



PATHS AND PERSPECTIVES FOR COMBATING COVID-19 IN ORGANIZATIONS

TRAJETÓRIAS E PERSPECTIVAS DE ENFRENTAMENTO AO COVID-19 NAS ORGANIZAÇÕES

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Abstract: The study aimed to identify trends addressed in the scientific literature on trajectories and perspectives for confronting and mitigating the effects of COVID-19 in public and private organizations. This study had a descriptive approach, as a means, and was developed through a qualitative meta-analysis of results with the objective of theoretical development. In addition, the QSR NVivo™ software was used for cluster analysis. As a result, the managerial contribution of this research lies in the taxonomy of adaptation/survival practices raised both in the context of public and private organizations and in the proposition of good practices for organizations during periods of crisis. The research signaled strong implications in the area of public health, when organizations must understand the effects of the pandemic on the coordination and planning of actions, as it involves sharing lessons learned, the creation of action plans and the use of projection techniques, management knowledge and information, and the strengthening of transnational multilateral organizations. In the private sector, organizations must rethink

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their innovation path, their ability to enter healthcare supply chains, their strategies that influence consumers' online purchasing behavior, among others. The restrictions imposed by countries due to the pandemic caused economic, political, social and cultural instabilities that affected organizations, with consequences to this day, since crisis scenarios are part of societies. The taxonomy of good practices is therefore important for times of crisis and as a strategy for systematizing good practices.

Keywords: Organizational Studies. COVID-19. Meta-analysis. Schedule. Good practices.

Resumo: O estudo teve como objetivo identificar tendências abordadas na literatura científica sobre trajetórias e perspectivas de enfrentamento e mitigação dos efeitos do COVID-19 em organizações públicas e privadas. Este estudo teve abordagem descritiva, enquanto meio, e foi desenvolvido por meio de uma metanálise qualitativa de resultados com o objetivo de desenvolvimento teórico. Em complemento, houve o uso do software QSR NVivo™, para a análise de clusters. Como resultados, a contribuição gerencial desta pesquisa está na taxonomia de práticas de adaptação/sobrevivência levantadas tanto no contexto das organizações públicas quanto das privadas e na proposição de boas práticas das organizações para períodos de crise. A pesquisa sinalizou fortes implicações na área de saúde pública, quando as organizações devem compreender os efeitos da pandemia na coordenação e planejamento de ações, pois envolve o compartilhamento de lições aprendidas, a criação de planos de ação e o uso de técnicas de projeção, gestão do conhecimento e da informação, e o fortalecimento de organizações multilaterais transnacionais. No setor privado as organizações devem repensar o seu percurso em inovação, a sua capacidade de ingresso nas cadeias de suprimento da saúde, as suas estratégias que influenciam o comportamento de compra online dos consumidores, entre outras. As restrições impostas pelos países devido à pandemia causaram instabilidades econômicas, políticas, sociais e culturais que atingiram as organizações, com reflexos até os dias atuais, uma vez que cenários de crise são parte das sociedades. A taxonomia de boas práticas é importante, portanto, para tempos de crise e como estratégia de sistematização de boas práticas.

Palavras-chave: Estudos Organizacionais; COVID-19; Metanálise; Agenda; Boas práticas.

INTRODUCTION

Nations around the world have been going through several transformations in the past few decades, the creation of international geo-political arrangements, modifications in people's cultural and consumption habits, economic crises, and political polarization, besides the migratory processes that made the 21st century complex, dynamic, contradictory and marked by the unexpected and by uncertainty. In this list of transformations, and as an environmental variable, there is also pandemics, such as COVID-19, caused by the SARS-CoV-2 virus, which started out in 2019 in Wuhan, China, and which has spread throughout the world, specially hitting Japan, Korea, Italy, Germany, Great Britain, France, Spain and the United States (BOFINGER; DULLIEN; FELBERMAYR, 2020).

