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How do Agri-Startups Perceive the COVID-19 Pandemic: A Thematic Analysis

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Abstract

This study has primarily featured the challenges faced by the Agri-Startups during the pandemic and their coping strategies. The theoretical framework was established based on the theory of dynamic capability, expectancy theory, and the Janusian thinking approach. Nvivo-13 software was used to do thematic analysis, which involved classifying the data by codes. Subsequently, themes were identified to better understand the factors that impact Agri-startups during COVID-19. Transportation and communication problems, a lack of cash, low sales, changes in customer habits and needs, a lack of workers, and competition from new businesses were all problems. As a way to deal with the situation, they used new digital technologies, cut down on operational and administrative costs, stopped doing business during the lockdown time, and put a few investment choices on hold. The study strongly suggests that Agri-Startups use the same tools and policies as other businesses in order to stay in business.

Keywords: *Agri-Startups, COVID-19, Strategies and Potential*

INTRODUCTION

The world has witnessed one of its deadliest pandemics of all time, COVID-19, which has drastically affected each and every livelihood in all possible ways, and its impact is still prevalent to this day. Wuhan, China, being the epicenter, a contagious disease named COVID-19 was first identified in December 2019 and has been an ongoing pandemic ever since. COVID-19 has the ability to affect an individual both directly and indirectly. Ever since its occurrence, it has affected people not only physically but also psychologically, financially, socially, and in every possible way. It has also affected the performance of many developing firms and industries (Shen et al., 2020). Psychologically, COVID-19 affected their emotional stability, increased their anxiety, depression, seclusion, and pessimistic nature, and eventually made them hopeless (Akat and Karatas, 2020). Financially, this COVID-19 has caused firms in many countries to face a liquidity crunch (Ling et al., 2021). Meanwhile, households showed an aversion to risk and lost confidence in the country's economy (Yue et al., 2020). The resultant lockdown has drastically affected every kind of livelihood and, eventually, every country's economy.

As the agriculture sector is considered an essential commodity, it was functioning despite the pandemic. It, too, had its share of trials and tribulations. The agriculture sector faced several challenges during the pandemic, including issues in the procurement and storage of crops, harvesting, and a shortage of labor (Luckstead et al., 2020). Added to these challenges were the pandemic protocols, which were difficult to follow in the rural areas, particularly maintaining social distancing, liquidity issues, and transport issues due to the restricted movement across the country due to the pandemic (Bhooshan and Kumar 2020). Thus, the farms were severely affected; there was a rise in food prices, eventually jeopardizing food security (Kumar et al., 2021; Bochtis et al., 2020). Among the people who were critically affected during the pandemic were migrant laborers.

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In this paper, we adopt a qualitative approach to elucidate the factors that impact India's agri-startups and how they have fared in the face of these challenges, situating our discussion within the broader framework of the perceived influence of COVID-19 on economic activity.

THEORETICAL FRAMEWORK

Theories substantiate and also enhance the vitality of the current study and research (Song et al., 2020). A few theories have been stated for a better understanding of this study. Dynamic Capabilities Theory comes into the picture here, which is defined as the intrinsic potential of the firm to tenaciously and meticulously adapt or mold to the ever-changing external environment. Dynamic capabilities have become more prevalent in this digital age, with startups adapting to various digital modes of applications in their respective firms (Belitski et al., 2021). In this paper, this theory validates the various strategic management steps that the firms have taken in order to adapt to the challenges and issues that arose during the COVID-19 pandemic. For instance, one of the firms in the study has shifted from offline payments to online payments. The expectation theory, which is defined as a reinforcement that is given to the employees in order to persuade them to work under any situations that may arise and give them incentives for their efforts,

