



ASSOCIAÇÃO DE POLITÉCNICOS DO NORTE (APNOR)
INSTITUTO POLITÉCNICO DO PORTO

DEFEATING COVID-19 PANDEMIC.
CRISIS MANAGEMENT IN AGRO-SECTOR:
COMPARING PORTUGUESE AND RUSSIAN APPROACHES

Anastasiia Sliusarenko

Dissertação apresentada ao Instituto Politécnico do Porto para obtenção do Grau de Mestre em Gestão das Organizações, Ramo de Gestão de Empresas.

Orientada por
Dr. Óscar Bernardes

Versão Final
Inclui correções e alterações sugeridas pelo Júri.

Porto, 20 de Julho 2021



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Resumo

A pandemia COVID-19 é a tragédia do século XXI, a doença que abalou o mundo e mudou a vida de populações inteiras. O seu forte impacto negativo na economia provocou mudanças permanentes no funcionamento organizacional, levando as empresas a criar estratégias de gestão de crise e a adotar as novas práticas inovadoras. O setor agrícola não foi a exceção. Visto que este sector demonstra um crescimento constante relacionado não apenas com o aumento da população a nível mundial, mas também com as mudanças contínuas no seu estilo de vida, um desenvolvimento de estratégias de recuperação a nível organizacional e governamental torna-se imperativo. Deste modo, este estudo oferece um panorama geral do conceito de gestão de crise com as suas principais características e estruturas; analisa a importância da inovação no setor agrícola; oferece uma visão geral do setor; apresenta o impacto da pandemia neste sector e algumas das estratégias de recuperação; por fim, explora as atitudes dos profissionais do setor agrícola em relação à crise da COVID-19 em dois países – em Portugal e na Rússia. Esta investigação pretende descobrir as diferenças e semelhanças nas soluções de gestão de crise entre os profissionais de agro-negócios de ambos os países, bem como os possíveis abordagens relativamente à minimização dos impactos da crise.

Palavras-chave: Impacto da COVID-19, gestão de crise, setor agrícola, inovação, economia circular

Abstract

The COVID-19 pandemic is the disaster of the 21st century, the disease that shook the world and change life of entire populations. Its tremendous negative impact on economy caused permanent changes in organizational functioning, triggering companies to create crisis management strategies and adopt new innovative practices. The agro-sector was not an exemption. Considering that this sector manifests constant growth related to not only the increase of human population, but also to continuous life-style changes, it is crucial to develop recovery strategies on organizational and governmental levels. Therefore this study provides the general overview of crisis management concept with its main characteristics and frameworks; analyses the importance of innovation in agro-sector; offers agro-sector overview; examines the pandemic's impact on this particular sector and some of the recovery strategies; and explores the attitudes of agro-sector professionals towards COVID-19 crisis in two countries – Portugal and Russia. This research intends to discover differences and similarities in crisis management solutions between agro business professionals in both countries, as well as possible approaches to crisis outcome minimization.

Keywords: COVID-19 impact, crisis management, agro-sector, innovation, circular economy

To my mother. Without her I wouldn't be where I am today.

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List of Abbreviations and Acronyms

AICEP - Agência para o Investimento e Comércio Externo de Portugal

EMF - Ellen MacArthur Foundation

EU - European Union

FAO - Food and Agriculture Organization of United Nations

OECD - Organization for Economic Co-operation and Development

SME - Small and medium sized enterprises

UAA - Utilized Agricultural Area

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Introduction

The SARS-CoV-2, also called COVID-19, gained this designation in order to not create unnecessary panic among the population of different countries, such as Asia that suffered great impact of SARS in 2003 (WHO, 2020a). Despite of its outbreak in Wuhan province in China in late 2019, it was reported to World Health Organization's Chinese office only on 31st of December the same year. The virus spread that started with 282 confirmed cases, mostly in China and some in Japan, Republic of Korea and Thailand¹, turned out to be the most devastating pandemic of the XXI century counting around 173.005.553 cases and 3.727.605 death worldwide². The most harmful impact on health of populations was registered in Americas and Europe (43% and 31% cumulative cases respectively) (WHO, 2020b), and as a consequence world's economy suffered irrecoverable damage.