In the pre-COVID-19 context in this century, there were other pandemics, most of

them of zoonotic origin, such as the Severe Acute Respiratory Syndrome (SARS), which was the first to hit global health emergency. SARS was identified in the province of Guangdong, in Southern China, in 2002, and quickly spread throughout China and Southeast Asia (JAMAL; BUDKE, 2020). There was the Swine Flu, Type A Flu, or H1N1 (S-OIV), with its several mutations, which originated in Mexico (TRIFONOV et al., 2009) and spread through North and South America, Europe and Asia; and the Middle East Respiratory Syndrome (MERS-CoV), originated in 2012 and which hit Arab and European countries (CELLY TRUJILLO; VILLAMIL JIMÉNEZ, 2014), among others, such as Ebola, in African countries, and Dengue, Zika and Chikungunya, in Latin countries.

However, the COVID-19 has stood out due to its larger world coverage, number of people infected, transmission capacity (person-to-person, materials/surfaces-to-people and air particles), lethality and, consequently, economic, social and political changes it has brought to nations (LIU et al., 2020). In this setting, and due to the fact the problem per se is uncertain (its boundaries, public health issue, economic, social, educational and organizational problems and actors, among others) and, consequently, the solutions and the actors that can bring different narratives or theses about the problem (GOMES; MAROTTI; RODRIGUES, 2021), as was the case in many nations that, at first, never thought they would face severe problems concerning total and general vertical and horizontal isolation, which confirms the statement by Hamza, Mantovani and Martins (2020), that the COVID-19 seriousness is typical of complex systems in environments of uncertainty.

In both public and private organizations, this reality is not different, since they also live with the problems related to social isolation and distancing, such as the suspension of events and face-to-face activities, restrictions of activities that are considered as non-essentials, the adoption of new technologies (e.g., platforms for video calls), new ways of work (e.g., remote work, telework, home office) and new rules (e.g., telemedicine, workload and work contract flexibility), among others (PEDROSO, 2020), with the level of social isolation in each region as one of the main variables of connection between the economic-entrepreneurial model (job market, productivity, income loss, unemployment, productivity capability, investment) and the epidemiologic settings.

An example of the speed and the impact of the COVID-19 pandemic in organizations shows that, upon analyzing its recent operation history, a telephone company that has around 100 employees receives approximately 65 calls per minutes. However, suddenly, without any estimate to increase the demand, it receives around 260 calls per minute (HAMZA et al., 2020). In order to deal with that, the company will have to prioritize the service and at least 160 calls per minute will be rejected. This analogy raised by the authors shows how the demand can increase rapidly, for example, in the public health service, which will have an impact on infrastructure, inputs, and labor, among others, until the system's capacity totally runs out. On

the other hand, the restrictions imposed by countries due to the pandemic, with consequences on the private sector, also stopped the development of transactions (purchases and sales), new partnerships, importations, and exportations, among others, which causes instability and financial crises (LUCCHESI; PIANTA, 2020). These situations were never considered, for example, by Jeane Meister and Karie Willyerd, when they published their book “The 2020 workplace” in 2013 (MEISTER; WILLYERD, 2013).

In this setting, organizations have the pressing need for knowledge in order to understand the macro-environmental context it is directly influenced by and, as such, try to acquire, create, evaluate, store and share knowledge. They also learn from the best practices (BRITO; OLIVEIRA; CASTRO, 2012; BRITO et al., 2019). Moreover, it is necessary to consider innovation as a process, for it is related to the economic-financial restart in several other historical crises, such as the dawn of global information (end of the 1970's to the start of the 1980's), the productive reorganization (from the 1980's to the start of the 1990's), the digital mania craze (1990's), the wave.com (from the 2000's) and the 2008 financial crisis, when the economy was subjected to the growth and crisis cycle and to the current wave triggered by the COVID-19 pandemic.