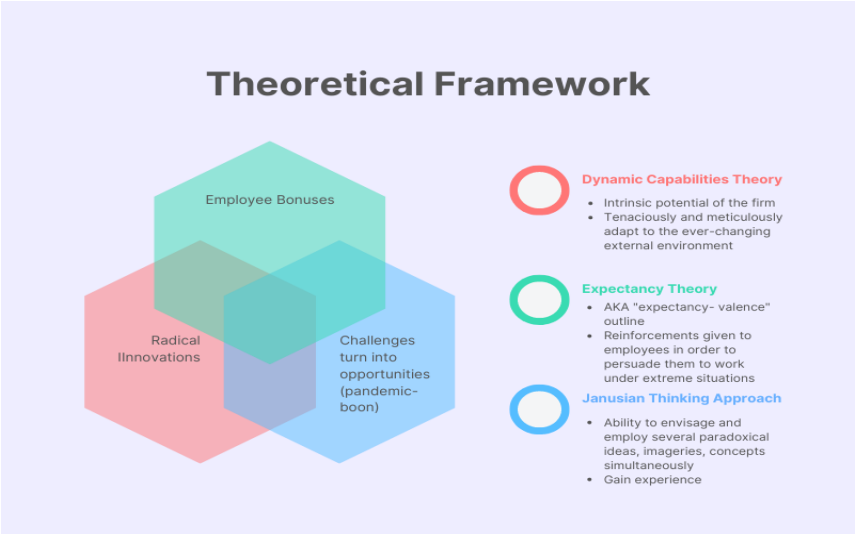

Figure 1: Theories substantiating the study

Source: Authors work

In this context, this paper explains the study of challenges and coping strategies adopted by agri-startups during the pandemic in India. Bearing in mind the losses in the majority of the agri-startups due to the pandemic, there is an urge to upgrade the existing technologies, increase awareness about these new ideologies among the agripreneurs through various schemes that can be implemented by the government, and thus prepare them for new challenges that may arise in the near future (Bhooshan and Kumar 2020). Hence, this paper gives an insight into the challenges faced by the agri-startups and the impact of the pandemic, their techniques that helped them overcome it, and in fact, how the pandemic became a boon to one of the agri-startups.

MATERIALS AND METHODS

Factors affecting agri-startups and their conduct were investigated using a qualitative research approach. According to Thomas & Silverman (2018), qualitative approaches offer "substantial insight into individuals' understanding and experiences".

Study setting

The research was done in two Indian states called Telangana and Maharashtra. The state was chosen for the study because it has a high rate of COVID-19 infections, which made it a good choice for the study (COVID-19 State-by-State Stats, 2021). Based on the Agri-Clinics and Agri-Business (AC and ABC) Scheme, 100 Startups

by Agripreneurs" in India were selected; from each state, two big agri-startups were selected. Layer poultry, a fertiliser dispenser, a woman agripreneur, and a sunny yellow pest trap were all distinctive from one another.

Data collection

To gather data, individual, in-depth interviews were used. The researcher was involved in the collection of data and the transcription of the data files. We asked each company manager open-ended questions and talked with them for a long time on the phone. The responses began with the year of creation of their company, the number of employees in charge, the percentage of loans contracted during the COVID-19 period, sales made in March 2020, and the period of peak of the crisis. The questions we asked about the factors that affected their business and the steps they took were based on three key points: challenges and impact, opportunities, and coping mechanisms and strategies.

Data analysis

To analyse the data, the transcriptions were read a number of times to get a deep knowledge of the data (Charmaz, 2014). A grounded theory method was used to process the data (Figure 2). Thematic analysis was done to classify the data through codes and identify themes. It was done through the following steps: Get comfortable with the data; create codes; look for themes; review themes; and define themes. The interviews were transcribed verbatim using Nvivo-13 software (QSR International, 2020).