As a preventive measure, massive lockdowns and household isolations, gradually adopted across and within countries, had a major influence on collapse of economic activity worldwide (FAO, 2020a). All companies (directly or not) experienced COVID-19 impact on their activity, through factories'

¹ Novel Coronavirus (2019-nCoV) SITUATION REPORT - 1 of 21 January 2020

² COVID-19 Weekly Epidemiological Update as of 13 December 2020 WHO – 7th of June 2021

shutdowns, labor shortages due to cash flow stress, and disruptions in the supply chain (Reid et al., 2020 as cite in Rowan & Galanakis, 2020).

While the most of the governments were concentrated on reducing the transmission and further spread of this proven to be deadly virus, the whole industries had to rethink their business models and transition to sustainable supply chains in the aftermath of COVID-19 that includes rethinking vulnerabilities created by over-reliance on 'just-in-time' or 'business-as-usual' practices (Sarkis et al., 2020 in Rowan & Galanakis, 2020).

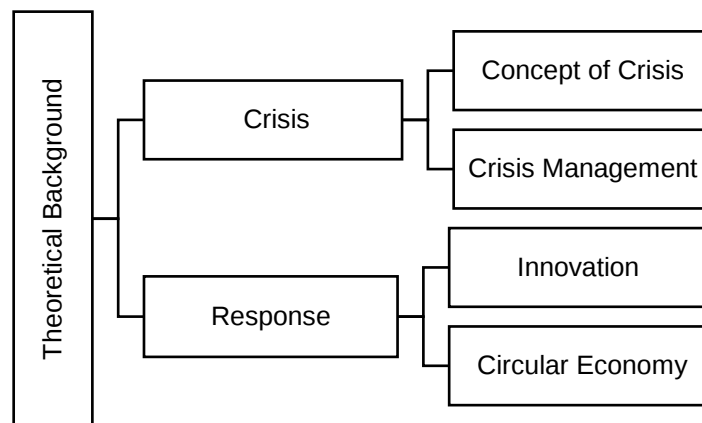
There is no doubt that economic recovery is not expected to occur shortly (FAO, 2020a) but there are some industries, such as those belonging to agrifood sector, that are crucial to survival of populations. According to FAO report, the most destructive impact of current pandemic is being observed in the group of low-income food-deficit countries, which are not self-sufficient enough to produce the food they consume. Eventually, the number of people without regular access to basic food supplies will increase (FAO, 2020a).

In 2018, the agro-sector in European Union reached € 1.098 billion turnovers and employed 4.24 million people (Saguy et al., 2018 as cite in Rowan & Galanakis, 2020). The importance of sector is undeniable, that is why most of the countries granted economic stimulus (European Commission provided €750 billion to help mitigate the shock from COVID-19 pandemic). As for other priorities established by EU there are climate actions, health program and digital strategies, created in order to ensure continuity of supply chain for food, medical products and services across European Union.

Besides existing stimulus, each company had to make urgent decision in order to survive first shock of COVID-19 and to prevent possible pandemics impacts in future. In such situations, crisis management and recovery strategies play imperative role.

The main purpose of present research paper is to study managers' attitude towards crisis provoked by COVID-19 virus spread and strategies adapted by organizations in agro-sector (agriculture and agri-food) in order to minimize pandemic impact. In order to achieve the main goal, theoretical overview was structured in two parts (Figure 1): Crisis (concept and management) and Response (possible strategies for better recovery).

Figure 1- Theoretical background structure



Source: Personal formulation

While crisis management provides framework for detecting crisis nature, building strategies and, as a consequence, the capability for an effective response that safeguards the interests of its key stakeholders, the response strategies are important for crisis aftermath, creating value auditioning mechanisms and evoke improvements to “new normality” of organizations. That is why including this part into dissertation is important for further research.

