

Transform or Perish: Preparing the Business for a Postpandemic Future

—ISMAIL BULENT GURBUZ 

Faculty of Agriculture, Department of Agricultural Economics, Bursa Uludag University, Bursa 16059, Turkey.

—GULAY OZKAN 

Faculty of Agriculture, Department of Agricultural Economics, Bursa Uludag University, Bursa 16059, Turkey.

(Corresponding author: Gulay Ozkan.)

IEEE DOI 10.1109/EMR.2020.3014693

Abstract—*The Coronavirus outbreak presents a significant threat to public health and is profoundly distresses the global economy. There are no sectors left affected by the outbreak on a local, national, and global scale. Some sectors have come to a complete standstill, whereas others have received high demands. All known business models came under question. The crisis served as a check-up, allowing executives to question existing systems, the company, and its management capacities. Nonetheless, crises have enabled businesses to adopt innovative approaches such as new ways of working and the use of modern technology quickly. It will be challenging for businesses to adapt to these innovations that are coming very fast in the postcrisis uncertainty. This article aims to inform managers, decision-makers, and team leaders about the changes they will face in the post-Covid-19 world, based on the example of the agriculture and food sector, and to provide them with a road map.*

Key words: Innovation management, new business models, post-Covid world, supply chains, the new normal

I. INTRODUCTION

THE Coronavirus outbreak presents a significant threat to public health and is profoundly distresses the global economy. The virus spreading all over the world, particularly in Europe and the USA, has heightened the extent of economic instability beyond the original projections. A crisis is inevitable in commercial life. The PwC Global Crisis Survey [1] showed that 69% of companies had experienced at least one crisis in the past five years, and 95% expected to face a crisis in the future. However, the Covid-19 outbreak caused a high fluctuation in financial markets as well as supply and demand shocks. Experts point out that there has never been a time since the Second World War when all these imbalances have been so severe simultaneously. Speaking for the first half of 2020, the global economy is heading toward a contraction at historic levels. It could take several years to compensate for the loss of global economic activity [2]. It is still challenging for managers and decision-makers to predict the

impact of the devastation on businesses and economies.

Research by Euler Hermes [3] shows that with the acceleration of the Covid-19 is virtually no industry left globally unaffected by this process. They claim that transport, automotive, electronics, and retail sectors are worst affected in the Covid-19 process. However, Covid-19 pandemic made two sectors very prominent. One of them is health, and the other is the agriculture and food sectors. Although the problems have been frequently voiced in recent years, radical reforms have been postponed, investments generally been limited to the private sector, and R&D has been squeezed in a minimal scope in both sectors.

During the early days of the outbreak, the people flocked to the markets, stockpiled food and especially turned to durable food products. The empty shelves had to be loaded immediately. While the demand in the individual consumption rocketed, the closure of commercial food consumers such as restaurants, cafes, eateries, and

entertainment centers has resulted in a drop in B2B demand. The agriculture and food sector is still a labor-based sector. The products pass through many intermediaries on their journey from the farm to the table. Within a complex and fragmented supply chain, logistics has crucial importance [4].

Factors that put pressure on agricultural production prior to the Covid-19 outbreak included food demand, climate change, soil and water resources, and urbanization [5]. In addition to these factors, agricultural production was disrupted during the global pandemic and the importance of food supply security emerged once again as an element of social security. Similar pressures in the aftermath of the outbreak remain likely to recur because of more persistent risks, including climate change.

This article aims to appeal to a broader audience and based on the opinion of the agricultural producers who operate around the municipalities in the southern Marmara region where Turkey's major industrial estates are concentrated. Besides, the views of the executive heads of the cooperatives, unions, and agricultural chambers where farmers are members, were also taken. The purpose of this research is to shed light on the world order in the "new normal" and to make recommendations to managers.

We believe that the analysis made here will be entirely or partially apply to other sectors. The complex structure of the agriculture and food industry subsumes producers, employees, logistics, and technology. Climate change affects production, a global financial decision affects prices and is subject to trade quotas and sanctions.