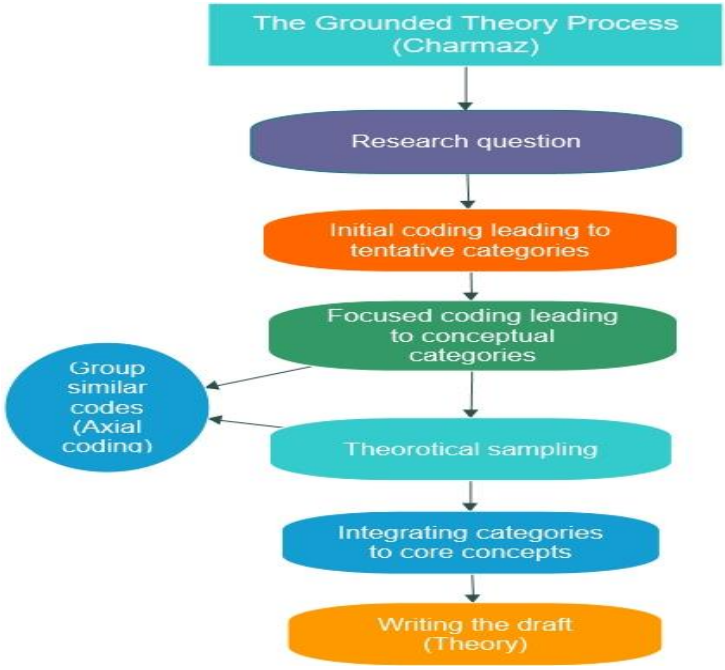

Figure 2: The framework of the Grounded Theory process

Source: Charmaz (2014)

RESULTS AND DISCUSSIONS

The study focused on identifying the challenges and coping strategies of agri-startups in India during the pandemic. The results of the qualitative study are shown in terms of the following big ideas: Hierarchy charts (Figures 6, 7, and 8) help in seeing the patterns in coding and show the codes and subcodes that were made in Nvivo 13. This shows all of the factors that were important during the COVID-19 pandemic, and the breakdown of each type of factor is talked about in Challenges and Impacts, Opportunities, and Coping Mechanisms and Strategies.

The word cloud (Figure 3) is a picture of texts where words that are stated more often are bigger, it shows in a single word where the damage happened and where most of the work to fix it has been done. The jumbled text data helps us understand the trends that have been found through these visualizations.

Figure 3: Word cloud depicting factors affecting in one word Agri-startups during the pandemic.

Source: Survey data

The word cloud analysis analysed the factors affecting agri-startups. The figure shows the points that were most impacted during the pandemic and, at the same time, where the actions were carried out. First we have the "products"; at the height of the pandemic, it was the products of the agri-startups that suffered significant impacts because not only the "markets were closed but also the cities" (Covid-19 restriction), which prevented the flow ("transportation") of products to "consumers", their demand also "reduced", and also the habits of consumers changed suddenly. On the positive side, it allowed companies to adjust their "products" in order to cushion the shock of the pandemic. The impact on the "product" is felt by the decrease in "demand" from "consumers", and road "restrictions". To solve this problem, "online sales" were introduced by the firms.

Profile of the firms

Concerning the year of establishment, the average years of working experience were found to be 9 years among the firms. The maximum working experience was found to be 16 years by one of the firms, whereas the minimum working experience was found to be 6 years. The average size of the firms was found to be around 35 employees and few laid off their employees (figure 4).

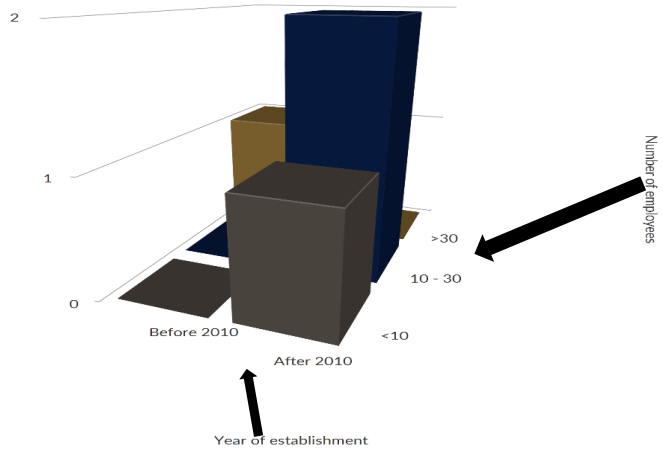

Figure 4: Year of establishment versus number of employees

Source; Survey data 2020

This may be owing to the financial crisis caused by the pandemic and associated restrictions. The own capital financial means for a "start" generally originate from bootstrapping, i.e. on the basis of own capital without any external assistance to achieve only short-term objectives. With regard to the capital investment, it was identified that the percentage of the own capital to the funds borrowed by most of the companies was 75% and a couple of the entrepreneurs had complete investments in their firms. Total sales, among the firms, as on March 31, 2020, the maximum sales were more than 10 cores whereas the minimum sales were less than 1 crore (figure 5).