1. Conceptual/ theoretical background

1.1 Company crisis concept, types and stages

The most frequent use of term “crisis” is related to natural disasters such as earthquakes (Romero-Meza & Blanco-Vidal, 2011) or political crisis, demanding fast reaction on governmental level (Györffy, 2013). It can be a threat of nuclear war, an embargo on the export of oil or wheat to hostile countries. The danger to the physical integrity of citizens can also be considered a crisis, for example, in situations that involve hijacking or kidnaping, or it can also originate from an employment and economic crisis (Rosenthal & Kouzmin, 1997). However, for the purpose of present research, the concept of organizational crisis is being analyzed.

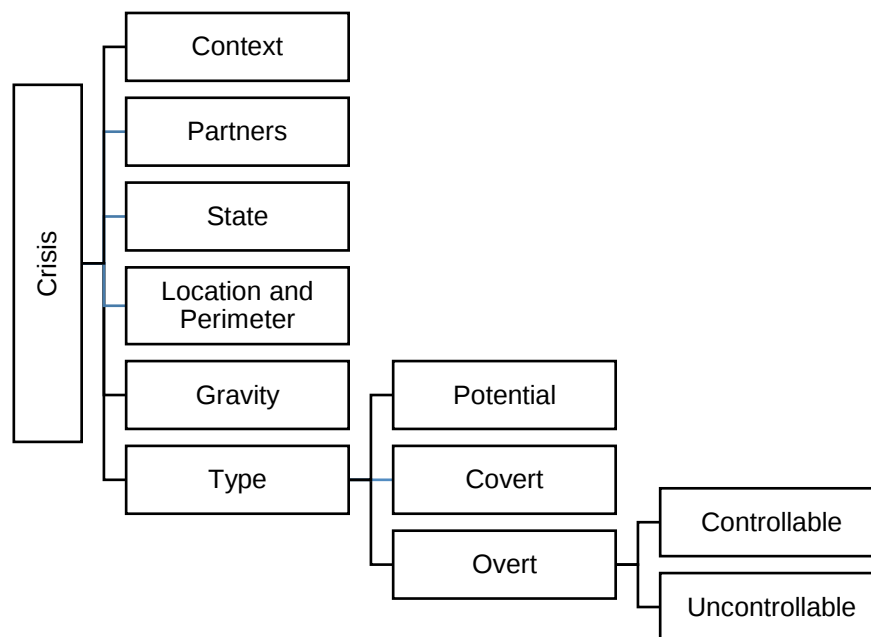
There are numerous definitions for crisis management mentioned in literature through the past years. The term “crisis” has its origin in Greek word “krisis”, which means judgement, choice or decision (Paraskevas, 2006). Boin et al. (2008) and Dekker & Hansen (2004) described crisis as an unpredictable event, characterized by complex situations of chaos and stress, usually with a lack of

reliable information (Broekema et al., 2017). Due to crisis' uncertain nature, according to Jindal et al. (2015), decision-making process tends to be complicated, especially when the origin of crisis is unknown. Authors define three main crisis characteristics, such as uncertainty creation, threat to important goals and unexpected nature (Jindal et al., 2015).

As for organizational crisis, it can be defined as: “[...] a low-probability, high-impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly”. (Pearson and Clair 1998 as cited in Paraskevas, 2006, p. 893). To the main characteristics of a crisis, Krystek (1987) added a limited duration of unwanted and unexpected event, and that it can lead to the company's complete downfall and failure (Vallaster, 2017).

For instance Benaben (2016), besides defining crisis as a disruption within the state of a system which reveals instability and discontinuity, considered that it requires a specific treatment in order to deal with consequences and obtain new acceptable state of considered system. In order to make accurate decision, crisis has to be characterized (Figure 2).

Figure 2- Crisis characteristics and types



Source: Adapted from Benaben (2016); Kuzmanova (2016).

Author proposed six criterions for primary crisis characterization:

- The context of a crisis – the description on intrinsic risks and impacted elements (population, goods etc.)
- Partners – the potential role that all possible stakeholder can play in crisis resolution and assist in crisis management.
- State – the actual effects and potential risks of crisis event.
- Location and perimeter – geographical area.
- Gravity - evaluation of crisis, some authors suggest money, victims or even minutes on TV news as a criterion.
- Type - the nature of crisis.

