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Uncertainty in industrial markets: The COVID-19 pandemic

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ABSTRACT

This article develops a deeper conceptualization and understanding of the COVID-19 pandemic’s impact on industrial firms. Qualitative analysis is conducted based on twelve semi-structured interviews with executives from organizations with over $100B in combined annual revenues. Constructs studied included governmental forces, supply and demand-side changes, new communication processes, short- and long-term impacts, and the new normal. This article provides evidence of the unprecedented impacts on industrial firms in the early phases of the COVID-19 pandemic. Using qualitative analysis, along with emergence theory as the theoretical lens, this study develops a framework for examining the impact of disruptive events, like the COVID-19 pandemic. Implications regarding industrial firms are provided, along with the development of eight propositions for future inquiry.

1. Introduction

The COVID-19 virus has infected 181,007,816 people worldwide, with 3,927,222 confirmed deaths (World Health Organization, 2021). Beyond the health issues created by the pandemic, industries across the globe have experienced chaos and rapid changes, the likes of which can be compared to World War II (Gupta, 2020). Within the United States, almost 100,000 businesses had to be temporarily closed, in addition to over 65,000 businesses having permanently closed (Yelp, 2020). As a result, industrial markets have been altered, and a new normal is beginning and will continue to emerge.

Findings from this study suggest that the new normal is influenced by a number of separate but related issues created by chaos and change. This includes changes in and to the type(s) of manufactured products, changes in supply and demand of products, and processes put in place to move these products through the industrial markets. For example, companies that manufactured personal protective equipment (PPE) saw heavy demand for this equipment, running out of inventory as soon as companies that manufactured personal protective equipment (PPE) saw increases in demand, including items that could be primarily used or consumed within the boundaries of a person’s home (e.g., vehicle restoration and auto modification products). As a result of these rapid changes in the industrial markets, developing an understanding of how industrial firms have adapted and what a new normal might look like is a critical undertaking.

The COVID-19 pandemic provides an actual versus hypothetical event, which created and continues to inflict chaos for all businesses across the world, yielding a critical point in time to collect and understand the emergence of new processes. While literature is beginning to emerge regarding the COVID-19 pandemic’s impact on industrial markets (Cortez & Johnston, 2020; Crick & Crick, 2020), this is one of the first studies to provide an in-depth assessment, using senior executive interview data, of the COVID-19 pandemic within an industrial context.

The purpose of this study is to develop an understanding of how industrial firms have managed and are managing aspects of the pandemic, and what are the new normals that are emerging as a result. Specifically, this study focuses on uncertainty experienced within industrial firms during the pre-vaccine phase of COVID-19. Findings from this study are used to create a framework for assessing the new normal for industrial firms. In addition, eight propositions for future inquiry are provided to aid in the development of research.
Given the novel aspects of the COVID-19 pandemic and the current state of the literature, a qualitative research design is best suited for this study. A grounded theory approach allows the complex and nuanced aspects of how industrial firms have been impacted by both supply and demand viewpoints to be addressed. In addition, this research examines short-term changes that have occurred and long-term changes that will occur due to the pandemic. Specifically, the following research questions are addressed:

Research Question One: How has chaos created by the COVID-19 pandemic impacted the supply to industrial firms, and how have firms reacted over the short-term?

Research Question Two: How has chaos created by the COVID-19 pandemic impacted demand, and how have industrial firms reacted over the short-term?

Research Question Three: What are the short-term practices by industrial firms that have emerged to create the new normal, and what will the new normal look like long-term?

2. Background and theoretical development

While the COVID-19 pandemic has created chaos and changes within industrial markets, the literature does offer guidance (e.g., Cankurtaran & Beverland, 2020; Chesbrough, 2020; Crick & Crick, 2020; Hartmann and Lussier, 2020), albeit more conceptual in nature. While a few studies are emerging that are qualitative (e.g., Cortez & Johnston, 2020) or use some form of secondary data (e.g., Habel, Jarotschkin, Schmitz, Eggert, & Plotner, 2020; Sharma, Adhikary, & Borah, 2020), this stream of literature is still in a nascent state. Additional understanding of both macro (e.g., supply chain issues and changes within the industrial markets) and micro (management of employees and sales force related issues) issues relating to the impact of the COVID-19 pandemic is needed. Table 1 provides a summary of recent manuscripts examining the COVID-19 pandemic within industrial markets.

For the present study, emergence theory is used. By applying emergence theory, the outliers and macro events of the COVID-19 pandemic can be better explained. Emergence theory is a macro-level theory that focuses on new evolving states created by chaos, non-linear change, and adaptive systems being put into place (Morris & Webb, 2014). Emergence theory focuses on how interactions lead to the creation of new evolving states (McKelvey, 2004) and what new phenomena arises in a system that was not in the system's specification prior (Standish, 2008).

As an integrated system, emergence is proposed as a process with phenomena that are adaptive, non-linear, and in a state of disequilibrium. Adaptive systems reflect the network of interactions (Lichtenstein & Plowman, 2009), and when adaptive systems are in a disequilibrium state, small fluctuations can bring unanticipated and substantive changes (Dooley, 1997).

It was unforeseen how in 90 days, a virus in Wuhan, China, could spread from country to country, bringing the industrial markets and

Table 1

| Authors                     | Year/Journal | Article type | Study focus                                         | Summary                                                                 |
|-----------------------------|--------------|--------------|-----------------------------------------------------|--------------------------------------------------------------------------|
| Cankurtaran and Beverland   | 2020 IMM     | Conceptual   | Design thinking in COVID-19                         | The study focuses on wicked problems for industrial marketers that were created due to the COVID-19 pandemic. Properly managing innovation as part of the COVID-19 recovery was analyzed from a perspective of deriving lessons learned from the pandemic to date and applying lessons learned going forward. |
| Chesbrough                  | 2020 IMM     | Conceptual   | Innovation recovery due to COVID-19                 | Social exchange theory was applied to propose multiple intertwined areas to classify managerial practices. |
| Cortez and Johnston         | 2020 IMM     | Qualitative - 31 practitioners from the U.S., Europe, and Latin America | Crisis management due to COVID-19                                        |                                                                 |
| Crick and Crick             | 2020 IMM     | Conceptual   | Cooperation within B2B firms during COVID-19        | Cooperation was viewed in the context of competitors working together and balancing risk and reward in times of turbulence. Industrial buying patterns were studied by looking at thousands of sales opportunities and dozens of countries. |
| Habel, Jarotschkin, Schmitz, Eggert, and Plotner | 2020 IMM     | Secondary data from a machine tool manufacturer | The purchase of industrial products during COVID-19 | B2B sales forces were examined to aid sales managers in understanding the impacts of and responses to the COVID-19 pandemic. |
| Hartmann and Lussier        | 2020 IMM     | Conceptual   | B2B sales force management during COVID-19           | An audit process to manage B2B relationships in times of crisis was developed to assist companies to position themselves more strategically for the future. |
| Obal and Gao                | 2020 IMM     | Conceptual   | Business relationships during COVID-19              | The study focuses on Twitter data from NASDAQ 100 firms. Results provide frequency of Tweets and most frequent words used within Tweets. Six strategic recommendations are made. |
| Sharma, Adhikary, and Borah | 2020 JBR     | Secondary data analysis of Tweets | The impact of COVID-19 on supply chain decisions |                                                                 |
| Sharma, Leung, Kingshott, Davick, and Cardinali | 2020 JBR     | Conceptual   | Uncertainty in international business environments during COVID-19 | The study focuses on Chinese firms' responses to the COVID-19 pandemic. The study overviews challenges firms face during the crisis and develops a typology of marketing innovation strategies. |
| Wang, Hong, and Gao         | 2020 JBR     | Conceptual - Typology | Marketing innovations during COVID-19 |                                                                 |
| Epler and Leach             | 2021 IMM     | Qualitative - 12 sales organizations Quantitative - 404 outside sales professionals | COVID-19 as a critical sales event | The study examines salesperson bricolage as a potential capability to improve effective navigation of critical environmental disruptions. |
| Kumar and Sharma            | 2021 IMM     | Qualitative - 7 with 5 in marketing departments and 2 from operations departments | COVID-19 interruption on global supply chains | A single case method was used to understand disruptions to the business-to-business oil and gas supply chain. |
| Lui                         | 2021 IMM     | Quantitative - 447 salespeople | Salesperson resilience during COVID-19 | The study examines employer event communication and rumination (intrusive and deliberate) on salesperson resilience. |
| Paul, Chowdhury, Moktadir, and Lau | 2021 JBR     | Delphi - 10 respondents | Supply chain recovery challenges post COVID-19 | The study identified and analyzed supply chain recovery challenges related to the COVID-19 pandemic. The study provides a set of recovery challenges. |