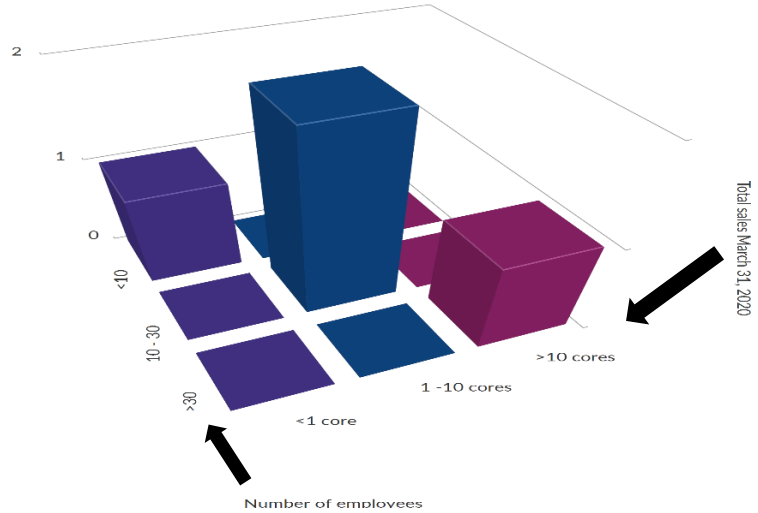

Figure 5: Number of employees versus total sales March, 2020

Source: Survey data 2020

CHALLENGES AND IMPACTS

Labor supply shocks: About 30% of the firms faced labor supply shocks during the pandemic, with the reason being the pandemic protocols, which were difficult to follow. The transport restrictions and various lockdown measures put forth during the pandemic led to a labor shortage (Tasnim, 2020). In a similar study conducted, it was found that seasonal laborers were absent due to travel restrictions or sickness (Aday and Aday, 2020; Apostolopoulos et al., 2021).

Customer issues: Pertaining to the issues with the customers, around 40% of the firms faced this challenge, with the reasons being the lack of proper physical communication, transportation issues, and restrictions during the pandemic. A graphical representation of the count of customer issues among the agri-startups is depicted in Figure 6. A few companies said that some customers also have product quality problems.

Demand drop: It was noticed that about 50% of the firms had a drop in demand during the pandemic as the input costs were reduced. One of the firms has stated that there was a drop in demand for about 20 days during the first lockdown in the month of March 2020, but the problem was solved later. When there is a drop in demand for the company's products, there is a simultaneous reduction in the company's revenue and profitability (Béné, 2020; Apostolopoulos et al., 2021).

Reduced sales: Around 40% of the firms' sales were reduced, mostly during the peak period, as there was a complete lockdown, which proved to be a major disadvantage to the firms. One of the firms has stated that their sales were reduced as the production reduced in the months of March, April and May in the year 2020 during the pandemic. In a study conducted, it was found that after the nationwide lockdown during the pandemic, nearly 80% of the startups reported a sharp decline in subscriptions, product sales, and service (Bhooshan et al., 2022).

Product compromise: It could be noted that none of the firms had compromised on the standard/quality of the product. This is an added benefit to the firms, as the product will be in its original standard, despite the

unforeseen pandemic situation. In a similar study conducted, it was found that logistics barriers compromise the product quality due to short shelf life (Shahidi, 2020; Apostolopoulos et al., 2021).

Consumer-product unreliability issues: Nearly 20% of the firms faced consumer-product unreliability issues. One of the firms has stated that they had retail issues and were unable to meet consumer demands. Every firm's main criterion should be to ensure consumer's safety and satisfaction by hook or crook, if possible, viz., e-commerce as well (Apostolopoulos et al., 2021)

Transportation issues: It was observed that 20% of the firms had to deal with transportation issues during the pandemic as there were many restrictions. Disruptions in the transportation of the products triggered a major setback to the food supply chain during the pandemic (Thulasiraman et al., 2021), thus causing difficulties for the agri-startups.