In other words, crisis in general terms can be analyzed through location, gravity and type, and for crisis management, such characteristics as context, partners and objectives should be considered (Bénaben, 2016).

As for crisis types, there are three of them that can be found in chosen literature:

- Potential crisis – not actual crisis, but possible. No reliable indications of crisis are evident, but performance is endangered by the occurrence of potential threat. There is still time before actual crisis occurs.
- Covert (latent crisis) – occurs if no action was taken throughout the potential crisis, possibility of temporary difficulties in achievement of organizational goals, organizational potential is not fully utilized to overcome crisis. In this case, all actions should be aimed to identify and minimize the latent crisis.
- Overt (evident crisis) – occurs when all preventive measures for covert crisis are not efficient. This type of crisis can be controllable (immediate, urgent and accurate crisis management decisions should be taken, organization is still in the position to overcome crisis) and uncontrollable (final stage of the crisis process, when organization has no potential to overcome crisis and it should be resolved) (Kuzmanova, 2016).

When analyzing stages of the crisis, authors defend four main phases:

- Preconditions (prodromal crisis) – warning stage, where the set of several small events that take place before actual crisis occurs. This chain of events usually leads to a significant incidence, also called “trigger event”.
- Trigger event (acute crisis stage) – event that sets crisis in motion and turns it evident to the key stakeholders of the organization.

- Crisis (chronic crisis stage) – where crisis produces the greatest damage to the organization and its stakeholders, such as employees, management, stockholders, customers, suppliers, local community or even government regulators.
- Postcrisis (crisis resolution state) – when the acute state is over and organization achieves a new “normality”. At this stage, management should analyze the crisis event and determine what strategies can be established in order to prevent future crisis events (Crandall et al., 2014), (Giannacouroua et al., 2015).

Even after analyzing and characterizing crisis, crisis management cannot base its decisions only on internal factors. There are external factors that can be decisive for crisis management. Not only organization's performance can play a crucial role, but also such factors as markets, competitors or government policies. Smircich and Stubbard (1985) affirm that the environment (internal or external) can be represented as a set of events and relationships between them, which are perceived and understood through certain cognitive strategies affecting business strategy and decisions. In some cases, managers seem to form an image of the environment and respond to that image, rather than to facts. (Weick, 1969 as cited in Giannacouroua et al., 2015). Since the impact of a crisis or disaster [can be] on internal (business units, staff, managers, shareholders) and external (other agencies and organizations, general public, media, tourists) level (Ritchie, 2004), crisis management strategies and approaches might become a very complex procedure.

Crisis Management

It is highly important to detect crisis on its early stages, and when potential threats are detected, the efficiency of company's management is crucial for faster and less harmful recovery. As Pearson and Clair (1998) defined it, “*organizational crisis management is a systematic attempt by organizational members with external stakeholders to avert crises or to effectively manage those that occur*” (Crandall & Mensah, 2008, p. 18). Other authors present crisis management as “*the process by which an organization deals with any major unpredictable event threatening to harm the organization, its stakeholders or the general public*” (Vargo & Seville, 2011, as cite in Vallaster, 2017, p. 510) In any case, the prime purpose of crisis management is to mitigate the negative impacts of a crisis, keeping positive relationships with stakeholders, community and focus on more sustainable development practices.

The one of common characteristics of crisis in most of the sources is its unpredictability. The unexpected situations (such as a case of a COVID-19 pandemic), especially in the unprepared companies can generate panic state amid employees, and even for its management. That is why it is essential, as a first step in controlling crises, create a crisis management team. In accordance with company's size and nature, crisis management team can consist of a team leader, security director, legal counselor, media spokesperson, internal communication specialist, human resources director,

employee representative and security specialist. If needed, an external adviser or field consultant may also be hired (Robinson, 2005 as cite in Vardarli, 2016).

In several papers and books Crandall et al. (2008, 2010 p. 11, 2014 p. 15) approach crisis management as a four stages framework with two perspectives: Internal and External Landscape (Table 1).