IMM: Industrial Marketing Management. JBR: Journal of Business Research.
firms within these markets into disequilibrium. Non-linearity, on the other hand, means that reciprocal interactions create results that are often amplified and thus impossible to predict (Lichtenstein & Plowman, 2009). Unpredictability and amplification are almost an understatement in the speed at which non-linearity occurred as chaos was created. Non-linear change can create an unintended path, diverging from the originally intended course (Schindehutte & Morris, 2009). Disequilibrium (far-from-equilibrium) is an ongoing state and systemic condition that has been shown to increase performance (Nonaka, 1988). Sometimes when pushed to a disequilibrium state, highly complex behavior is displayed, creating contradictory forces full of surprises (Plowman et al., 2007). The disequilibrium state due to the COVID-19 pandemic created highly complex behavior on both supply and demand sides within industrial markets, which all firms had to address to survive.

3. Methodology

3.1. Approach

Given the recent emergence of and limited research regarding the COVID-19 pandemic, a grounded theory approach is ideal. Grounded theory assists in advancing models, explanations, and theory of under-researched areas using inputs from respondents with expertise and familiarity of a specific topic (Corbin & Strauss, 2008; Johnson & Matthes, 2018).

Table 2, Study Approach, provides an overview of the four primary steps that we used to conduct the study. Step One used the literature to guide subsequent study processes, including identifying sampling tools and approaches used to examine the impact of COVID-19 on industrial markets and identifying potential interview questions. Step Two determined the analytic approach of the study. This included creating the interview guide, establishing sales profile criteria, and determining the data collection process. Data collection was conducted to conclude this step. Next, Step Three involved conducting the analysis, including listening to interviews, reading transcripts, developing themes and sub-themes. Lastly, Step Four included discussing the findings, developing a framework, establishing propositions, and providing guidance to and for the advancement of the current literature.

3.2. Interview guide

The interview guide was developed to ensure relevant topic coverage examining the impact of COVID-19 on industrial markets. Using existing industrial literature, emerging COVID-19 literature, emergence theory literature, and the authors’ industry and academic experience allowed for the formation of the interview guide.

First, demographic questions about the participant and firm were developed. These questions addressed years of experience, regions served, revenue responsibility, the number of direct reports, and annual revenue. Second, a series of questions regarding the pandemic were developed. These initial open-ended questions were broad in scope, such as “What has been the biggest change to your business during the pandemic (people, operations, customers, selling, other)?” and “How has the strategy of your business changed during the pandemic?” Third, questions that allowed the researchers to delve deeper into emergence theory were asked, including “How has the buying process evolved through COVID and because of COVID?” In addition, questions were asked regarding how buying centers will emerge into a post-COVID state versus prior to the COVID-19 pandemic.

The broad interview guide allowed respondents to shape the flow of the interview based on their answers. This allowed the interviewer to use probing questions to follow up on main points of interest. Table 3 provides the interview guide.

3.3. Data collection

The objective of data collection was to obtain the highest quality of informants with access to the C-suite, including a global breadth of knowledge, with visibility across a number of functions within their firm and the global industrial markets. All respondents were required to have a minimum of 20 years of work experience, ensuring that each participant had experienced multiple business cycles and had a common baseline when comparing their COVID-19 pandemic experiences to past business uncertainties. Second, a diversity of companies was needed to get deeper insights into what was occurring across a wider swath of industrial environments. Commercial vehicles, industrial tools, industrial aftermarket, rail-freight and commercial, and automotive were a few of the chosen industrial segments. Third, it was important to have geographic balance, with most of the respondents being from multinational organizations.

Phone calls were made to individuals that would meet the criteria, using a semi-structured interview guide with a series of open-ended questions. Interviews occurred six to seven months into the pandemic. With the respondents’ consent, the interviews were recorded for

Table 2 Study approach.

| Step | Sub-step | Components | Results | Tables and figures |
|------|----------|------------|---------|-------------------|
| One: Literature guidance | Review business-to-business, supply chain, and COVID-19 literature | COVID-19 research placed within the current literature | Table 1: COVID-19 background literature |
| Two: Analytic approach | Review theoretical background literature | Emergence theory identified | Table 2: Study approach |
| Three: Analysis | Interview guide, sampling, data collection, and approach | Identified prior sampling tools/approaches | Table 3: The interview guide |
| Four: Report findings | Interview guide, sampling, data collection, and approach | Identified prior interview questions | Table 4: Profile and background |
| Interviewer guide | Creating demographic and open-ended questions | Relevant topic coverage | |
| Sample profile criteria | Filtering criteria for respondents | Ensured coverage of COVID-related changes | |
| Data collection | Identified executives in industrial markets | Created the sample requirements to obtain informants with C-Suite access, highly experience respondents, and a wide industry scope | |
| | Interviewed executives across industries | Industry executives (12) were interviewed | |
| | Interviews lasted about 30 min | Interviews lasted about 30 min | |
| | 170 pages of transcribed data | 170 pages of transcribed data | |
| | Theoretical saturation occurred | Theoretical saturation occurred | |
| | Agreement reached | Agreement reached | |
| | Overall impact of COVID-19 was analyzed | Overall impact of COVID-19 was analyzed | |
| | Six themes were identified, along with numerous sub-themes | Six themes were identified, along with numerous sub-themes | |
| | Researchers listened to interview recordings and read transcripts | Quotes provided for themes (6) and sub-themes | Table 5: Issues, Impacts, and Strategies |
| | Themes and sub-themes were compared | A new normal framework was developed | Fig. 1: The New Normal Framework |
| | Discussions | Propositions (8) were advanced | |
**Table 3**
The interview guide.

| Demographic Questions: |  |
|------------------------|--|
| Respondent Name        |  |
| Firm Name              |  |
| Industrial Firm - Annual Revenue in 2019 |  |
| Years in Business      |  |
| Regions Served         |  |
| Industries Served      |  |
| Title in Firm          |  |
| Executive Direct Revenue Responsibility |  |

**Open-Ended Questions**
What has been the biggest change to your business during the pandemic?
How has the strategy of your business changed during the pandemic?
What are the biggest concerns that you are hearing from customers concerning COVID?
How did you stay connected during the pandemic with your customers and suppliers?
How has the buying process evolved through COVID and because of COVID?
How has demand of product matched manufacture’s ability to supply?
What has been the biggest change to your business during the pandemic?