Competition: It was observed that nearly 80% of the firms had faced tough competition from rising ventures, start-ups, etc. One of the firms has stated that they faced this tough competition due to the price variation of the product.

Supply chain operation challenges: It was also found that about 50% of the firms encountered challenges in supply chain operations, with transportation being hindered and eventually sales reduced. Movement restrictions and social distancing policies in the country affected the supply chain through short-lived shocks to supply and demand in food and agriculture markets (Apostolopoulos et al., 2021).

Marketing issues: It was also found that 20% of the firms faced marketing issues since it was difficult to communicate during the pandemic.

Short-term liquidity issues: It was found that 20% of the firms faced short-term liquidity issues due to production losses, trading issues, etc. One of the firms has mentioned that, as their production has decreased, there has been a money shortage during the pandemic. Sipayung et al. (2022) reported that starting enterprises' current ratio (CR) varied before and after the COVID-19 pandemic. Pandemic COVID-19 has reduced the liquidity of new enterprises evaluated in actual terms.

Investments: With respect to investments, about 40% of the firms invested less during the pandemic times. One of the firms has stated that they thought it was a risk to invest during the uncertain pandemic situation. In a study conducted, it was found that in the first phase of the pandemic, there was a significant rise (Rs. 0.78 million) in the gap between investments required and investments received by the startups (Bhooshan et al., 2022).

Cash flow stress: It was observed that nearly 50% of the firms faced cash flow stress during the pandemic. One of the firms has stated that clients who dwelt far away couldn't pay during the pandemic. Similar findings were reported by Kask and Linton (2013) and Boot et al. (2020).

Survival: Coming to the survival/post-entry-growth challenge, about 60% of the firms faced it during the pandemic, as it was pretty difficult with the increasing newfound challenges coming up. Bhooshan and Kumar (2020), in their study, found out that about 4% of start-ups would not be able to sustain themselves if the pandemic were to last for about 6 months or a year.

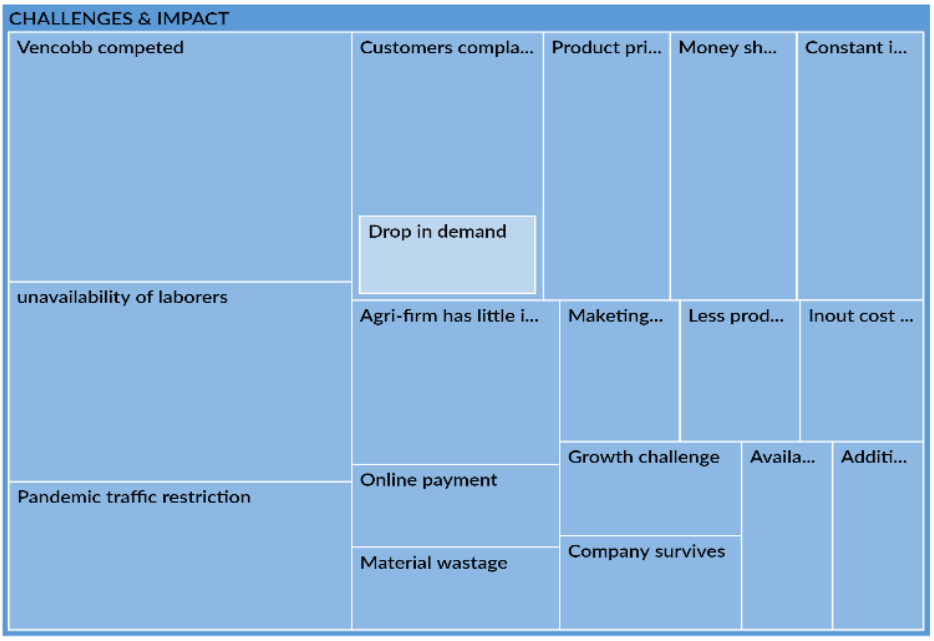

Figure 6: Hierarchy chart depicting themes on factors affecting Agri-startups.