Table 1- Crisis management framework

	Landscape survey	Strategic Planning	Crisis Management	Organizational Learning
The internal landscape	◆ Propensity for crisis management ◆ Organizational culture ◆ Ethical environment - Company safety policies	◆ Form crisis management team ◆ Develop worst-case scenarios ◆ Formulate crisis management plan ◆ Conduct mock disasters and training	◆ Primary stakeholders management ◆ Secondary stakeholders management	◆ Organizational learning ◆ Organizational renewal ◆ Evaluate success or failure of crisis management planning
The external landscape	◆ Industry vulnerability ◆ Degree of political stability ◆ Globalization implications ◆ Technological implications	◆ Existing government regulations ◆ Industry standards	◆ Reaction of stakeholders ◆ Negative media coverage ◆ Public and Web criticism ◆ Impeding government regulations	◆ Industry renewal ◆ New government regulations ◆ New stakeholder outlook

Source: Adapted from Crandall et al. (2008, 2010 p. 11, 2014 p15)

The first stage framework, or the **Landscape Survey**, is the primary step for management personnel where the evaluation of internal and external environments takes place. While the internal environment is focused on the level of preparation of the company to crisis events, organizational culture and other company's policies, the external landscape is analyzed in order to understand the situation in industry, political factors and other implications that cannot be control from within the organization.

Only after analyzing all available information, management can start with development of a **Strategic Plan**. On this particular stage, crisis management team is formed, worst-case scenarios are discussed and crisis management plan is established. At the same time, on external level, stakeholders and governmental agencies adapt their activities to manage existing crisis and prevent its further development.

The third stage, designated as a **Crisis Management**, occurs on the most critical phase of a crisis event. At that point, primary (owners, employees, customers, suppliers and local community) and secondary (other communities and organizations interesting in organization) stakeholders are managed in order to align their efforts to contain crisis and resume normal operations. The external landscape is responsible for stakeholders' reactions and include negative media coverage, web-based criticism and obstructing government regularizations. According to authors, this stage is the only one that is reactive, it can only commence when actual crisis occurs, when other three stages are of a proactive nature.

At the end, the final phase is the **Organizational Learning**. At this stage, on internal level, organization must evaluate how crisis was handled and if any adjustments to a crisis management plan are needed. It is crucial for organization to learn from the crisis in order to avoid the same mistakes in future. On the external level, the whole industries can reevaluate and renew their procedures, external stakeholders and may change their attitude towards company and the way it overcame the crisis event (Crandall & Mensah, 2008).

Acquier et al. (2008) defend that for a better recovery from crisis it is crucial, yet difficult, to correctly diagnose the nature of crisis and be able to react quickly and accordingly. When organization adopts the same positioning and strategies for every crisis, it can induce itself in a harmful situation (Acquier et al., 2008). The crisis response itself can be considered as a complex system, where different people, from different departments have to work together as a team (crisis management team), focusing on several response tasks (as detection, prevention, damage limitation etc.). This system is characterized by its ability to learn from the environment and adapt (change) all organizational structure and behavior on individual level (Paraskevas, 2006).

Small and medium sized enterprises (SMEs) can be more vulnerable to crises, comparing to larger organizations. Considering that crisis is seen as an unexpected event, smaller companies can experience lack of human and financial resources or even management capacities to deal with crisis event. Knowing that SMEs account for over 99% of all enterprise in all European Union (OECD, 2009), they employ more than a half of the labor force in private center, it is highly important for governments to support them in times of crisis (Giannacouroua et al., 2015).

The recent study mentioned in Rowan et al. (2020), shows that COVID-19 pandemic is likely to change organizational behaviors and strategies. Some of the strategies that might be adopted by companies are: forced mergers and acquisition transactions for weaker companies (with lower valuation), consolidation of similar sized companies to withstand market uncertainties and secure customers, adjustments and improvements in supply-chain structures, searching for value adding solutions (for example better food security to satisfy customer needs). In the end, all companies will share the similar characteristic (inherent to competitive markets) – need for innovation, as a survival requirement (Rowan & Galanakis, 2020).