II. RESEARCH METHOD

A. Data Collection and Sample Characteristics

This research covers large-scale farmers who

operate in 50 hectare land or more, agricultural and credit cooperatives' managers, agricultural chamber district managers, and managers of agricultural production and sales cooperatives in the South Marmara Region. As a result of curfew restrictions managers were working remotely, and participants were interviewed via Skype, Zoom, Google Meet when possible, and by phone when not possible. The list of farmers interviewed was reached through the Farmer Registration System, and other officials were reached through the addresses on the corporate websites. A total of 428 responses were collected.

B. Data Analysis

The questionnaire consisted of four parts and 42 questions. The first section included demographic questions, and the second section included multiple-choice questions about Covid-19, whereas the last two sections included five-point Likert-type questions. The obtained data were processed using the SPSS 23.0 package program. We calculated Cronbach alpha as $\alpha = 0.84$; therefore, our survey meets the reliability criterion. Next, we tested the normality assumption using a Shapiro–Wilk test. The analysis showed that $[D(428) = 0.956, p < 0.001]$ the data does not provide normal distribution. Therefore, we further used the skewness and kurtosis values and found that skewness of -0.926 ($SE = 0.118$) and kurtosis of 1.879 ($SE = 0.235$). George and Mallery [6] suggest that the data show the normal distribution in cases where the corresponding variables have kurtosis and distortion values are in the range of ± 2 .

III. RESULTS AND DISCUSSION

A. Background Examining the sectoral effects of the Covid-19 virus requires prioritizing the agriculture and livestock sector. This sector has gained exceptional strategic

importance during the pandemic because it contains vital elements to maintain human life. Some countries, such as Russia, Romania, and Ukraine, have grasped the strategic importance of this sector during the global pandemic and have restricted or banned in particular wheat exports to other countries. Covid-19 has highlighted the agriculture and livestock sector and has brought about its importance. Increasing demand during the pandemic increased prices in the agriculture and livestock sectors. The restriction of agricultural and livestock exports by some countries poses the risk of supply shortages in the long term, if not in the short term [7].

International consulting firm Ernst & Young (EY) conducted research named the 22nd Global Capital Trust Barometer [8], which scrutinizes the expectations and short-term plans of senior corporate executives from a wide array of sectors. The research results reflect the views of executives working in sectors such as consumer products and retail, technology, advanced manufacturing, automotive and transportation, real estate, financial services, construction, accommodation, oil and gas, energy, mining, and metal. Nearly three-quarters (73%) of the executives surveyed expect Covid-19 to have a severe impact on the global economy, particularly disruption to supply chains and a decline in consumption. This current research, similar to EY, revealed that 72.6% of the participants believed Coronavirus would hurt the national economy, 67.2% on the supply chain and the consumption of fresh food products would decline 63.1%. In the face of such severe losses, managers started to review their operational models in response to the crisis. The Covid-19 era tested the degree to which companies were prepared for a sudden shock. So the producers have seen their strengths and weaknesses. The research revealed

that 74.6% of the farms recorded a loss in farm revenues; 67.8% reported an increase in operating expenses. Further, 82.3% of respondents expected a decline in agricultural export in the post-Covid era, 74.6% of them predicted a decrease in imports. Farmers stressed that they had ordered some of the raw materials before the outbreak and added that in the next production season import shortage could be prevalent. They also stress that they will shift from imported inputs to domestic products (seeds fertilizers, etc.), but there may not be sufficient supply in the domestic markets.

The farming community is dominated by small scale family run and rather conservative farms. Larger farms remain afloat with the support of the food processing industry and major retail chains. The majority of these are privately owned farms, and it is impossible to say that the food industry is as corporate as other industries. Since policies in agricultural production are made by the state and revised them frequently, large farms and the food industry have difficulty making long-term strategic plans and investments. However, 58.4% of the participant managers stated that they are taking steps to change their current business model. A whopping 85% of managers in this research stated that they had planned to invest in automation systems mainly to reduce workforce dependence. This particular research further revealed that 62% of the companies' surveyed plan to carry out large-scale transformation projects in order to meet the pressure and profitability targets on their revenue targets. Additionally, 72% of companies plan to review their strategies and portfolios more frequently. Further, 43% of executives stated that they would focus on new investments in digital and technology when normalization begins, 67.8% plan to

use/increase internet/e-commerce to reach consumers directly and finally 81.8% of the manager plan to review and reduce our current trade partners including suppliers and logistic firms.