**Table 4**
Profile and background.

| Firm 1 Global | >10,000 | >10,000 | $30B+ | Allen | Sales Director – Original Equipment Manufacturer | $30 M | 31 | 22 min 33 s |
|---------------|---------|---------|-------|-------|-----------------------------------------------|-------|-----|------------|
| Firm 2 Global | >5000   | >5000   | $6B+  | Bob   | Vice President                                 | $40 M | 30 | 30 min 34 s |
| Firm 3 North America | 1000-5000 | 1000-5000 | 1B+  | Cody  | Sales Director - Nat. Distributors          | $37 M | 36 | 31 min 42 s |
| Firm 4 North America | >10,000 | >10,000 | $20B+ | Daniel | Sales Director – Original Equipment Manufacturer, Dealer, and Independent | $40 M+ | 32 | 33 min 04 s |
| Firm 5 Global | >5000   | >5000   | $50B+ | Evan  | Vice President                                 | $115 M | 35 | 18 min 24 s |
| Firm 6 Eastern United States | <1000 | <1000 | < 1B | Frank | Regional Director                              | $30 M+ | 33 | 37 min 00 s |
| Firm 7 North America | 1000-5000 | 1000-5000 | $5B+ | George | National Account Manager                       | $20 M | 20 | 25 min 31 s |
| Firm 8 North America | <1000 | <1000 | < 1B | Henry | Owner - Contract Sales Agency                  | $10 M+ | 35 | 27 min 36 s |
| Firm 9 North America | >5000 | >500 | $18B+ | Ivan  | Call Center Manager                            | $10 M+ | 27 | 41 min 05 s |
| Firm 10 Global | 1000-5000 | 1000-5000 | $1B+ | Jeff  | Product Director                               | $40 M | 27 | 34 min 40 s |
| Firm 11 Global | 5000-10,000 | 5000-10,000 | $6B+ | Kevin | Global Aftermarket Director                    | $100 M+ | 32 | 22 min 45 s |
| Firm 12 North America | 1000-5000 | 1000-5000 | $2B+ | Larry | Engineering Director                           | $20 M+ | 30 | 23 min 17 s |

*Names have been changed to keep respondents’ identities anonymous.*
the ninth interview, responses were replicating. At the end of the eleventh interview, no new information was being gleaned. In total, twelve interviews were needed to reach saturation. Table 4 provides detailed information.

3.5. Analysis

To analyze the interviews, a multi-step approach was used. During the first step, multiple authors listened to the interview recordings or read the transcripts to find overarching themes and relevant sub-themes. Second, the themes and sub-themes were compared and reviewed until an agreement was reached. Themes and sub-themes were compared for reliability. Overall interrater reliability using the approach advanced by Rust and Cool (1994) was 0.94, exceeding the recommended threshold for qualitative studies. Further, any minor differences were resolved through discussion.

4. Findings

While industrial markets, and firms within these markets, saw the emergence of a number of changes created due to the COVID-19 pandemic (chaos), six areas were highlighted from the qualitative interviews. First, influences from governmental controls were found to affect industrial markets. Next, findings were provided about how firms reacted to issues regarding the supply and demand of products (non-linear changes). Adaptive systems were developed over the short-term with longer-term impacts, including shifts in communications and changes to how short-term business was conducted. Lastly, new normal situations where potential and actual changes for the longer-term have started to emerge (new emergent states).

4.1. The COVID-19 pandemic

Respondents reported the emergence of turbulent and chaotic markets. Industrial markets were in global flux, while uncertainty kept some executives over or underproducing during the short-term. As countries, ports, and manufacturing plants shut down around the world, markets became chaotic. Some executives did not know what actions to take in the short-term and how long these turbulent times would last. It was noted from the interviews that given the uncertainty, larger multinational companies were much more conservative to the unknown liabilities than smaller firms. Smaller firms were more likely to open quicker than some of the multinational organizations that adopted business practices that resemble a closer form of pre-pandemic business. For example, Allen, a Sales Director of an original equipment manufacturer (OEM) with over $30 M of revenue responsibility in a $30B+ multinational company, provided an overview of how industrial markets are experiencing chaos:

We have customers with varying levels of demand. What I mean by that is some customers cut their build rates immediately. Other customers held out to the bitter end. They were trying to go great guns and build just as many as they were pre-pandemic. So, there was a lot of chaos.

4.2. Governmental controls

While industrial markets are turbulent, a prominent theme that emerged was governmental controls through increased restrictions and varying degrees of enforcement. Respondents highlighted the non-linear change regarding business from one country to another, in part based on the timing of the pandemic and spread of the virus. An example of non-linear change is as follows: It was observed from multiple interviewees that some developing countries were more likely to keep working than developed countries in the early portion of the pandemic. For North America, there was a time when Mexico's supply chain was more reliable than the United States. Ports, rail, and trucking operations in the United States were negatively impacted along with manufacturing, while many Mexican operations kept a steady supply of products to industrial markets.

4.2.1. Restrictions and enforcement

One of the respondents, Kevin, a Global Aftermarket Director with over $100 M responsibility, described the governmental controls faced across the globe:

Different regions have experienced it differently...it started in Europe, so they were ahead of us and much more stringent early on, ...like in Italy, they completely shut down and went into confines...it was all kind of government-led... One approach, one strategy, that enabled these countries to make faster progress was a big confluence, a big shutdown, that took place... In North America, it happened differently. Every state did their own thing, which creates a bit of confusion in North America. In Asia, they went into lockdown completely, but they have now almost completely reopened... Australia and New Zealand had pretty drastic measures put in place. I would say in South America, like in Argentina, where they had, compared to the rest of the world, minimal cases, they also went into massive lockdown.

In addition, industrial firms with manufacturing plants across the globe saw differences in their ability to manufacture and supply products. When governments placed fewer restrictions, some industrial firms used that to produce products out of plants that were able to remain open. Allen provided benefits of having multiple plants around the world:

I was insulated from it (supply issues) a little bit...the vast majority of what we send to my customers comes out of our Mexico plants... Mexico has been much less restrictive... We have had much more success delivering from our locations in Mexico. We have run into some bigger issues in our U.S. plants.

4.3. Supply-side changes

Respondents recognized their firms faced a number of emergent issues and non-linear changes due to the pandemic. Several focal points were advanced in the interviews regarding the impact of the COVID-19 pandemic on their ability to manufacture and supply products. Specifically, lead times, safety, transportation, and stopping production all impacted the manufacturing and supply of products.