Source: Survey data (2020)

OPPORTUNITIES

Technologies: Among the 4 firms, it was observed that only 30% of them inculcated technologies like block chain, IoT, AI, etc. in their firms during the pandemic period thus, implementing the dynamic capabilities theory. It was noticed in a study that the technology-led agricultural supply chain should be employed in the Start-ups to survive in the long run (Bhooshan and Kumar, 2020).

Online sales: About 40% of the firms started their sales online in order to cope with the pandemic situation. The firms have adopted the dynamic capabilities theory in order to leverage their profits to new levels by selling their products online, thus adapting to the ever-changing environment; here it is the COVID-19 pandemic. A study has found that the creation of online platforms for selling the products is a better move for small-scale producers and firms in developing countries (Liverpool-Tasie et al., 2020; Apostolopoulos et al., 2021).

Consumer habits and needs: As for the changes in consumer habits and needs, 60% of the firms experienced this among their customers due to the inconceivable circumstances. One of the firms has mentioned that their firm is market-driven rather than COVID-driven; hence, there were changes in consumer habits and needs during the pandemic. The fall and insecurity of consumers' incomes creates a change in their livelihoods and also negatively impacts firms (Phillipson et al., 2020; Apostolopoulos et al., 2021).

Radical innovations: Pertaining to radical innovations, 90% of the firms came up with better modifications in their firms to improvise their sales and thus, earn more profits. One of the firms has said that they introduced some cash discount schemes during the pandemic in order to boost up their sales. Here, the dynamic capability theory comes into play as the start-ups have learned to modify or come up with innovative solutions in order to overcome the pandemic crisis. In a study, it was found that one of the firms in Punjab came up with an innovative idea in order to sustain the pandemic: they modified their tractor-mounted pesticide sprayer machine for road sanitization and gave it to the government of Punjab (Bhooshan and Kumar, 2020).

New techniques: Among the 4 firms, 90% adopted new techniques as one of their coping strategies. One of the firms has stated that they improve their product from time to time, take less risk, and add more automation. By the adoption of these new techniques the firms have employed the dynamic capabilities theory. The advancing technologies can facilitate the supply-demand interface, which would make it more important and efficient for the firms' products (Kumar et al., 2020).

Product innovation: About 90% of the firms' transformative solutions were able to innovate their products, which is a major benefit to the firms as it adds more value to their products. In a similar study, it was found that firms that use paper-based work must implement software like SAP, etc., in order to enhance product quality and thus increase their profits (Tasnim, 2020; Apostolopoulos et al., 2021).

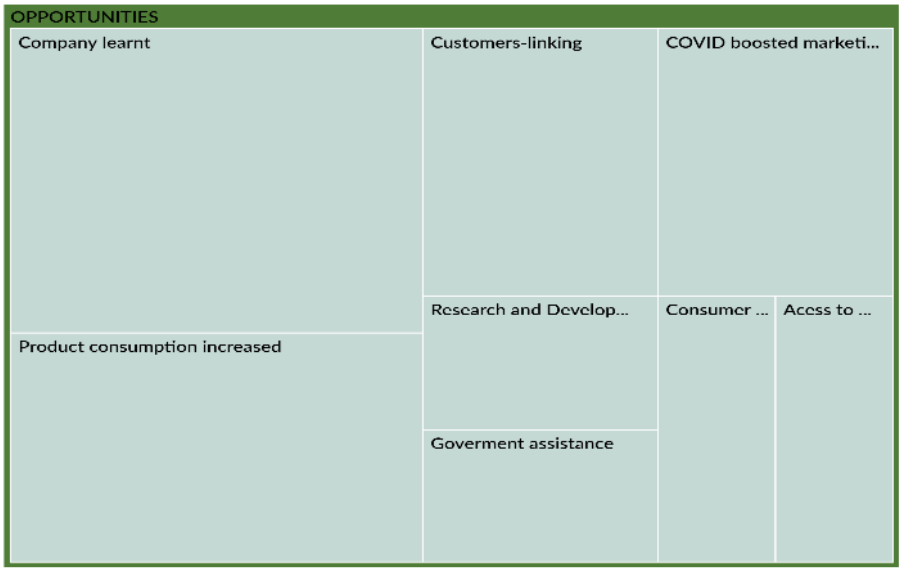

Figure 7: Hierarchy chart depicting themes on factors affecting Agri-startups.