Therefore, the fact that public and private organizations must rely on and incorporate concepts and practices concerning knowledge management and innovation through a path of multi-disciplinarity, multi-information and the individuals' competencies also becomes urgent. In other words, what was seen as a path to be followed by organizations are now questions that need to be incorporated, especially into daily life. According to Schwartz (SCHWARTZ, 2020), the new corona virus pandemic is a historical moment that will have a long-lasting effect on organizations and it must be studied, since there have been no articles so far that gather organizational perspectives, both from public and private sectors, in order to deal with the pandemic. This is, therefore, the gap investigated. This context leads to the following research question: What are the perspectives from public and private organizations that have been recorded in scientific literature in order to mitigate the COVID-19 effects? Thus, the objective of this research was to identify the trends addressed by scientific literature about the path and confrontation perspectives against the COVID-19 effects in public and private organizations.

METHODS

This study has a descriptive approach as a means, and was developed through a qualitative meta-analysis of results (SERENKO, 2013) aiming at theoretical development (SCHREIBER; CROOKS; STERN, 1997; PEREIRA et al., 2019).

The theoretical development in meta-analysis searches for the synthesis of text results and is descriptive in itself. Meta-analysis develops the research analytical potential by

expanding the opportunities and the ways to show the differences over a certain phenomenon and by enabling the comprehension of knowledge development related to the topic researched. Therefore, as a means, this research comprehension lies on the reference board, since it aims at description, analysis or interpretation of a network of singular causes of a given phenomenon (BRUYNE; HERMAN; SCHOUTHEETE, 1997).

For the meta-analysis achievement, the researchers focused on scientific studies from areas concerning management and health (health management), available at the Scopus™ database. The following descriptors were used for the research corpus survey: (“effect*” or “consequence*” or “result*”) and (“COVID-19” or “coronavirus” or “coronavirus pandemic” or “coronavirus epidemic” or “novel coronavirus” or “2019-nCoV” or “Sars-CoV-2” or “SARS Coronavirus”). These descriptors were applied over “article title, abstract and keywords”. Then, there was the application of a filter concerning type of document (article) and language (English), according to Table 1. The research on the Scopus database was done in the month of November 2020 and the corpus adaptation to the research was done through articles’ reading, when ten works were selected out of the twenty five available.

Table 1 – Research corpus.

Manuscript	Authors	Journal	H-index Scopus
Public health emergency response coordination: putting the plan into practice	Kim, Ku e Oh (2019)	Journal of Risk Research	65
Interorganizational Coordination and Collaboration During the 2015 MERS-CoV Response in South Korea	Kim et al. (2020)	Disaster Medicine and Public Health Preparedness	47
Studying the effects of the coronavirus pandemic on intercultural relations	Schwartz (2020)	International Journal of Intercultural Relations	87
New development: ‘Healing at a distance’ — telemedicine and COVID-19	Leite, Hodgkinson e Gruber (2020)	Public Money & Management	52
Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case	Ivanov (2020)	Transportation Research Part E: Logistics and Transportation Review	122
COVID-19 and opportunities for international cooperation in health	Buss e Tobar (2020)	Cadernos de Saúde Pública	81
COVID-19: fear appeal favoring purchase behavior towards personal protective equipment	Addo et al. (2020)	Service Industries Journal	70
Tabletop exercise to prepare institutions of higher education for an outbreak of COVID-19	Wendelboe et al. (2020)	Journal of Emergency Management	14
Responding to COVID-19: The UW Medicine Information Technology Services Experience	Grange et al. (2020)	Applied Clinical Informatics	31
Artificial Intelligence (AI) applications for COVID-19 pandemic	Vaishya et al. (2020)	Diabetes & Metabolic Syndrome: Clinical Research & Reviews	56

Source: Elaborated by the authors from the research corpus (2021).

In addition, the possible networks of international cooperation among the authors of the selected corpus were also raised. For this survey, a cluster analysis was performed using the QSR NVivo™ software, version 11, as suggested by Sotiriadou, Brouwers e Le (2014) and Sinkovics (2016). The validation of cooperation networks between the authors was carried out using Pearson's correlation coefficient based on the similarity of words. To define the intensity of the correlation, the following interpretation was used: values greater than 0.8 (HAIR JR. et al. 2014) indicate the existence of word similarity. It is noteworthy that qualitative studies may include quantitative data to clarify some aspect of the investigated content, as long as the statistical treatment is not sophisticated (BRUYNE; HERMAN; SCHOUTHEETE, 1997), as was used in this research.

