life necessities.
Unemployment rates rose astronomically all over the world, entire sectors resorted to remote working to maintain their operations with employees asked to work from home, others reduced their wages to half and many had to lay off staff. Some businesses had to close down permanently.
Manufacturing sectors were hit hard and have suffered the most due to the impossibility for workers to attend to work.
Work from home has led to a dramatic increase in consumers' exposure to social media and to screens almost at all times, mobile phones became the 1st screen replacing TV, computers and tablets.
Use of cash money has been substituted by virtual money through credit / debit / prepaid cards, and where applicable cryptocurrencies.
The business of food delivery has replaced all dine out habits.
As a direct result to the above restrictive measures the world's economy global growth for 2020-2021projected a contraction of –4.9 percent in 2020, 1.9 percentage points below the April 2020 (World Economic Outlook (WEO) 2020).

The COVID-19 pandemic registered more negative impact on the economic activities in the first half of 2020 much more than specialists had expected.
A recovery is projected gradually and much slower than originally forecasted.
Global growth is projected at 5.4 percent for 2021.
2021 GDP is expected to drop some 6½ percentage points lower than in pre-COVID-19 projections back in January 2020.
The adverse impact on low-income households is particularly acute, imperiling the significant progress made in reducing extreme poverty in the world since the 1990s.
(IMF, World Economic Outlook, 2020).

## 4-2- ECONOMY SECTORS AFFECTED BY THE COVID-19

### 4-2-1- MARKETING AND ADVERTISING

The marketing and advertising sectors took a serious hit because of the COVID-19 lockdown measures. An estimated 35,000 jobs were cut in the advertising field in advertising agencies and still the numbers are expected to increase in 2021.
According to a survey conducted by Dentsu, 62 % of U.S. CMOs and 67% of global CMOs saw disruptions in business because of the imposed restrictions since March 2020.
Only 9 % of both U.S. and global CMOs saw business improving during the pandemic.
Most companies in the field have shifted their focus to digital media and worked towards preparedness in a digital infrastructure during COVID-19.

### 4-2-2- NEW TRENDS AND SHOCKING FIGURES IN DIGITAL WORLD

According to the latest report (2020 Hootsuite global report issued in January 2021), the digital realm saw new people connecting to the internet for the first time, existing users adopted new digital tools.
Substantial growth was observed during 2020 registering a half a billion new users joining social media scoring a total of 4 Billion users in early 2021.
Mobile users globally are spending more time on their phones than watching TV, bringing the mobile screen to the position of first screen.
As a direct result to the lockdown measures e-commerce saw unprecedented growth because of users fear of socializing, and substituting physical purchase with online purchasing. And the research suggests that the new e-commerce habits adopted by people will continue to grow even after the lockdowns. On average more than ¾ of the world's internet users are making online purchasing at least once a month. With 7 in 10 internet users saying that now they go beyond search engines to find information about the products / services they want to buy.
Internet speeds have also been upgraded around the world to meet and cope with the increasing users digital demand with the average mobile connection becoming 50% faster than the era of before COVID-19.
Surprisingly audience 65 years and above are Face-

book's fastest growing audience and women aged between 55 and 64 are today more willing to make their purchasing online than men aged 16 to 24 (2020 Hootsuite global report).
2021 remains a year of uncertainties even for the digital world, where all the figures are promising growth and profitability.

### 4-2-3- ACADEMIC AND EDUCATION SECTOR

Before the dynamics of the COVID-19 virus spread could be understood, especially the assumptions that it was not as harmful to children as it is to adults, panic had overtaken the academic sector by storm. Students and parents were alarmed, and one of the first sectors to close down was the academic sector.
Schools and universities shut their doors at first then started applying a hybrid model of intermittent closing and opening, until e-learning became the only solution for the education system and the students to continue their studies.
The student learning environment had rapidly changed from direct in-person tutoring to distance e-learning. Entailing a number of complications, the least of which is the access to devices and internet to pursue e-learning.
The COVID-19 had a major effect on the financial situation and many students at universities or parents who had lost their part or entire income were facing financial hardships.
Teachers jobs are also threatened due to the ease of overseas outsourcing for online education.
Online education is thought to reduce POEX/CAPEX/ for schools and universities everywhere.
Google classrooms has doubled its active users since the beginning of March 2020 to reach more than 100 million.
Top online education providers, namely Corsea, edx, and FutureLearn have registered new students by April 2020 more than the entire year 2019.