4.3.1. Lead times

Operation efficiencies were not the focus of many multinational manufacturing organizations. Efficiency was trumped by safety. Safety took priority as senior executives were not sure of future liability and wanted to minimize health risks as much as possible. Additionally, receiving forecasts from customers became difficult, and therefore, making the ordering of manufacturing inputs extremely difficult. One of the biggest reasons for lead time increases is plants being shut down for a period of time, and/or when running, they were running at a reduced production capacity. Jeff, a Product Director in the North American automotive space with $40 M of annual revenue responsibility, discussed lead time issues:

We are able to supply, but we have seen lead times are starting to extend... Lead times have gone out, and so that is creating a yoyo effect... So, we are delivering, but at a limited capacity. I'd say we're probably seeing 75% to 80% right on-time delivery now, compared to 95% on-time-delivery rates a year ago.

Kevin discussed lead time issues from a high product mix and low
volume product context within the off-highway commercial vehicle space. He focuses on how differences in lead time occur, based on what type(s) of products are being supplied.

Almost six weeks, our plants were shut down down. So that creates a lot of problems. One of the things that makes a difference depending on the business that you're in, ... high mix - low volume, the lead times tend to be longer. Your supply chain is not immediately impacted because you already have the goods in plan, and they're going through long lead times. The issue is that it might impact you a little bit later. It is a lagging issue that we see. Other businesses are immediately impacted as soon as the demand slows, or the demand picks up.

4.3.2. Safety
One common theme that emerged during the supply side, in addition to the demand side, was addressing the safety of employees. While the safety of employees is not new, given the emergence of the pandemic, this created issues that had not been addressed previously. Specifically, processes had to be developed to reduce the spread of the virus if an incident occurred within the company. During the initial months of the pandemic, manufacturing firms had to separate people in highly compartmentalized manufacturing facilities. This included adding barriers, ventilation adjustments, continual COVID-19 testing, and contact tracing. These manufacturing lines were not designed for necessary pandemic precautions. Some interviewees stated larger multinational firms appeared to be more stringent on safety precautions and liability mitigation than smaller organizations. Cody, a Sales Director with a market-leading global manufacturer that has over $30 M in annual revenue responsibility, discussed how his company worked to reduce the COVID-19 spread that could occur during the manufacturing process:

Our factories and our distribution centers, it took a week to ten days for them to figure out the new normal for manufacturing safely... to build-in the safety protocols, the distancing, the barriers, and the mask policies. But for the most part, our plants and our distribution centers operated the way they always had.

Larry, an Engineering Director in the commercial vehicle space with $20 M in annual revenue responsibility, discussed how his company reported spread-related issues. “There is a monthly update to the whole organization, how many positive cases we've had, how many tests we've had to do, and how many people have had to stay home.”

4.3.3. Transportation
Even when firms were able to create safety and reporting processes, issues with the transportation of products occurred. Most aspects of transportation were impacted in one way or another. Ports in some regions may have been shut down or working at less than 50% capacity. Unloading ocean freight decreased with social distancing and limited workers. Country borders were shut and air freight was significantly reduced. Over the road freight capacity decreased due to limited worker availability. Henry, an owner of a contract sales agency with over $10 M in annual revenue responsibility, discussed issues from a transportation viewpoint:

We've seen a gradual increase in backorders. I've seen a gradual increase in shipping times because the trucking companies don't have the number of people they need to move the freight... I'm seeing hiccups in it where something that used to take three days to get here has taken five days.

Allen discussed global logistics issues based on the country of origin of the product being manufactured:

The country of India shut down for a month or two. If you had any suppliers in India, unless you had an enormous safety stock, it became an issue. China obviously was one of the first to have shipping disruptions. All the way from delayed shipping because of impacted countries to ports that are understaffed due to the pandemic. It also takes longer to get things through customs.

4.3.4. Stopping production
The ability to manufacture and supply products out of certain plants was not always seen as beneficial. When products were able to be manufactured, but demand was not there for the product(s), companies needed to find ways to reduce production. Bob, a Vice President with profit and loss responsibilities (P/L) of $40 M in North America within a global company, discussed concerns about not being able to stop production of products fast enough, creating disequilibrium in supply and demand:

Our manufacturing footprint is not out of China and did not shut down early in COVID. We manufacture out of the Middle East and Europe. Additionally, we have 30 days of inventory on the boat. You can't shut the spigot off fast; our stock (inventory) has gone up considerably. We're positioned to meet the demand as it comes back. The bigger challenge for us has been trying to shut spigots off, not completely, but dial them back going through COVID.

4.4. Demand-side changes
Demand for products fluctuated to a greater extent than at any time over the last fifty years because many products or services had no demand, although other products or services had record demand. To add an additional layer of complexity, customers were not able to forecast demand with much accuracy or level of confidence. Firms shifted demand for the types of products they were looking for, creating both delayed demand for some products and new demand for others. While most products experienced considerable demand reductions, certain products saw an amplification in demand. This includes the predictable increase in PPE; however, other products, including the specialty market, saw increases in demand. In addition, like the supply-side, safety was a concern, given the context of the pandemic.

4.4.1. Shifting demand
Companies early in the pandemic saw repeated shifts in the demand for products. PPE saw a rapid increase in demand, while many traditional industrial products saw their demand drastically reduce. One informant, George, a National Account Manager selling into the industrial channel with $20 M in annual revenue responsibility, commented, “If it is COVID-related, their sales are through the roof. If it's non-COVID related, we're hearing anywhere from thirty to seventy percent reduction in sales year-over-year.”

Bob reinforced the shift in demand for PPE and pandemic related items, stating:

Respirators and things like that are a lot of metal fab(rication) work. We have put a lot of focus on selling into this space. It has been successful because there is so much manufacturing involved, such as deburring, grinding, welding, and spot welding.

This was further supported by Cody, a national sales director, who discussed how two major distributors’ shift in focus impacted his firm's business:

They (two large distributors) refocused the core of their business... as they made that transition to pivot from the core of their business, this is where our business dropped in the space of about 45 days; we watched our business contract over 40%. It was because big distributors weren't buying and weren't forecasting. The sum and total of their resources shifted to categories, and product management
4.4.2. Delayed demand
Firms are also experiencing delayed demand for products used within a service context. As company revenues became uncertain, they significantly reduced outsourced maintenance. In addition, multinational companies did not want any non-employees on the property due to unknown future liability. As companies and consumers were not using products, servicing was still required. Maintenance was still needed. One respondent, Bob, discussed delayed demand for these types of products, commenting:

Automotive is starting to come back because the side of automotive that we manage is not production; it's aftermarket. All those parked cars, all those delayed maintenances, have come back around, and people need it... within the last 30 days, we've dived back into that market and been quite successful partnering up with folks...because people just delayed all that work.

4.4.3. New demand
Firms also saw demand increases in some non-PPE-type products. Often demand in specialty/luxury hobby type aftermarket products that could be used within a person's garage or barn saw increased demand. Henry provides context in the high performance and specialty aftermarket for automotive products, stating:

Look at the other side of it because specific people (hobbyists) have had time and money... It's an older clientele that actually has the money because they've invested in the cars that they want to either restore or upgrade.... You're seeing one arm of specialty aftermarket parts doing really well, and then you're seeing general truck delivery/transportation that is probably not as strong as it should be.