Besides the results used in the research (Table 1), which, given the embryonic state of the studies on the relationship between management and the COVID-19 pandemic, tried to reach the objective, the method and the main results, other documents were also analyzed. These documents came from primary and secondary data sources of public domain, whose texts were considered as pertinent and reliable, such as the SciBiz-Covid-19 Newsletter, created by Professors of the Department of Administration from the School of Economics, Management, Accounting and Actuarial Sciences of São Paulo, and the Coronavirus' World Organization Health Map, after checking the clues that can provide new information that contribute to this study (CELLARD, 2008).

EFFECTS AND THE MITIGATING STRATEGIES AGAINST THE COVID-19 PANDEMIC IN

ORGANIZATIONS

The COVID-19 pandemic effects in organizations are various (GOMES et al., 2020). An analysis done about the public system of health management shows the possibility of a high demand for hospitalization in a short period of time as an effect, including the Intensive Care Units, which may lead the system to collapse (Hamza et al., 2020), for the supply chain of health management will not be able to meet the high demand. The COVID-19 effects in organizations are related to changes in the educational process (improvement of distant learning), on-line consumption (improvement of on-line shopping and consumption point pick-up), and changes in health assistance (through telemedicine), besides changes in administrative activities (through remote working) in the processes concerning decision and communication (through virtual meetings and interactions), among others.

Upon analyzing this setting, the COVID-19 pandemic caused a new world economy slowdown after the 2008 crisis, for the sector of services, which depends on available income and accounts for the largest share of productive occupation in the countries, has drastically reduced its activities or kept them precariously (BOFINGER et al., 2020). On the other hand, the

job market segment intensified, since a large number of informal workers – salaried employees with no formal contracts or bank accounts – saw their work vanish and, thus, their own income. Moreover, on the top of the job market and placed in their offices during their general management of trading tasks, home office supported by technology became a rule.

Considering the corpus of this research, as shown in table 1, and the cluster analysis performed (figure 1), nine clusters were formed. The largest of these was formatted by the works of Kim et al. (2019) and Kim et al. (2020), with the latter still having the participation of Jihyun Byeon, whose Pearson correlation was 0.81, therefore higher than 0.8 (HAIR JR. et al., 2014) indicating high correlation and similarity of words. In addition, the work of Grange et al. (2020), correlated above 0.8 with the group led by Yushim Kim, demonstrating an affinity of content between the groups.

Figure 1 - Sources of cluster by word similarity



Source: Extracted from the QSR NVivo™ 11 software (2021).

In the first cluster analyzed, formed by the works conducted by Yushim Kim, it was possible to observe the effects of the coronavirus on the coordination and planning of the combat actions in public health. The aim of the work published in 2019 was to analyze the health coordination plan and the actions taken during the coronavirus outbreak (MERS-Cov) that hit South Korea in 2015. Through this documental research, the authors stated that the pandemic urgency led to a weak congruency/harmony/relationship between the coordination networks of planned responses and those that were fulfilled, which caused managerial and institutional shortcomings in the fight against MERS. Second, the authors identified that the response plan of health institutions ignored the role and correlations between the several intermediary actors and the local and national actors in the governmental system.

Complementing the previous article, another study (BUSS; TOBAR, 2020), this time published in 2020, tried to examine how health organizations were involved with the MERS-CoV outbreak response. The authors made an analysis on article content concerning on-line

news and documents supplied by the Korean government and they came to the following conclusions: public health organizations that were not part of the governmental plan against the pandemic were the ones that headed the responses, and some health organizations had specialized in this process, some others in laboratory exams, and others in supplying inputs, among others. Moreover, the authors stated that, in the management plans concerning health crisis, there were unclear lines of responsibility concerning the public organizations involved, and there was little cooperation among them for overcoming the difficulties.