1.2 Response to crisis

Innovation as an advantage in crisis aftermath

It is a well-known fact that innovation, although a critical measure, has a significant impact on economic growth, motivating companies to increase performance and giving them an advantage in uncertain and threatening environment (Shakina & Barajas, 2020). According to the “first-mover-advantage” theory (Lieberman and Montgomery, 1988), innovative companies have a competitive advantage and leading position, when presenting new products in the industry. As a result, innovative organizations can obtain strategic benefit, establish the market’s power, and take the potential bounce (Nguyen et al., 2020). The strong relationship between environmental uncertainty (crisis) and innovation has already been proven through research, due to its capacity to reduce environmental impermanence and to provide sense of stability. According to Miller (1987), companies in more unstable environment have a higher need for innovation, in order to remain competitive and survive (Giannacouroua et al., 2015).

The COVID-19 pandemic, indeed, can be considered turbulent, uncertain and unstable environment. At the same time, this pandemic can be a trigger factor that gives opportunity for companies to overcome limitations and obstructions that they used to experience in their normal work environments (Bjorklund et al., 2020). It is quite possible that the COVID-19 crisis will be a driver to the next wave of innovators with economic and social impact, at the same time encouraging cooperation between academic world and industry to identify the next disruptive technology (Rowan & Galanakis, 2020).

The innovation per se can be divided in two modes: Science, Technology and Innovation (based on the production and use of technical knowledge) and Doing, Using and Interacting (based on informal processes of learning and experimentation) (Gibson & Naquin, 2011). The most common areas of innovation, affordable to almost any company are value offering (most frequently through new products and services), bundling products and rebranding (implementation of ideas that were considered too risky and discarded in pre-crisis time), exploration of new market segments, new business models, diversified portfolios. Innovative measures can help reduce the fixed costs or even change company’s positioning towards its customer through, for example, prosocial activities (food donations, free deliveries to elderly people (Bjorklund et al., 2020). Open innovation can be considered an interesting method, since it brings new ideas from out of organizational boundaries, giving an opportunity to take advantage of knowledge of others (outside in), and share your knowledge with other companies (inside out) (Chesbrough, 2020).

Undoubtedly, digital technology in our modern world, offers innumerable possibilities in research area for data acquisition and analysis. It helps producing safe and healthy food, and offers improved sustainability (Bakalis et al., 2020). Artificial Intelligence, on the other hand, is being used to develop new foods and flavors (Rowan & Galanakis, 2020).

Considering that even before pandemic the customers' purchasing behavior was changing (in 2015 in United Kingdom, average time spent online was 21h per week, half of the time via smartphone) (Bakalis et al., 2020), since the COVID-19 virus spread, most of the population worldwide remained in lockdown, in order to prevent infection, depending on online retail and new innovative delivery systems (Rowan & Galanakis, 2020).

The agro-sector is not an exception. Since the 20th century, Agriculture 3.0 got a massive development through new computer program and robotic technics, giving an opportunity to operate more efficiently, to reduce use of chemicals, to improve irrigation precision and much more. Nowadays, current technologies like the Internet of Things, Artificial Intelligence, Cloud Computing and all other products of Digital Era allowed to agrifood sector to step into Agriculture 4.0 (Zhai et al., 2020). The innovative computational tools created for agrifood sector aim to agile management decision-making process through data analysis (energy consumption, general productivity etc.) and strategic information, at the same time, gives possibility to produce in more ecological way without any extra costs. Even from customer perspective, "green" positioning presents more advantage for companies comparing to other players in the industry (Zocca et al., 2019).

The customer perspective is highly important for any industry. In order to be competitive, companies have to offer more than just a product - the entire purchasing system should be considered (from transparency of information to the post-sale services). The importance of communication and interaction with customer is growing. In search of other opinions, customers often form groups or communities with other costumers, and these communities turned into an important tool for companies in order to not only learn customers' behavior, but also gain new ideas for future innovations based on customers' preferences.