4.5. New communication processes
Given the disequilibrium state, fluctuations, and changes, new communications processes emerged, showing adaptive systems being put into place. It was quickly recognized that the developed world had better infrastructure than the developing world. Proactive companies were applying technology to answer customer questions and requests digitally. Given long lead times in the budgeting process of multinational companies, most employees had to work with the technology they had. Much of the existing technology was deployed or applied in a new way to help with the reduction or elimination of face-to-face interactions. Given the issues with face-to-face interactions, technological enhanced tools, such as MS Teams or e-commerce platforms, have become common to address manufacturing issues or make sales calls. Cody provides an overall assessment of new communications:

There are still technical difficulties from time to time. People buy things from people. It's been tough to launch new products, new initiatives, and new programs. Changes in organizations have happened; those things have been hard to communicate. All trade-based events, trade shows, customer fairs, plant visits, sales blitzes, all those things have been eliminated. It's been very tough. The winners in this have been the distributors that have a vibrant e-commerce platform and the ability not just to transact business but the ability to attract new customers from a virtual platform.

4.5.1. Reduced face-to-face interactions
Face-to-face interactions have stopped for sales calls and maintenance calls. Multinational firms were more conservative than smaller firms in mitigating future unknown liabilities, and most travel stopped. Presidential or upper-level executive signoff became standard for an employee to go to a customer location or to let a non-employee on their premises. George discussed issues with face-to-face interactions from both a supply and sales viewpoint:

A lot of places won't let you do face-to-face... If we do go to a customer, we actually have them fill out a questionnaire just to say, "I got this person from (Company) coming in. If they travel via public transportation, will you allow them into your facility?" Because what we found out is that when we did finally get someone to a customer and they found out they were on an airplane, they would not allow them into the facility.

Daniel, a Sales Director for a multinational manufacturer with over $40 M in annual revenue responsibility, discussed the approval process to call on a customer, commenting:

If there was an issue at a customer's manufacturing plant, the engineering liaison can go in. But the engineering liaison has to justify why he is going, what needs to be done, and what the outcomes are going to be. He will have to build a business case as to why he needs to go. If the customer asked, then you need to get permission from the customer's management, and you also have to get permission from his senior leadership.

If face-to-face calls are made, they are often outside of the companies' physical facilities. Evan, a Vice President of a P/L company with over $100 M of annual revenue responsibility, discussed service interactions and sales interactions during the pandemic:

You literally can't even get in the door. They won't talk to you. They won't meet. They won't bring service guys in to pull the gearbox out unless it is critical, and that really impacted that side of the business. Now that's just starting to open up. We're literally having meetings in the park with some of these guys so we can get face-to-face, reintroduce ourselves, and say, hey, let me come in and check your gearboxes.

4.5.2. Enhanced technology
Spending on technology and digital tools increased at most of the industrial firms, with print expenditures and conference spending declining significantly. The use of enhanced technology is being used to offset the inability to make face-to-face calls. Bob discussed the use of digital tools to make sales calls. "The selling approach around the world has changed; we are much more digital now. We've completely adapted and are making significant investments in a digital world. You don't sell face-to-face; you sell through technology and platforms. We have modified our website in order to do virtual selling." Bob expands his explanation of technology-enhanced communications from a global viewpoint, stating:

In industrialized nations, it's very similar. They're adopting digital virtual selling, and we're actually trying to deploy it across the world. Just because we're so far ahead of the curve, we're doing all the beta testing for Germany, Europe, places like that, India. But when you get to Mexico and less developed countries, there isn't a digital infrastructure, and you have to follow traditional sales approaches.

Bob then discusses the creation of technology-enhanced communication tools by the sales force, "My guys spend a lot of time... shooting demonstration videos... they're in their garage, the tool is plugged up, and they're doing virtual demonstrations. That approach to value selling around virtual selling has been huge."

Consistent with Bob, George reinforces the importance of enhanced technology for demonstrating products to customers, commenting:

One of the key things starting to gain a little bit of footing this week is live virtual demos. A lot of our customers wanted to demo a tool, and
usually, you will have a person live demoing it. But now that they can’t, via Teams, we will set up a professional camera and a microphone. We’ve got a backdrop in place with proper lighting. We send products to the customer ahead of time so that both sides can actively participate in a live demo via Teams. We can show them all the features, advantages, and benefits of the tool.

4.6. Short-term changes

People have changed how they purchase products, forcing the creation of adaptive systems. The shift has moved away from traditional brick-and-mortar locations to online platforms. This creates issues for the survival of certain channel partners but a boom in business for other partners. Manufacturing firms, in response to the pandemic, are addressing firm performance and budget issues, most immediately for the short-term. However, performance and budget concerns also spread into the longer-term changes. Throughout many firms, high levels of frustration are occurring when trying to assess performance for this year and forecast a budget for next year.

4.6.1. Brick-and-mortar

Many of the traditional brick-and-mortar locations are struggling due to the pandemic. In addition to issues with obtaining the needed supply of products, they are seeing large reductions in the volume of location traffic. One respondent, Jeff, discussed the impact of the pandemic on the distribution network based on company size and the location(s) where they are conducting business, stating:

The mom and pops, because traditionally they’re a storefront activity, they have clearly suffered. People aren’t going into the store. But those mega online retailers are, they’re the ones moving product. They’re the ones that, because they’re able to show things more virtually, can tell you more about the product. They’re the ones that we’re seeing a record year with.

George then discusses issues that smaller independent distributors are facing:

COVID accelerated a wedge between winners and losers. The large nationals have won, compared to the independents, just because of the bottom line. The nationals have larger inventories with digital platforms. There is a strain on a lot of our independents, where some have actually gone out of business.

Frank, a Regional Director with over $30 M in annual revenue responsibility, discussed the changing impact on store locations:

Walk-in traffic essentially stopped for the month of April… Probably a third of the customers said, ‘not allowed to see you anymore.’ We were delivering product outside. We were dropping product off on the doorstep, and they were coming and getting it. Salespeople are not welcome inside.

4.6.2. Performance

Firms have made drastic shifts to focus on budgetary cuts to gain profitability, while not being as focused on revenue generation. Ivan, a Call Center Manager with over forty employees in multiple countries and over $20 M of annual revenue responsibility, discussed the drastic decline in revenue, stating:

In March/April, sales nosedived. We were doing twenty-five percent of profit plan… it started coming back…to fifty percent of plan in May. Then seventy into the eighties, around June. We’re about eighty percent of plan (September)… Everybody cut, all discretionary spend(ing) went out the door. All travel stopped. Some companies love the MULA (mandatory unpaid leave of absence)… Merit increases, discretionary spend, all your budgets got slashed, and it’s just going to continue.

Several respondents discussed reductions within the workforce. This included pay cuts and reduced workloads. George discussed what several distributors are doing to reduce costs, “I know a large industrial distributor where they, and this is one of the extremes, but they take off a week without pay, and then their pay was cut twenty percent.”

4.6.3. Budgeting

The ability of companies to forecast budgets is an issue. Budgeting is extremely difficult when your customer cannot forecast their demand. Executives from large multinational companies have mature processes for forecasting and planning. However, these tools provided limited help, as customers and suppliers were not sure of future demand. Jeff describes issues that are being experienced at the executive level:

There’s a high-level frustration at the very executive level. They’re trying to make decisions and what to do with resource allocation overall. You’re just not getting good feedback from the customer base, and quite honestly, the customer base doesn’t know.