Studies are important (IVANOV, 2020; BUSS; TOBAR, 2020), in the context of this research, to raise lessons learned for the public health management sector that could be applied in the current SARS-CoV-2 outbreak.

The third cluster analyzed (SCHWARTZ, 2020), published in an opinion editorial from the International Journal of Intercultural Relations, noticed the coronavirus' effects/impacts over organizations when it described that, within three months after the pandemic was announced, most of the world was confined, with direct reflections on the stock market and employment rates, besides changes in people's consumption behavior in several sectors, such as tourism and events, food, sports and education.

The study de Prince Addo et al. (2020), which was based on the fear appeal theory and developed by a quasi-experimental study, aimed at analyzing statistics published under suspicion, confirmation and deaths from COVID-19 and its influence over the behavior concerning the on-line shopping of personal protective equipment. The results of this research showed that fear appeal from marketing is associated to an increase in on-line shopping of products related to COVID-19. Moreover, the authors found that the feeling of fear is a strategy of electronic loyalty that promotes the shopping behavior.

On the other hand, the mitigation of the COVID-19 pandemic effects on organizations brings the accumulation and the management of reliable knowledge and information concerning the epidemic (GOMES et al., 2020) as the first strategy. Knowledge management is a strategy to acquire, create, store, learn and spread the knowledge that adds value to the organizations in the solution of their own problems (PINHO et al., 2012; DONATE; PABLO, 2015; HENTTONEN et al., 2016), for, in times of pandemic, business strategy needs to take on the shape of a learning process over time, given the uncertainty caused by the pandemic for the entrepreneurial environment (CASTRO et al., 2020).

Together with knowledge management (BRITO et al., 2012; SERENKO, 2013; GOMES et al., 2020; SCHWARTZ, 2020), actions should be taken and coordinated, and the companies' capacity to change and adapt to the setting must be developed, thus avoiding the tendency to search for old practices to solve a problem that is new and unknown (HAMZA et al., 2020; SCHWARTZ, 2020). In the COVID-19 pandemic setting there is no linearity, stability or old practices that bring immediate answers; on the contrary, it is time the organizations chose non-

linearity, changes in time scale, independence for the path chosen, and adapted to uncertainties (KIM et al., 2019). In this context, innovation is a response to crisis and a viable path for organizations (KANTER, 2006). Innovation as a command, that is, an element that is imposed in order to deal with a meaningful change in the external environment (in this case, the pandemic and its consequences) (PEDROSO, 2020).

In this setting, which reflects how micro and small enterprises (MSEs) will be able to outlive the epidemic, the research identified that one of the ways out is to benefit from intellectual property protection and from institutional innovation, for these strategies must be strengthened even more in order to improve business environment and restore market reliability so that more investments and foreign markets come in and effectively help to stabilize the countries' employment rate (GUOBING, 2020). Another way out for MSEs is to join the supply chain of either large corporations or of the health sector. If an organization holds the know-how of plastic production, it can add its production capacity to the supply chain of major automobile manufacturers by producing plastic parts, or even by joining the supply chain of the health area by supplying parts for the sector and for the production of ventilators. These are just some examples and a notion of shared work (GUOBING, 2020), when it is stated that organizations must work together with transboundary electronic commerce companies and their branches abroad in order to open up channels by enabling the logistics of medical supplies and mobilizing markets and national and international resources in the fight against the virus.

Therefore, a way out for organizations is that they could join the current national technological capacity, which concerns a set of skills, experiences and efforts that allow organizations in a country to efficiently acquire, use, adapt, perfect and create technologies for the market needs (LALL, 2005), and the innovation systems, which are the set of factors that affect the national technological activity (LUDWALL, 1992). Through dialogues, the commercial and judicial service departments need to better understand the difficulties faced by entrepreneurs, since the companies that are unable to resume their production must receive guidance and the necessary legal information (GUOBING, 2020). Moreover, commercial departments, financial institutions, local governments and chambers of commerce must keep close contact with companies through the Internet by providing information about commerce opening and investment simplification, and by helping qualified and competitive companies to expand their business into international markets.