Source: Survey data (2020)

COPING MECHANISMS/STRATEGIES

Lay-off: It was observed that only 20% of the firms have laid off their employees which can be seen as a positive side of the coin during the desperate times. By choosing not to lay-off their staff during the pandemic time, the firms have successfully implemented the expectancy valence theory. In a similar study conducted, it was found that many startups (73.67%) haven't lay off their employees under employment strategy (Bhooshan et al., 2022).

Employees' salaries: It was seen that only 10% of the firms have cut the salaries of their employees, which is a relief in times of trouble for them. In a study conducted (Bhooshan et al., 2022), it was observed that pay-cut followed was less than 5 % by most of the startups.

Investment decisions: It was found that about 70% of the firms have kept their investment decisions on hold during the pandemic as they found it risky to invest in the uncertain times. One of the firms has mentioned that expansion plans were kept on hold and new machines were kept on hold during the pandemic.

Expenditures: Only about 20% of the firms have cut down the operative and administrative expenditures, which is again a sigh of relief because if they cut down these expenditures it might affect the overall quality of their product. While one of the firms has mentioned that they shut down their firm temporarily for a few days, another firm has said that they cut down the operative and administrative expenditures to some extent in order to improve the efficiency of the production. In a survey data collected (Ghadge, et al., 2020), it was found that operating costs, increased investment and product costs are inevitable for the small and medium-sized cheese firms' sustainability in UK (Apostolopoulos et al., 2021).

Employees' bonus: Among the 10 firms, only 10% of them have cut down their employees' bonuses which is a positive reinforcement to them in these desperate times. The firms have applied the expectancy valence theory by rewarding the employees with a bonus during the difficult times thus, motivating them to work well in such situations and also to leverage their skills. In a similar study conducted (Bhooshan et al., 2022), it was found that the startups rewarded their employees with bonuses and benefits.

Operations: It was noticed that 30% of the firms had to shut down the operations of their firms temporarily in order to overcome their losses. One of the firms has said that they shut down their operations temporarily during the first 3-month lockdown period. When unprecedented calamities strike, they affect the food-supply chains severely and disrupt their operations as well resulting in their physical and economic disruptions (Béné, 2020; Apostolopoulos et al., 2021).

Deals: As for the deals, only 10% of the firms had to call off some deals during the pandemic so as to sustain themselves during the callous pandemic times.

Painful budgetary adjustments: Also, it was found that 30% of the firms had to do painful budgetary adjustments during the pandemic to surmount their losses. In fact, one of the firms has mentioned that they had to make painful budgetary adjustments as their family money was invested in their firm.

Recruitments: It was observed that 60% of the firms had to call off recruitments in order to sustain themselves in pandemic situations. The firms that came up with radical innovations to survive the pandemic, have created space for new recruitments and employment opportunities to the youth (Bhooshan et al., 2022).

New business opportunities: It was noticed that 70% of the firms pivoted to seize new business opportunities during the pandemic time, which can be a good advancement to their firms. In a study conducted (Bhooshan and Kumar, 2020), it was found that about 41% of the start-ups pivoted their technologies towards present-day necessities to sustain themselves. As a matter of fact, one of the firms has said that they started a B2C retail model which includes a chain of organic retail outlets which picked up fast during the pandemic thus, pivoted to seize new business opportunities.

Online-first model: It was also noticed that 50% of the firms shifted from offline-first to online-first models, which is again a huge upward mobility in pandemic time. Here, the firms have again applied the dynamic capabilities theory by shifting to online-first model. In a survey conducted (Bhooshan et al., 2022), it was found that very few startups have shifted their products from offline-first to online-first model reasons owing to the higher commission and courier charges by the e-commerce companies. Due to a nudge from the government, the startups have shifted to digitization and ICT use limiting to dairy, field crop, livestock and apiculture sector (Bhooshan et al., 2022).