B. New Approach to Supply

Chains Covid-19 affects all sectors and all functions of firms. According to McKinsey & Company [9], disruptions to the supply chain will cause problems that are difficult to manage, it will become challenging to respond in coordination due to global turmoil, and sales will become difficult or even impossible.

The World Economic Forum, in its report released in April 2020 [10] has proposed five strategies that will provide flexibility and resilience in manufacturing and supply chain activities during crises. The first of these strategies is to create alternatives to supply chain structuring. They can cooperate with multiple providers in the supply chain in different regions, sizes so on, therefore the business becomes more flexible and durable against risks. Companies can have direct control over the supply chain by starting to produce the essential inputs required for their production. The global pandemic has reminded firm executives how vital localization is in the production and supply chain. In Turkey, small firms encourage both producers and consumers to "localization" with "local motion" tag on social media. As a second strategy, firms need to increase their investment in production technologies. Covid-19 crisis allowed companies to reap the benefits of the resources they have devoted to data management through investments in technology in the past. The technology and digitalization used in the supply chain enabled to carry out proactive risk analyzes and allowed to lead more prepared behavior in the crisis environment. As a third strategy, producers should be more flexible. Especially, making digital

collaborations using technology and managing these collaborations successfully will make companies more resistant to the crisis. As a fourth strategy, it is necessary to develop a more intense relationship with suppliers and establish strategic partnerships, especially between cross sectors. This enables firms to learn from different sectoral experiences and allow them to increase their innovation capacity. Finally, companies should review their portfolios and develop leaner production lines and reduce complexity. Focusing on product lines that will support their strategies in line with their core capabilities and competencies will help companies to be successful even in an unexpected crisis.

C. E-Commerce

Applications Innovative business models are seen to be developed and become widespread in times of crisis. E-commerce will be increasingly included in the food supply chains in the post-Covid era. During the quarantine period, B2C e-commerce demand increased, and the use of digital marketplaces and virtual markets became widespread. Consumers have become accustomed to making their orders online during curfews restrictions. Their concern for healthier eating made them search to find clean food. The use of mobile marketplace apps, especially for food purchases, has increased significantly. In addition to food needs, consumers began to buy products such as bread making machines via e-commerce. E-commerce will allow food businesses and individual farms to reach new markets and broader audiences, consequently, food loss will be reduced, and opportunities to sustain production will increase. This model will eliminate highly numerous intermediaries, and shortening the supply chain would reduce risk during possible future crises and increase cooperation within the

chain. For example, Alibaba launched its first digital marketplace model in 2003 at the SARS epidemic [11]. In a report by McKinsey, e-commerce, and contactless economy are among the topics discussed the “normal” of the future [12]. Due to the Covid-19 outbreak, a significant segment of the population has also met with a virtual exchange for the first time in their lives. It is very likely that this new experience will become a permanent habit therefore company managers should particularly pay attention to emerging e-commerce trends.

D. New Approach to

Logistics Outbreak revealed how necessary logistics and cargo sectors were. Covid-19 brought passenger transport to a halt. Airlines have reported the loss as the US \$314 billion on a global basis since the Covid-19 [13]. The countries have sealed their land, sea, and air borders and halted passenger transfers. Therefore, the transportation sector has evolved more toward freight transport and the vehicles used in passenger transport have been modified, for example, by removing seats in aircraft and started to be used in cargo transport. Thus, companies whose primary business line is that passenger transportation is trying to cover their losses by turning into freight transportation. The logistic sector has to focus more on local orders, cargo companies delivered all orders made via the internet while adapting to the “new normal.”

Already, before Coronavirus, new plans were being made for logistics all over the world. More technology-based solutions, more extensive railway networks, blockchain-based applications, and one-to-one supplies were being investigated. With its effect on post-Coronavirus digitalization, logistics and cargo will become very important all over the world and will enter a rapid growth trend.

E. Smart Applications and Digitalization

The Covid-19 crisis has particularly highlighted the importance of digitization for companies. McKinsey & Company in its May [14] report states that digital technologies, companies that are rapidly passing through during the pandemic process, will also be essential in the recovery phase. The only thing sure in all the uncertainty that Covid-19 brings is that the future requires more digital adaptations. With the pandemic, the digital adaptation process, which is thought to take place within five years by companies and customers, took place in as little as eight weeks.