Other mitigating strategies that could be used by both public and private organizations are: on-line improvement of employees and managers' qualification, restructure and re-signify processes and strategies, and avoid path dependency, that is, avoid the use of orthodox solutions to new and uncertain problems by investing in innovation. In this context, there are some companies that, in the frontline of human resources management, chose to maintain their human capital before the immediate threat of business collapse and loss of the knowledge

that adds to their deals. Therefore, organizations must turn their development to the national market's competency and needs, stimulate partnerships to share inputs and knowledge, qualify their personnel and award innovative ideas, explore information and communication technologies, promote intellectual property protection, develop knowledge about reality, promote entrepreneurial strategies, which are actions and reactions that create and explore the benefits of innovations, and promote innovative strategies, which are a management behavior turned to planning, creating, selecting, implementing and evaluating innovations continuously (CASTRO et al., 2020).

At the core of the articles turned to the mitigating strategies against the COVID-19 effects in organizations, collected from the Scopus™ database, there was an analysis concerning the positive impact of telemedicine over helping with the provision of services, both public and private, from enabling the virtual screening to the mitigation of the negative psychological effects from social isolation (LEITE et al., 2020). In this sense, through an opinion article, the authors came to the following conclusions: the inclusion of telemedicine in health practices during the COVID-19 pandemic has proved to be beneficial for the organizations that integrate health services, which is, therefore, an innovative strategy to mitigate the pandemic effects over health management.

The fifth cluster (IVANOV, 2020) started out by problematizing that epidemic surges are a special case of supply chain risk to the organizations, which is characterized by a long-term interruption existence, interrupt propagation (that is, the cascade effect) and high uncertainty. The objective of this study was to present the simulation technique as a strategy to mitigate the COVID-19 impact over supply chains. Through an exploratory study, the authors reached the following results: the simulation technique can be used to check and predict the impacts of epidemic surges over the supply chain performance in the organizations, by using, for example, the COVID-19 coronavirus and the simulation and optimization anyLogistix™ software. However, the technique and the software must be used together with managerial information. According to the author, simulation can be used so that organizations may plan their business' resumption by taking into account epidemic indexes. Moreover, simulation can be used to predict operational impacts and develop plans concerning crisis, the taking of decisions, and to plan the business' economic-financial recovery.

In the sixth cluster (BUSS; TOBAR, 2020) identified that, in the context of public administration, the mitigation strategies against the pandemic effects must follow the path of public international cooperation, which can be enabled by strengthening multi-lateral organizations, such USAN (Union of South American Nations), PAHO (Pan American Health Organization), UNESCO (United Nations Educational, Scientific and Cultural Organization), WHO (World Health Organization), and UN (United Nations). According to the authors, and from this cooperation, data exchange and pandemic follow-up could be enabled through the

comparative curve among public management systems in the countries. Moreover, in the context of cooperation, public health services could rely on measures and solutions adopted by several dimensions (social, managerial, health), exchange experiences and lessons learned, and adopt incentives to research, technological production and input production by promoting an economy of scale for the sector, which could be extended into the relationship between government, teaching institutions, private sector and society. As a conclusion (BUSS; TOBAR, 2020), the formal and institutional structure of these inter-governmental relations (between multi-lateral organs) to a higher level will make way and encourage the vital cooperation between universities, research institutes, public health schools, and graduation schools in the fields of health and in organizations by promoting the establishment of human resources and inputs, training projects and research on resources and technological development that meet the countries' innovation needs in order to deal with the pandemic.