Henry reinforces these concerns at the customer level, stating:

When do we need funds next year? How do we budget? How do we budget for marketing? How do we budget for trade shows?… We are trying to get information from our customers. Our customers really don’t know because they’re trying to figure out what their marketing plans are… There’s just a lot of gaping holes right now that people are struggling to figure out… If their people are going to be active and things are gonna happen, they want to have the budgeted funds to support.

Evan reinforces the customer concerns, in addition to suggesting a level of optimism and concern moving forward:

The biggest thing right now is… we’re trying to talk to our customers for budget purposes. What’s your plans?… In many cases, they say, “I don’t know. I wish I could tell you, but I don’t know.” I feel a level of optimism building; things are getting ready to happen, there has been a pent-up demand.

4.7. The new normal

Almost all respondents (92%) felt that the type of communications has been altered and will continue to be altered to a new normal, suggesting that new emergent states have been and will continue to be created. This includes hybrid systems, changes to how competitive information is generated, and different forms of distractions that are now occurring, and will continue in the new normal. Firms will also continue to alter processes as to how they generate competitive knowledge. In addition, performance and budgeting changes will likely move forward into the new normal.

4.7.1. Hybrid systems

Some firms will move away from face-to-face calls, even when the pandemic is over. However, hybrid systems, a reduction in face-to-face calls, and an increase in technologically enhanced communications will emerge as the new normal. Bob discusses access to companies and interactions with those companies:

Your more sophisticated customers with clean processes will be limiting more visits in the future. This is global. In any industrialized nation, you’ll be able to get into a facility, but it’s going to be limited. There was a day when you could go in with a distributor, salesperson, your salesperson, their sales lead, or whomever, now we’re pretty limited. You could get one person in, maybe two people in max, and it’s got to be for a purpose. If you’re coming in to try to sell them...
something else or upsell them, that's going to be virtual. If they have an immediate need, what we're seeing is they'll first try to get us to manage it virtually.

Bob followed his point with a recent example about a down channel partner, stating:

There're some points where we just recently went into company X (global automobile manufacture). As an example, we tried to do a virtual meeting. We just couldn't see everything on the line where they were willing to shoot (video). At that point, they said, 'okay, we really need your help. Can you come in?' You don't get to just say: ‘I'm going to be in your area. I'd like to just stop by, and if I can help you with anything, I will help you.’ It's got to be with purpose, and more so with purpose to the point that we haven't been able to resolve it either over the phone or through video.

Kevin further stressed the emergence of hybrid systems. His thoughts about the future provide evidence of hybrid models being more common:

I think it's gonna be a hybrid model. We still need to see people... That's true for the internal teams, as well as the contact with the customer. You just can't do it all by Teams... We're not going to have the same level of contact face-to-face in the same room as we used to. I don't think that's ever coming back.

4.7.2. Knowledge generation

Jeff discussed the future of the competitive landscape and methods to obtain competitive knowledge:

I think the traditional way of getting information about the competitors... go to a trade show—all that kind of stopped. You have to spend more time online, seeing what's going on in terms of their content, etc. That seems to take a little bit more effort... my role has probably spent more time benchmarking competitor products as a result, which is different. I have a much better understanding being at home and sitting on the laptop and looking up and benchmarking than comparable time when I did it in the office.

4.7.3. Remote distractions

Distractions that were not part of the average workday prior to the pandemic are now becoming an increasing issue that industrial firms will need to address. Working from home presents a new set of challenges that are not work-related. Daniel discussed issues with remote work:

Working remotely has been probably the most significant challenge as far as timing. Getting things done in a timely manner, it's definitely dragging things out more because of the distractions. But you have people that were traditionally eight to ten hours a day in a corporate office that were focused on that, and now they've got dogs, kids, and other things that interrupt the day. You know laundry, grocery store, or dishes. Typically, that wouldn't be on their mind. I don't think we have a sense of urgency because of the environment that we are in.

Fig. 1. The new normal framework.
5. Literature advancements

5.1. A new normal framework

Based on the results of this study, firms are able to use the new normal framework as a mechanism to identify and begin to address the uncertainty created by a global disruptive event. Fig. 1 depicts emergence theory components within the headings. Specifically, chaos, nonlinear change, adaptive systems, and new emergent states are examined. Within the box diagram, themes from the qualitative interview are developed. The model depicts considerations (governmental controls, supply-side changes, demand-side changes, new communications processes, and short-term changes) that impact the creation of a new normal (s) emerging from the COVID-19 pandemic.

Governmental controls are impacted by global restrictions and enforcement variations. Supply-side changes were impacted by lead-time changes, safety concerns, transportation delays, and production stoppages that lasted weeks and sometimes months. Demand-side changes consisted of shifting demand, delayed demand, new demands (like PPE), and safety precautions. New communications processes consisted of reduced face-to-face meetings and leveraging technology in new ways. Short-term changes heavily impacted brick-and-mortar company sales, sales performances, and budgeting processes.

Based on changes, the new normal includes hybrid systems for traveling and industrial selling, with technology being further leveraged and reduced reliance on face-to-face communications. Thus, driving new forms of efficiency that were not common prior to the pandemic. A higher degree of employees working from home is occurring; however, forms of remote distractions are now becoming more of a concern. Performance depending on the tasks will be negatively or positively impacted. Positive impacts include driving higher efficiency by negotiating more structured long-term agreements (LTA’s) by the purchasing department versus making traditional sales calls. A big change for salespeople is to be at their computer answering questions live versus being on the road driving and meeting with potential customers. This could be considered positive from an efficiency standpoint but negative from a salesperson’s viewpoint when considering customer interactions.

Lastly, the budgeting process and allocations are expected to change going forward. Fixed costs (office space) and variable costs (travel and marketing budgets) should be expected to be more thoroughly

Table 5
Issues, impacts, and strategies.