In the post-Covid-19 world, all technology-based sectors will be prominent, and no sector will survive without technology. Agriculture and food, and accordingly, the packaging sector will stand out. Concerns about food safety as after the outbreak will enable new areas of expertise and investments to be developed, both in how food is produced and supplied. The natural and chemical components of the foods consumed and how they are delivered to the table will be of greater importance. Therefore, there will be a shift toward packaged food products in particular. Many fresh food products will be included in the packaged good category by using new smart packaging to prevent the risk of spreading the virus and reduce food loss. Packaging and food industry will grow in the same parallel. The result will be an inevitable increase in food prices. However, this increase in price will compensate itself as it will reduce the amount of food products wasted in the supply chain.

The smart applications will be used in every sector to the extent that they have not been used before. Smart applications will provide opportunities for both the agriculture and food sector managers and all the managers in the supply chain that

includes this sector. This sector will accommodate many opportunities for technology companies. For example, smart farming practices will be more prevalent and will be able to create significant gains in terms of food security [15]. Processes become digital with smart applications; farmers will be guided with the most accurate information during sowing, processing, and harvesting. With the efficient use of agricultural Internet of Things solutions, an average of 20%–25% increase in production and quality, and 40%–50% savings in input can be achieved. Food loss in the chain decreases significantly, and food prices are balanced. Smart applications will also make significant contributions in terms of food safety. Blockchain, for example, will facilitate end-to-end traceability with its secure data structure, providing managers with great opportunities to identify potential food contamination sources in the chain and to implement the necessary measures. Another benefit of smart applications is to improve the chain structure by ensuring the traceability of the stages in the agriculture supply chain. In this way, the chain can be shortened by deactivating the intermediaries. This increases both food safety and security [11].

The important point to watch out is that companies should not focus solely on digitalization when determining the digital strategy; they should also pay attention to the activities they need to alter in their operations. Besides, companies should aim to direct data and digital competencies and turn them into solid projects in order to create new value for consumers.

Instead of undergoing a major digital transformation in a short period of time in, the company needs to use its capabilities correctly by creating an in-depth knowledge of the customers and developing an operational perspective. If companies are agile,

they will achieve high performance with digital transformation against their competitors. Agile firms are learning companies. They are focused on improving their analytical abilities.

In the steps that companies will take in digital transformation for Coronavirus, they need to find the balance between the work done in the past and the steps that the Company will take in order to be successful in the new normal. Companies should carefully investigate which attitudes and activities they will terminate, what they should reveal as new activities, and which of the existing activities they should accelerate.

F. Adapting to New Ways of

Working The Covid-19 crisis has shown that there should be changes in the way each company does business without any sector differences. This has also made visible the disparities between employees' job design structures. Kantamneni [16] argued that employees in different sectors with different incomes would also be affected differently by the pandemic. Babuji *et al.* [17] classified jobs allowed to work remotely in the Covid-19 process as elite jobs. These were mostly white-collar employees and managers and work in the services industry. Employees held their meetings from platforms such as Zoom and Google Meet. This led to the problem of sharing data during the meeting while also securing shared data. The post-Covid period will offer significant potential for software and cybersecurity companies. Managers, in particular, will have to get used to holding remote meetings. Motivating distant working employees and assessing their productivity will be the most critical issue that Human Resources Managers will need to overcome in the "new normal" [18].

Blue-collar employees had to be in charge of their jobs, whereas white-collar employees carried out

their jobs remotely. Quality control of the goods is essential before, during, and after production, packaging and transportation. The sample product is asked to be seen and examined before the order placed. Returns should also be thoroughly tested and reported accordingly. These controls, especially in the food sector, were carried out with one-to-one human interaction until now. Health experts repeatedly point out we may experience such outbreaks more frequently in the future, and firm executives should be prepared for it. Managers should take into account that the Covid-19 process will also bring changes to the future career plans of the company's employees. Additionally, they also remember that pandemic will impact the decision of Millennium and Generation Z when determining their career choices in the "new normal."