The seventh cluster (WENDELBOE et al., 2020) aimed at presenting an elaboration technique concerning the response plan for the COVID-19 emergencies in the pandemic setting for health management organizations. For this study to be achieved, the Tabletop exercise technique experiment was used as an investigation way, a strategy that is designed to produce the discussion between the participants with the acceptance that there cannot be one correct answer. The exercise encompassed around 70 specialists from the University of Oklahoma in Norman, Tulsa and Oklahoma City. The authors came to the conclusion that the Tabletop exercise is a feasible strategy to promote the design of response plans for the COVID-19 emergencies in health organizations, for, according to the authors, the exercise was designed to promote competencies to prepare for public health emergencies. Decision takers will be able to use the strategy to create tactics of response to emergencies and adapt and implement this manual/technique to enable the efficient communication between participating agencies and personnel, and spread information around the community to reach the objectives concerning emergencies' response.

Another research (GRANGE et al., 2020) aimed at describing the quick implementation of resources from Services of Information Technology on Medicine to support the fight against COVID-19. It is a case study that presented the following results: the implementation of resources from Services of Information Technology include the establishment of a direction structure of health management for hospital incidents that include a strong bond with IT, the creation of automated panels to control the incidents, the optimization of emergency communication for employees and patients, and the preparation of human resources to support the transition of non-essential personnel into telework.

In the last cluster (VAISHYA et al., 2020) of figure 1, it was problematic that the provision of medical assistance, requires the support of new technologies, such as Artificial Intelligence (AI), Internet of Things (IoT), Big Data and Machine Learning, in order to fight

against and face new diseases. Therefore, the objective of the research was to revise the role of Artificial Intelligence as a decisive technology to analyze and prepare organizations to prevent from and fight against COVID-19 (Coronavirus) and other pandemics. As a method, the study used a literature review that was performed in databases such as Pubmed, Scopus and Google Scholar with the use of key words such as COVID-19 or Coronavirus and Artificial Intelligence or AI. As results, the authors identified that AI may have several applications, such as: triage, analysis, projection, current and possible future patients' tracking. The authors, then, stated that AI is a useful technology for health management and for the fight against the COVID-19 pandemic, and that this technology plays an import role to detect the number of cases and to project where this virus will hit in the future by collecting and analyzing all previous data.

From the meta-analysis and the identified clusters, according to table 2, it was possible to identify an agenda of future researches about the new COVID-19 pandemic effects in public and private organizations, and mitigating strategies against these effects that will need further analysis.

Table 2 – Research Agenda Proposal.

Cluster		Agenda	Research perspectives and trends in organizations
1	Yushim Kim, Minyoung Ku, Seong Oh e Jihyun Byeon	-Study about emergency planning in public health in order to identify the gaps between what is planned and what is executed with the objective to improve the public organizations' response process against pandemics.	Operational research and knowledge management
		-Research about strategies in order to enable the collaboration between public and private organizations in the fight against COVID-19, and ways to compensate private organizations for their collaboration efforts.	Collaboration networks, absorptive capacity, public-private partnerships
2	Seth Schwartz	-Coronavirus' pandemic effects over inter-cultural relations, and include measures or methods related to coronavirus in their studies.	Inter-cultural studies and operational research and longitudinal studies
3	Higor Leite, Ian Hodgkinson e Thorsten Gruber	-Deepen studies about health practices through electronic means that are associated to privacy and data protection laws.	Ethics and remote work
4	Dmitry Ivanov	-Develop different levels of risk mitigation inventory as elements concerning pandemic plans whose complexity can be easily improved by including other elements, such as reserved capacities, reserve suppliers, delivery date reserve and regional subcontracting; -Study the impacts of the epidemic surge over the supply chains of different types of products that are globally provided to clients; -Associate data analysis, artificial intelligence and Machine Learn to the process of chain projection of technology supply in order to	Operational research, mathematical models and artificial intelligence and analytics