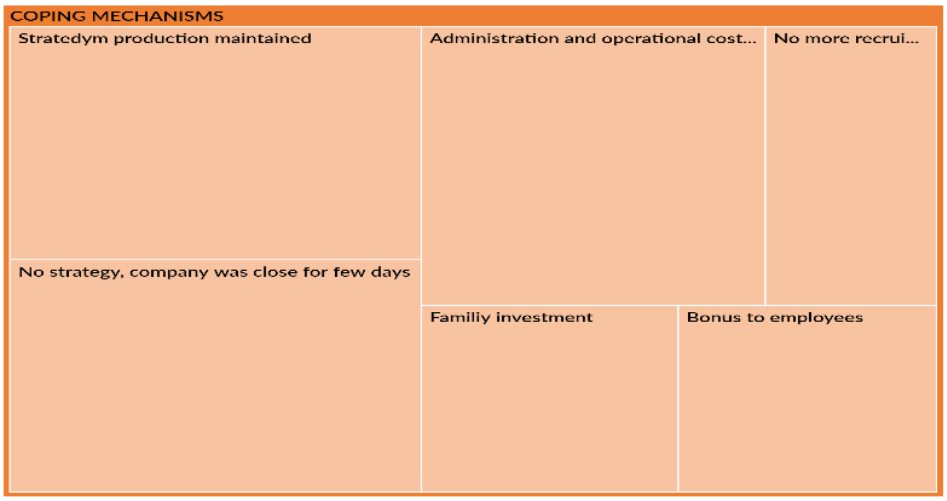

Figure 3: Hierarchy chart depicting themes on factors affecting Agri-startups in case of coping mechanisms.

Source: Survey data (2020)

THEORETICAL IMPLICATIONS

Dynamic Capabilities Theory was found to be applied by many firms during the pandemic as it was a means to overcome and survive the pandemic by adapting to the changing environment and thus adopting newer techniques. This theory was implemented in the firms by shifting to an online-first model from offline-first

model, putting their firms' expansion decisions on hold, leveraging their existing capabilities for newer economics, inculcating several new technologies, etc. Expectancy Theory was also observed in many of the Agri-Startups in order to support their employees and motivate them to work even under such stressful conditions of the pandemic. Some of the firms have adopted this technique by giving bonuses to their employees during the pandemic, not laying off their employees during the pandemic. Janusian Thinking Approach can be observed under the Opportunities section, where a few of the startups felt this pandemic was a boon for them as it gave them the confidence to face any other challenges that may arise in the near future. Some of the startups have also come up with radical innovations, hired a new workforce, revamped their business models, etc.

CONCLUSION

Some of the recommendations that have been mentioned in this study can help the firms to improvise their products and also help shape their overall profile into a better upgraded version. Just like every coin has two sides to every coin, the above mentioned few recommendations may also have positive and negative effects to it, the firm should weigh those aspects and choose which is best for them to progress further.

The findings in our present study reveal the different challenges and coping strategies adopted by Agri-Start-ups during the pandemic in India. It proves the rural infrastructure should be improvised in order to minimise the losses which may arise due to lack of proper awareness and illiteracy. The startups have come up with various resilient crisis management strategies and now have a need of better coping mechanism and government help in order to revive their spirit of entrepreneurship (Bhooshan, *et al.,* 2022). In the case of agricultural systems, the strong communities should take the initiative to improvise the social resilience capacities. Just like in the case of natural disaster, how the neighbours help each other to survive the disaster and its aftermath, in the same way, the rural areas can adopt this strategy to survive during the pandemic with ease and upgrade themselves according to the times as the government aid mostly comes with a delay. This method can be followed in India, as it was found to be effective especially in the developing countries (Streimikiene, *et al.,* 2021).

Possible solutions for the various challenges faced by the firms during the pandemic are for the firms to be aware of the immediate concerns and should be taken care of as early as possible, in order to not suffer a loss. Some of the possible solutions for the challenges faced by the firms are discussed. A possible solution for the short-term liquidity issues is that the government should implement several schemes to support the firms financially. Establishing a good e-platform is an essential criterion in these unprecedented times in order to survive any challenge that may arise. This online communication will serve as a best solution to overcome the customer and supplier issues in the firms. As for the demand drop, the firms need to innovate the product and improvise the marketing strategy for maximum sales even in the most difficult times.

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