| Topic and relevant proposition(s) | Key issues | Potential short-term strategies | Potential long-term strategies |
|-----------------------------------|------------|---------------------------------|-------------------------------|
| Global disruptive events (P1)     | Reduced supply, Demand changes, Shipping challenges | Leverage associations and network to understand alternative solutions, Flex internal and external capacities, Alternative sourcing where available, Create processes to handle shifts in supply and demand | Create Lean and Six Sigma teams to redesign products and services to eliminate bottlenecks issues, Inhouse sourcing of critical components |
| Governmental responses (P2)      | Government restrictions’ impact on supply and demand | Leverage governmental tariff powers to influence behavior of specific countries, Align governmental capabilities and resources to break private sector bottlenecks, Implement policies to aid the production and flow of products when restrictions differ by country | Leverage governmental financing powers to invest in technology development and infrastructure, Government to partner resources with industry to develop critical components to reduce foreign reliance |
| Global manufacturing changes (P1 and P3) | Redundancy of manufacturing, Ability to shift manufacturing, Shipping issues, Potential for excess capacity | Qualify new/additional suppliers, Incrementally add different countries to manufacture based on government restrictions, Industry partnerships with non-competitive that have excess synergistic manufacturing capacity for geographic flexibility | Develop 3rd party cooperative partnerships to flex regional manufacturing within needed commodity segments, Expand manufacturing base (directly or through partnerships) closer to final assembly, Implement new product design with alternative components, Redesign products to meet supplier capability and ability to deliver |
| Technology changes to communications (P4, P5, P6, and P7) | Increased global footprint and number of global partners require additional digital technology, Leveraging technology, Failure if new technology is not adopted | Leverage 3rd party omni-channel partners to sell product and gain deeper insight to drive efficiency, Integrate bolt on technologies (ex. Bots and Drift) to increase customer and supply chain knowledge, Remap the way work is done - not repeating how work has always been done, Leverage 3rd party expert technology providers to increase quality and speed of conducting business | Develop a digital interface as additional channel to customers for assisting in obtaining deeper customer understanding to drive deeper supply chain insights, Value stream map work process to eliminate waste and non-productive tasks, Fully leverage technology to drive efficiency, quality, and speed |
| Short-term versus a long-term focus (P1, P5, P6, P7, and P8) | Short-term focuses can hurt long-term performance, Understanding if short-term changes will have a lasting impact, Budget expectations | Work weeks shortened to reduce costs, Benefits reduced to lower costs, Pay cuts to offset decreased sales | Outsourcing non-core business functions and supply chain activities, Increase price where possible to make longer term investments to enable a more flexible business model |
| Hybrid systems (P4, P6, and P7) | Hybrid interactions with external stakeholders, Balance of technology and face-to-face communications, New forms of distractions can emerge | Leverage technology with additional services to personalize virtual meeting experience, -Freight product ahead of time (live demo while virtual), Employers could provide concierge services to employees working from home to reduce distractions, -Food/meals delivery | Create more structured long-term business agreements (LTA’s), Create periodic senior level executive interactions with suppliers and customers, Redesign offices and workplaces for social distancing - accelerate getting people back to work, Hybrid work - Fewer workdays in the office - average 2 to 3 days per week |
shutdowns to limited restrictions, these create the need for additional negative effects of the COVID-19 pandemic, industry firms should logistical bottlenecks, beyond federal-level policies, depending on the pandemic, different state governors were allowed to set different work disruptions differently depending on their region. In order to mitigate the negative effects of the COVID-19 pandemic, industry firms should consider partnering with governments to distribute and expedite vaccine implementation as a mechanism to reduce the impact of the COVID-19 pandemic. Minimizing the outfall on industry will include mitigating variant impacts like SARS-CoV-2, which is accelerating transmission in specific regions around the world (Fontanet et al., 2021; Priesemann et al., 2021).

P1: Disruptive events (country border closings, ports at limited capacity, and airfreight flights canceled) will impact both the supply and demand side within the industrial markets. However, when the extent of the disruption is global in nature, all industrial firms will feel the impact (short and long-term), creating change, adaptive systems, and new emergent states.

Second, governmental forces play a significant role in how industrial markets and firms within these markets are able to react. From total shutdowns to limited restrictions, these create the need for additional inquiry to provide both firms and governmental bodies guidance on how to manage during a disruptive event. Federal governments will need to decide if significant infrastructure, including shipping ports, airports, and rail lines, need common national regulation as a mechanism to reduce the impact of future disruptive events. During the COVID-19 pandemic, different state governors were allowed to set different work restrictions on shipping ports for their states. It is very difficult for industrial firms to develop and have a comprehensive logistics plan when California has its ports working at 30% capacity and Georgia or Texas are working closer to full capacity. State-level policies can create additional bottlenecks, beyond federal-level policies, depending on the politics of a specific governor.

The federal government should determine what products need to be localized for national security. The fact that manufacturers could not produce enough PPE to keep front-line workers and citizens safe is a shortcoming that needs to be rectified, not just for a single country but across the globe. It may also be advantageous for governments to create tax incentives and/or duties on specific products as a mechanism to incentivize corporations to develop an acceptable localization strategy. Lastly, governments should be benchmarked based on a percentage of the global population versus the percentage of global infections versus the percentage of global deaths. Different protocols were applied to the early phases of the COVID-19 pandemic, companies with global supply chains were, therefore, limited in capacity (Notteboom et al., 2021). Mexico, on the other hand, did not have the operational shutdowns that Asian countries and the United States experienced. Companies with operations in Mexico maintained a relatively steady flow of products.

Companies may consider more global partnerships to expand geographic footprints versus making significant capital investments on their own as a mechanism. Sometimes, these global footprints benefit large companies and make it more difficult for smaller or regional companies to compete. However, having operations in multiple countries will create differences in how firms can stop production (cut the spigot off) if decreases in demand occur. Global supply-side footprints should be analyzed to better understand critical components and the importance of having a localized source or if low-cost countries will suffice. Low levels of geographical diversification have been found to have a positive association with firm performance (Kovach, Horn, Manikas, & Patel, 2015). Kovach et al. additionally found operational scope is associated with improved performance in unpredictable environments. Further, Wood, Wang, Olesen, and Reiners (2017) found that greater levels of business diversification and inventory slack can help mitigate negative stock market price changes when supply chain issues occur (example – product recalls). Future research could conduct a comparative analysis and estimate divergent short-run and long-run impacts on big and small firms.

P3: Companies able to shift manufacturing between different countries will be better able to maintain supply to meet demand during global chaos; however, the ability to manufacture is not always seen as beneficial.

Fourth, companies will want to consider deeper integration with customers via digital technology as a mechanism to help improve efficiency. Digital linkages beyond traditional electronic data interchange (EDI), such as data rooms, may assist in better understanding end-user buying trends and demand. Omni-channel and digital e-commerce systems separate a company’s ability to transact and deliver products to customers. Some companies afraid of Amazon’s ability to digitally transact and distribute products from 2015 to 2019 also created their own customer digital interface (Bloomberg News, 2017). During the COVID-19 pandemic, these companies with digital platforms could transact and distribute products. Many companies that did not invest in omnichannel distribution were not able to sell products efficiently during the COVID-19 pandemic. The COVID-19 pandemic may have pulled up the need for a digital e-commerce system, putting large segments of the market without digital e-commerce systems in place at a future competitive disadvantage. Developing a better understanding of smaller to mid-size company future prospects will be necessary to understand future winners and losers, along with competitive intensity.

P4: When faced with non-linear changes, firms will seek the aid of technology. Firms failing to adopt technology run the risk of failure during a disruptive event. As firms increase their global footprint and number of global partners, the need for digital technology adoption increases in importance.

Fifth, during the early phases of the COVID-19 pandemic, many industrial firms were able to keep profits flat while sales were down 20 to 30%. A significant component of this was the ability to quickly reduce manufacturing as countries and regions closed due to rolling geographic spikes in the COVID-19 virus. Prior to a vaccine, COVID-19 hotspots seemed to be moving around the world at different time periods. During the early phases of the COVID-19 pandemic, companies with global footprints adjusted manufacturing to countries that stayed open as a mechanism to reduce the impact of the disruptive event. Mexico is a good example. In the early phases of the pandemic, some Asian countries were locked down (Notteboom, Pallis, & Rodrigue, 2021). Once they opened, some west coast governors within the United States limited port capacity in their states (JOC.com, 2020). Many Asian supply chains were opened, some west coast governors within the United States limited port capacity in their states (JOC.com, 2020). Many Asian supply chains were opened, some west coast governors within the United States limited port capacity in their states (JOC.com, 2020). Many Asian supply chains were opened, some west coast governors within the United States limited port capacity in their states (JOC.com, 2020). Many Asian supply chains were opened, some west coast governors within the United States limited port capacity in their states (JOC.com, 2020).
expenses and increase efficiency through technology. Industrial employees were having meetings in an hour versus taking two travel days for a face-to-face meeting. The reduction of travel and entertainment budgets, and increase of virtual meetings, lead to significant savings. From a financial viewpoint, firms quickly adapted expense reductions. Some of these savings were shifted toward the purchase of enhanced technology and maintaining profitability. These shifts create short-term survival; however, the long-term impact of these mechanisms need to be further addressed.