G. New Approach to

Management The global pandemic has pushed the boundaries of the economic systems of the countries, suggesting the need to make changes in their perspectives to those who lead the company. Grint [19] emphasizes that leaders ought to address the Covid-19 crisis as an adaptable, integrative, and severe problem. This emphasizes that the three mechanisms of decision-making leadership, management, and command must be used together. Employees have sought leaders who will share painful truths with them, who will be honest, trustworthy and take the right steps to keep their resources and the system going with the pandemic [19]. The leader is expected to emphasize that the problem can be resolved over time. Second, the leader needs to make the problem adaptable by keeping employees together. From this point of view, the Covid-19 crisis will be seen as a problem that can be managed collectively, even if it is not resolved in a short time. For example, the leaders ensure that employees work remotely, adapt to work from

home, and use the resources properly by guiding the isolation process. Finally, this global pandemic is a process in which leaders must make active, fast, and guiding decisions. In this context, the leader should fulfill the role of commander. Leaders are expected to perform these three roles in a balanced manner to be successful.

IV. CONCLUSION

The pandemic required the managers to deal with many problems such as supplying raw material, sharp increase or drop in production, employees adapting to the remote working systems, new hygiene requirements, using technology intensely and using technology in new areas. In short, managers had to test all existing infrastructure in the company. They also saw how resilient the industry they operate in.

However, the crisis will bring not only fragility but also opportunities for firms to improve their performance. Large-scale interruptions revealed what is needed and what can be done "better," and will lead leaders to reassess fixed and variable costs. Likewise, the experience of halting global production was instructive for managers to assess how resilient their operations can be without losing productivity. As a result, a more robust understanding of how the business world can become more resistant to shocks, more productive, and better able to meet customer needs will be developed.

As long as the emerging technologies are well analyzed and implemented following the company's needs, they will provide managers with new horizons and business opportunities, compensating for existing losses. However, in this process, managers, as well as companies, need to be agile. As with industry, this crisis will provide opportunities for company managers to recognize and expand their limits.

REFERENCES

- [1] PwC Global Crisis Survey, "Crisis Preparedness as the next competitive advantage: Learning from 4,500 crises," PwC.com, 2019. [Online]. Available: <https://www.pwc.com/gx/en/forensics/global-crisis-survey/pdf/pwc-global-crisis-survey-2019.pdf>. Accessed on: Jun. 11, 2020.
- [2] Lowly Institute, "Economies on the brink: The Covid-19 effect," The Interpreter, 2020. [Online]. Available: <https://www.lowlyinstitute.org/the-interpreter/debate/economies-brink-covid-19-effect>. Accessed on: Jun. 11, 2020.
- [3] Euler Hermes, "No stone unturned: How Covid-19 is disrupting every industry," Apr. 3, 2020. [Online]. Available: https://www.eulerhermes.com/en_global/economic-research/insights/no-stone-unturned-how-covid19-is-disrupting-every-industry.html. Accessed on: Jun. 11, 2020.
- [4] FAO, "The future of food and agriculture: Trends and challenges," Food and Agriculture Organization of the United Nations, Rome, Italy. 2017. [Online]. Available: <http://www.fao.org/3/a-i6583e.pdf>. Accessed on: Jun. 11, 2020.
- [5] Directorate of Strategy and Budget, "Eleventh Development Plan (2019–2023)," The Presidency of the Republic of Turkey, 2019. [Online]. Available: <http://www.sbb.gov.tr/wp-content/uploads/2019/07/OnbirinciKalkinmaPlani.pdf>. Accessed on: Jul. 27, 2020.
- [6] D. George and P. Mallery, *SPSS for Windows Step by Step: A Simple Guide and Reference*, 10a ed. Boston, MA, USA: Allyn and Bacon, 2010.
- [7] I. Keskin, "Future of sectors and transformation of firms in the new normal period," in *The Anatomy of the Global Outbreak, The Future of Human and Society*, M. Seker *et al.*, Ed., Ankara, Turkish Academy of Science, Turkey, 2020, pp. 451–472.
- [8] Earmest and Young Global Capital, "Global Capital Confidence Barometer: How do you find clarity in the midst of a crisis?" 22nd ed., Mar. 2020. [Online]. Available: <file:///C:/Users/HP/Downloads/ey-private-equity-ccb22-highlights.pdf>
- [9] T. Baumgartner *et al.*, "A response framework for advanced industries companies," McKinsey & Company, Mar. 19, 2020. [Online]. Available: <https://www.mckinsey.com/industries/advanced-electronics/our-insights/coronavirus-a-response-framework-for-advanced-industries-companies>. Accessed on: Jul. 25, 2020.
- [10] World Economic Forum, "How to rebound stronger from COVID-19: Resilience in manufacturing and supply systems," May 1, 2020. [Online]. Available: <https://www.weforum.org/whitepapers/how-to-rebound-stronger-from-covid-19-resilience-in-manufacturing-and-supply-systems>
- [11] O. D. Durgun, "Covid-19 disrupts supply-demand balance in the supply chain," Bogazici University News, Apr. 30, 2020. [Online]. Available: <https://haberler.boun.edu.tr/tr/haber/covid-19-tedarik-zincirinde-arz-talep-dengesini-bozdu>. Accessed on: Jun. 12, 2020.
- [12] K. Sneader and S. Singhal, "From thinking about the next normal to making it work: What to stop, start, and accelerate," McKinsey, Apr. 3, 2020. [Online]. Available: <https://www.mckinsey.com/featured-insights/leadership/from-thinking-about-the-next-normal-to-making-it-work-what-to-stop-start-and-accelerate#>. Accessed on: Jul. 20, 2020.
- [13] Statista, "Airline passenger revenue loss due to Coronavirus outbreak worldwide in 2020, by region of airline registration (in billion U.S. dollars)," 2020. [Online]. Available: <https://www.statista.com/statistics/1106679/coronavirus-airlines-passenger-revenue-region/>