### 4-2-4- TRAVEL AND TOURISM SECTOR

The world Tourism Organization (UNWTO) in coordination with the WHO have put in place a response to COVID-19 plan calling for international cooperation in order to navigate the unprecedented storm.
COVID-19 outbreaks have crippled the travel industry around the globe:
Restrictions on travel were imposed depending on the surges of each country, limiting travelers' mobility.
As a direct result, the hotels industry saw a free fall in occupancy rates and revenue per available room (RevPar).
The airline industry was as severely impacted and worldwide airline companies saw a staggering 100% decline in net bookings. Continuous changes in policies have exhausted travelers who are weathering the storm until a clear policy is adopted globally.
Talks of a health passport are underway as the vaccination campaigns started to roll.
The travel and tourism industry are at loss of 37% worth $ 447.4 Billion (HP)
The global airline industry losses are estimated at $113 Billion and airline companies expect a drop in revenue of 90%.
COVID-19 is estimated to cost the hotels industry between $370 and $925 billion

### 4-2-5- THE ARTS AND ENTERTAINMENT SECTOR

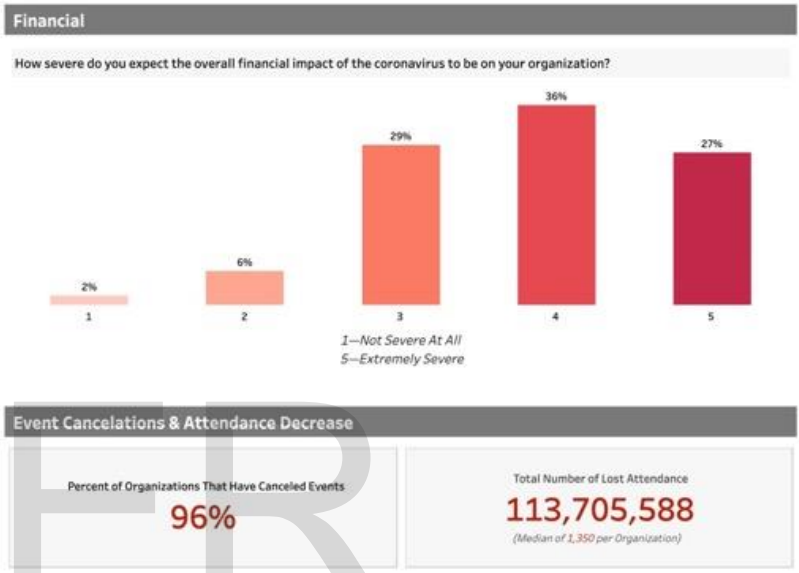


**FIGURE 4 – Direct effect on Arts and entertainment business in the US.**
Source: https://www.americansforthearts.org/by-topic/disaster-preparedness/the-economic-impact-of-coronavirus-on-the-arts-and-culture-sector

The figures speak for themselves in the arts and entertainment sector, the losses are irrecuperable.

## 4-3- COVID-19 DISRUPTIONS IMPACT ON ECONOMY AND INDUSTRIES

- Global auto sales fell by 22% $70.3 Million
- Global retail sales fell 9.6 % $ 2.1 Trillion
- The global economy is expected to lose nearly $ 8.5 Trillion in output in the next 2 years.
- Early September tech stocks lost over $ 1 trillion in 3 days.
- U.S. dept will exceed the size of the country's economy for the 1st time since World war 2.
- The chaotic situation and plummeting industries called for governmental intervention in the leading world nations, stimulus packages were rolled out exceeding by far those issued during the 2008 crisis (Germany 33.0% of GDP as opposed to 3.5% in 2008,

Japan 21.0% as opposed to 2.2%, France 14.6% as opposed to 1.4%, U.K. 14.5% as opposed to 1.5%, …).

- Governments went to the extent of trying out Universal Basic Income to alleviate some of the dire repercussions of the economic crisis shadowing the disruptions of the COVID-19. Canada has unveiled $2,000/month emergency Response Benefit, Spain supported 850,000 households with monthly payments of up to Euros 1,015, etc.

### 4-3-1- THE INDUSTRY OF ELECTRONIC DEVICES, AND ALL THINGS TECH

Sales of electronic devices and network connectivity have skyrocketed,

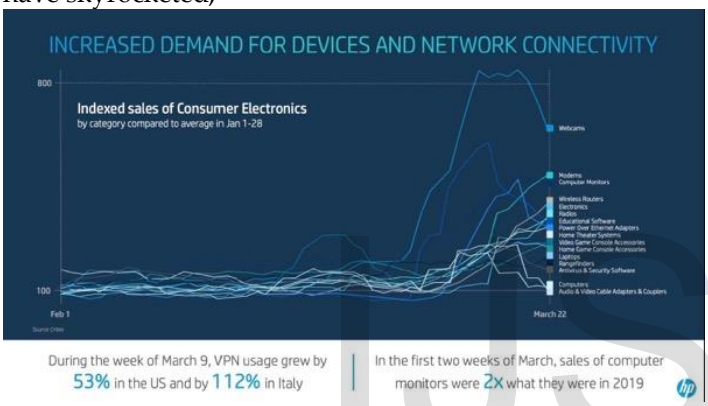


**FIGURE 5 – Industry of electronic devices**

### 4-3-2- CONSUMER SPENDING SHIFTS IN THE US AND UK ECONOMIES

Major shifts in consumer spending were registered in the various sectors of the US economy:

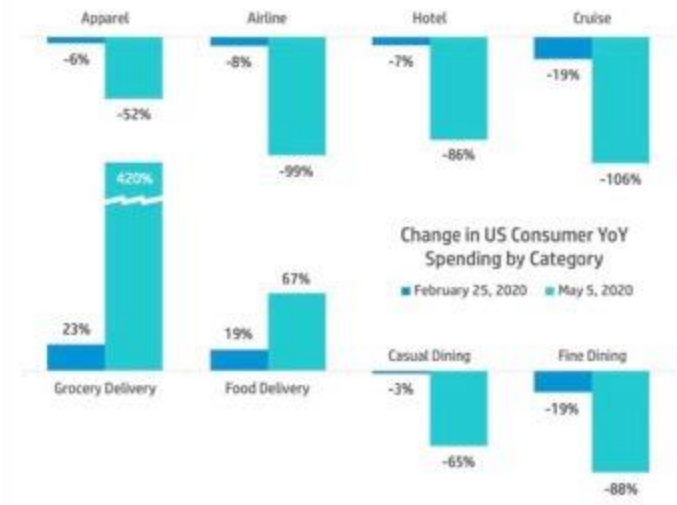


**FIGURE 6 – Consumer spending shifts in US and UK**

- 75% of US consumers have tried a new shopping behavior since the start of the pandemic, 80% will maintain their new behavior post-crisis, 90% of global consumers expect their behavior to remain impacted for more than 2 months post the lockdown.
- 48% of US consumers confirmed they will maintain their health habits after the lockdowns are lifted.
- 42% of UK consumers intend to continue shopping online post crisis
- Automated manufacturing is expected to create new jobs for the digitally savvy individuals, with social distancing diverting to a fast adoption of remote diagnostic, management and collaboration tools.

### 4-3-3- THE RESTAURANTS AND DELIVERY INDUSTRY

- The restaurant industry also collapsed incurring massive losses of more than $225 Billion in the US major cities alone. Dining out has been substituted by online food delivery business, benefiting the most from the COVID-19 lockdowns
- The delivery industry has picked up around the globe and in locked down cities, with teenagers in the US and Europe working as drop off in their neighborhoods to collect basic allowances they used to previously earn working at restaurants. China has the scariest highest number of food delivery customers reaching more than 329.6 million persons.

### 4-3-4- A GOOD REPERCUSSION ON THE ENVIRONMENTAL FRONT

On the environmental front, COVID-19 is accelerating plastic waste with 30% more waste than 2019 (HP). There is also a noticeable resurgence of disposable plastic bags, discarded masks and gloves which pose a health hazard.

## 3- CONCLUSION

On the upturn, COVID -19 measures have helped the planet and the environment tremendously by allowing the skies to clear out pollution in locked down cities. Some industries are more likely to grow because of the COVID-19 disruptions:

- Transportation, takeaway and delivery, virtual fitness classes, telehealth, online trading.

- The speculation and all conducted studies observing the future of work in every possible sector are showing that the future of work will be favorable for GIGs, a terminology used to describe workers who perform a task online, temporary workers or affiliate marketers, or online contract based independent workers.
- 85% of Millennials prefer work from home, and global workplace analytics estimate that firms will be saving $11,000 per worker per year by allowing their employees to do their work from home (Google).
- The future of meetings has already witnessed a categoric shift to video conferencing. 62 Million video conferencing apps were downloaded by the last week of March 2020. Zoom alone averaged 1488.4 million active users mid 2020, up 4,700% yoy. Microsoft Teams saw an increase from 32 Million active daily users in March 2020 to 75 Million by mid 2020. Google Meet has over 100 Million daily meeting participants.



It seems that the world is heading towards the deployment of industrial IoT including AI based support in operations. 3d printing will be extensively used for production of a wide array of goods including COVID-19 products, like face masks, ventilators, respiratory valves and test swabs. According to HP more than 2.3 million parts have been produced with HP 3D printers for COVID-19.

Many large manufacturers are shifting their lines to more needed products relevant to the situation of the pandemic in an effort to cope with rapidly changing market demands.

The health sector needs a digital transformation, because medicating people while they remain at home can flatten the curve and save lives.

Insecurity and uncertainty will still reign over the collective feeling of earth inhabitants until such time the virus can be completely cured. Because as it stands today the new strains are prone to further mutations making it impossible to predict if the available vaccines will be effective in immunizing people.

People facing acute food insecurity are expected to increase from 135 million in 202 to 265 Million in 2021.

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