P5: When faced with non-linear changes, firms will shift focus more toward short-term performance versus long-term performance. A better understanding if short-term technology changes will have a lasting impact on long-term business models, ability to continue to drive efficiency gains, and duration of obtaining incremental revenue in industrial firms is needed.

Sixth, firms are looking to understand what a new normal will look like. Both maintenance and sales calls will likely move toward a hybrid model (Hartmann & Lussier, 2020). A current operation or product line that is more established with structures in place will more than likely not receive the same travel budgets as new product development, product launches, and strategic planning. Commercial fixed costs, like salespeople, may also be scrutinized. Business-to-business industrial markets are known to have highly technical and experienced commercial employees that are well compensated. Highly compensated technical employees are difficult to replace and increase fixed costs in cyclical markets when managing costs is critical toward the bottom of the economic cycle.

Questions and concerns that can be addressed through enhanced technology, without the need for an employee to travel to the site, will move toward an online format as a cost-reduction mechanism. However, understanding how to balance the use of face-to-face calls and technology-enhanced calls is still an area where limited understanding is available. What will happen if firms move entirely to a remote call? Will they lose customers when face-to-face calls are safe and used by other firms?

P6: Hybrid systems will emerge that do not fully abandon old systems, but see increases in efficiency. However, industrial firms will need to balance the use of technology and face-to-face communications not to lose customers, while serving technical markets and maintaining relationships.

Seventh, new forms of distractions created by hybrid systems will increase the number of distractions employees experience. In industrial markets, customer support and relationships are critical. A number of industrial workers that have lived on the road for many years could now be getting more accustomed to working from home. They are able to spend more time with family and enjoy more hobby time. Are there long-term impacts of employees growing more accustomed to working from home, or does this revert back to business-as-usual once society is vaccinated? Does a lack of focus negatively impact customer support and relationships? It would be worth understanding if these are distractions to work productivity or if employees are more efficient working out of a home office. Research should examine what types of counter-productive work behaviors occur when hybrid systems are put into place (Martin, Brock, Buckley, & Ketchen Jr., 2010). A better understanding of distractions will allow firms to develop mechanisms to reduce these types of wasted resources.

P7: Given the complexity of industrial firms, what are best practices to balance long-term revenue optimization, commercial overhead, customer relationships, and technical support when disruptive events occur. When hybrid systems are put into place, new forms of distractions can emerge, creating the potential for counterproductive work behaviors.

Lastly, as firms shifted short-term performance goals and budgeting as mechanisms to control losses, firms will experience the impact of these changes over the longer term. During the early phase of the COVID-19 pandemic, the current products offered by companies continued to progress forward. At the same time, new product development, new product launches, and strategic planning were moved to the back burner, as companies used these as a mechanism to cut costs and defer costly face-to-face interactions. Understanding the longer-term financial impacts to short-term financial savings is important. Obtaining more in-depth knowledge of long-term planning, such as the impact to travel and entertainment budgets, is needed. Through COVID-19, some industrial firms have found that they may not have been as efficient with existing technology and were doing tasks that did not need to be done or applying outdated processes.

P8: Short-term performance and budget changes will lead to long-term performance and budget changes in industrial firms.

5.3. Theoretical and literature advancements

Traditionally, emergence theory has focused on how interactions lead to the creation of new evolving states (McKelvey, 2004) and that new phenomenon arises in a system that was not in the systems prior. In reviewing prior literature, these states have been viewed as being either positive or negative in nature (McKelvey, 2004). This study advances emergence theory literature to include short-term and long-term impacts. From the qualitative interviews conducted, it was found that shutting down the economy globally leads to significant short-term disruptions, with short-term being defined as the early part of the COVID-19 pandemic or pre-vaccine. However, longer-term, it remains to be determined the lasting impact of the disruptions created. Thus, the short-term phenomenon will have a higher state of non-linearity and disequilibrium, while the longer-term phenomenon will likely revert, to some extent, back toward the prior state. However, some long-term impacts will not revert back to their pre-equilibrium state. For example, a number of regional supply chains may emerge (compared to global ones) with reduced logistic complexity, given local sourcing. Business travel may find a new long-term equilibrium, as technology has proven its capability, creating a hybrid interaction model. In turn, companies will likely reduce the amount of travel any given employee conducts, reducing travel expenses and increasing available time that was used by the travel process.

This manuscript advances the literature base pertaining to COVID-19 issues within industrial markets (see Table 1) in a number of ways. First, the majority of industrial studies that focus on COVID-19 are conceptual in nature. Recognizing the importance of advancing the conceptual nature of the literature, some studies have started to use a qualitative approach (e.g., Cortez & Johnston, 2020; Kumar & Sharma, 2021) or a secondary data collection approach (Habel et al., 2020; Sharma, Adhikary, & Borah, 2020), with few studies conducting a mixed-methods approach (Epler & Leach, 2021). The present study advances the literature by providing an early qualitative study using a sample of informants with access to the C-suite. A single informant approach was used to represent each of the given firms. Research could examine similar firms using multiple informants within the given firms, in addition to close suppliers and customers. This potential could provide additional insights into how firms address disruptions. Further, instead of examining multinational firms, national or regional firms should be the focus of future inquiry, given the potential for geographic scope to impact firms (Kovach et al., 2015; Wood et al., 2017).

Second, the present study interviewed employees with significant responsibilities within the industrial markets to develop the new normal framework. The provided framework complements the sales force conceptual study by Hartmann and Lussier (2020), in addition to the Paul, Chowdhury, Moktadir, and Lau (2021) study, which begins to address
challenges and changes that will occur due to the pandemic. Researchers will be able to use the provided framework and propositions to begin empirical examination of the relationships identified within this study.

6. Conclusions

This study uses emergence theory to develop a framework examining the new normal within industrial markets and firms. The chaos created by the COVID-19 pandemic forces industrial firms to address non-linear changes, both from a supply and demand side. From these non-linear changes, adaptive systems are put into place that ultimately gives rise to new emergent states (the new normal). Given the newness of COVID-19 changes, adaptive systems are put into place that ultimately gives rise by the COVID-19 pandemic forces industrial firms to address non-linear changes, both from a supply and demand side. From these non-linear changes, adaptive systems are put into place that ultimately gives rise to new emergent states (the new normal).

This article expands the literature stream while adding managerial implications. Lessons can be gleaned from understanding the impact of the COVID-19 pandemic on governmental forces, supply-side issues, demand-side issues, new communication processes that have emerged, short-term alterations, and developing our understanding of what the new normal will look like post-pandemic. Ultimately, the COVID-19 pandemic has impacted industrial markets and warrants a more prominent position in discussions at academic, policy-maker, and practitioner levels. This manuscript provides a starting point (assessment and propositions) to expand our understanding on the impact of chaos in industrial markets and a vision of possible new emergent states.

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