- [14] A. Baig, B. Hall, P. Jenkins, E. Lamarre, and B. McCarthy, "The COVID-19 recovery will be digital: A plan for the first 90 days," McKinsey Digital, May 14, 2020. [Online]. Available: <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-covid-19-recovery-will-be-digital-a-plan-for-the-first-90-days>. Accessed on: Jul. 21, 2020.
- [15] S. Wolfert, L. Ge, C. Verdouw, and M. Bogaardt, "Big Data in smart farming—A review," *Agricultural Systems*, vol. 153, pp. 69–80, 2017, doi: [10.1016/j.agsy.2017.01.023](https://doi.org/10.1016/j.agsy.2017.01.023).
- [16] N. Kantamneni, "The impact of the COVID-19 pandemic on marginalized populations in the United States: A research agenda," *Journal of Vocational Behavior*, vol. 119, 2020, Art. no. 103439, doi: [10.1016/j.jvb.2020.103439](https://doi.org/10.1016/j.jvb.2020.103439).
- [17] G. Bapuji *et al.*, "Business and society research in times of the Corona crisis," *Business Society*, vol. 59, pp. 1067–1078, 2020, doi: [10.1177/0007650320921172](https://doi.org/10.1177/0007650320921172).
- [18] ESCARUS, "The Covid-19 outbreak as an eco-social crisis and sustainability," TSKB Sustainability Consulting, Istanbul, Turkey, May 20, 2020.
- [19] K. Grint, "Leadership, management and command in the time of the Coronavirus," *Leadership*, vol. 16, pp. 314–319, 2020, doi: [10.1177/1742715020922445](https://doi.org/10.1177/1742715020922445).

DECLARATION OF FUNDING

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ismail Bulent Gurbuz received the bachelor's and master's degrees in agricultural economics from Cukurova University, Adana, Turkey, and the Ph.D. degree from the University of Uludag, Bursa, Turkey, in 2001. He is currently an Associate Professor with the Agricultural Faculty, Department of Agricultural Economics, Bursa Uludag University, Bursa, Turkey. His research has been published in *Environmental Science and Pollution Research*, *Community Mental Health Journal*, *Erwerbs-Obstbau*, *Fresenius Environmental Bulletin*, *Applied Ecology and Environmental Research*, and many international journals. His research interests include rural development, agricultural extension, and agricultural policy indicators.

Gulay Ozkan received the B.A. degree in international relations from Bursa Uludag University, Bursa, Turkey, and the M.B.A. degree from London South Bank University, London, U.K. Since 2018, she has been working toward the Ph.D. degree with the Faculty of Agriculture, Department of Agricultural Economics, Bursa Uludag University. From 2000 to 2012, she was with the University of Reading School of Construction Management and Engineering with Prof. D. J. Clements-Croome. Her research interests include agricultural economics, rural studies, rural women, women empowerment, sustainability, and marketing.