		understand the use and the behavior of these technologies in the operationalization of supply chains that are more resilient in cases of epidemic surges.	
5	Paulo Buss e Sebastián Tobar	-Resume the agenda of sustainable development objectives, resignified to the pandemic setting.	Sustainable development
6	Prince Addo, Fang Jiaming, Nora Kulbo e Li Liangqiang	-Future studies must consider the approach of temporal series in order to understand the current structure concerning product distribution in different parts of the world by avoiding the spread of the fear theory.	Operational research and mathematical models
7	Aaron Wendelboe, Amanda Miller, Douglas Drevets, Linda Salinas, E. Miller, Dalton Jackson, Ann Chou e Jill Raines	-Investigate whether the tabletops exercises can provide structure to help the decision takers anticipate future challenges.	Games and simulation
8	Elisha Grange, Eric Neil, Michelle Stoffel, Angad Singh, Ethan Tseng, Kelly Resco-Summers, Jane Fellner, John Lynch, Patrick Mathias, Kristal Mauritz-Miller, Paul Sutton e Michael Leu	-Search about the elaboration of predictive methods in order to assess the response from information technologies and from people in pandemic settings, in the context of health organizations.	Operational research and mathematical models
9	Raju Vaishya, Mohd Javaid, Ibrahim Khan, Abid Haleem	-Investigate how artificial intelligence can contribute to the fight against COVID-19 in different scales, such as medical, epidemiological, and molecular applications.	Artificial intelligence and the internet of things

Source: Elaborated by the authors from the research corpus (2020).

It possible to see that the agenda suggests several elements that represent topics systematized inside the organizations and that lead to projecting research trends by enabling knowledge understanding and development that supports organizational management.

PROVISIONAL CONCLUSIONS

In only 20 years in this century, the world experienced at least five pandemics. In this context, public organizations (represented mostly by health areas) and private organizations have experienced a new task that entices them to mitigate the effects of pandemics and to constant innovation for, besides the crises' management strategy, organizations must seize the moments to rethink their innovation path (PEDROSO, 2020).

Based on the meta-analysis carried out and the clusters identified, it is considered that, in the context of public health administration, the studies try to understand the effects of the coronavirus on the coordination and planning of actions against COVID-19, which involves

sharing the lessons learned (from telemedicine, Information and Communication Technology in Medicine, Artificial Intelligence, the Internet of Things, Big Data and Machine Learning), the creation of action plans and the use of projection techniques, knowledge and information management, and the strengthening of transnational multi-lateral organizations, in order to enable data exchange and pandemic follow-up through comparative curves among the public systems of health management in the countries.

As for private organizations, the discussion lies on the concern with the economic-financial reflections and on their adaptation capacity to the pandemic in several sectors, on strategies that influence the consumers' on-line shopping behavior, on business re-significance, on the association between the organizations' production and the national technological capacity and on innovation systems, and on the use of simulation to assess and predict the impact of epidemic surges over the supply chain performance.

In both public and private sectors, the common ground lies on accepting the need for innovative perspectives and the use of knowledge to deal with rapid changes and their consequences in the organizational environment. Moreover, this is the moment to qualify the people who work in the combat against the pandemic, and re-structure processes for the accomplishment of remote work.

Another finding of the research was that, as well as the dynamics of the investigation on the effects and impacts of COVID-19 in organizations, the cooperation networks between researchers in the world are still maturing.

Therefore, the managerial contribution of this research lies on the taxonomy of the practices discussed so far, both in public and private organizations, and which could be replicated into other organizational settings for the combat against the pandemic in countries. This research also identified journals and authors that are contributing to the advancement of understanding about the trajectories and perspectives of coping with COVID-19 in public and private organizations. In addition, it was organized through clusters, an agenda with perspectives and trends for future researches in organizations, which can be undertaken through an operational research, longitudinal studies, knowledge management and innovation, collaboration networks, absorptive capacity, public-private partnerships, intercultural studies, ethics and remote work, mathematical models, artificial intelligence, the internet of things, analytics, sustainable development, and games and simulation. Most importantly, to keep science close to society and market by providing solutions for the fight against the pandemic effects so that the question from market and society may be "Which lessons have been learned?" (LUCCHESI; PIANTA, 2020); instead of "What to do?".

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