This special kind of e-commerce, denominated social commerce, allows interaction between company and customer in a social environment such as Facebook, Twitter, etc. Besides the opportunity to interact with customers, it provides better visibility on social media and create closer relationships with customers (Sturialea & Scuderi, 2013).

However, the innovation process can be challenging, especially in agro-sector due to a large number of actors throughout the supply chain. The information flow often suffers disruptions due to their heterogeneity and dynamically changing business relations. In this case, common platforms and software could be very useful. Systems, that could allowed access to necessary information for every stakeholders, gain efficiency in production and distribution and as a result to reduce waste and costs of the final product (Kaloxylos et al., 2013).

Circular Economy in agro sector

The problem of a food waste in Europe is not a recent issue. According to data collected in 2017 Europe was generating about 1.3 billion tons of waste annually, with 700 million tons generated in agriculture (Toop et al., 2017). For instance, in 2013 Italy was responsible for 244 thousand tons of

waste, due to failure in selling, on average, between 1% and 1.2% of grocery stores and supermarkets turnover. Around the same time, British food markets produced 366 thousand tons of annual waste throughout retail and distribution stages. The most common sources of increasing amounts of waste are associated with logistics (location problems, the waste allocations or even vehicle routing problems (Fancello et al., 2017), the lack of innovation in production system and out of date technology (Toop et al., 2017).

One possible solution for reducing the food waste is integrating circular economy in the food production system, with adaption of food waste management practices, design of industrial routs, and transformation of food waste into feedstock, bio-chemicals or even energy. Besides the obvious advantage for reducing waste, circular economy can add value to agrifood production (Borrello et al., 2020).

Circular economy can be defined as an industrial system that is restorative or regenerative by intention and design (EMF, 2015), enhancing the continuous flow of technical and biological materials in the value circle while keeping products, components and materials at their highest utility and value at all times and reducing waste to a minimum (EMF, 2013). The transformation of a linear economy into a circular one, however, can be complex. It requires innovative perspective in fields like logistics (shifting to reverse mode), new customer-supplier relationship dynamics, new forms of organizational and marketing strategies connected to various value chains (Donner et al., 2020).

The new circular economy models, according to Ghisellini (2016, as cited in Borrello et al., 2020, p. 1), could provide an effective way to defy societal challenges and to “[...] contribute to sustainable development goals mostly by promoting a break through approach to actualize the sustainability of industrial systems and rethink the organization of supply chains” (Borrello et al., 2020). There are various sustainability strategies like creating of take-back systems for customers who wishes to reuse or recycle the product, choosing functionality over the ownership (produce-as-a-service approach), where customer is offered a functionality without owning the product. (Geissdoerfer et al. 2018, as cited in Borrello et al. 2020). Circular economy models, generally, have six major patterns: repair and maintenance, reuse and redistribution, refurbishment and remanufacturing, recycling, cascading and repurposing, and organic feedstock (Donner et al., 2020).

The implementation of new circular economy models can be challenging. Due to low market prices of products, low quantities and seasonality or high transportation cost and water content, the production from agro-waste into value-added products tend to be highly expensive. The heterogeneity of resources, instability in volume and quality over time and regions can be considered challenging factors. However, the major challenge, according to author, is that the implementation of circular economy requires a change on a system level, including involvement of all the actors through the value chain (Donner et al., 2020).

2. The agro-sector overview

The most of agriculture industries are located in Africa, North and South Americas and Asia, and worldwide they occupy more than 48 million km² (37.2% of the total land area). Even though, more than 800 million of people worldwide do not have food access. The agriculture sector is heterogenic and its scale, generally, depends on geographical position. For instance, while most farms (74%) in Europe and Americas have over than 10 ha, in Asia 85% are smaller (Lyasnikov, 2019).

Recent studies show that demand for food worldwide will increase by 70%, while share of agriculture in world GDP is expected to decrease to 3%. There are four prime affecting factors – demographics, scarcity of natural resources, climate change and food waste (Anishchenko, 2019).

The importance of this sector is undeniable, not only as a key to survival of humanity, but also from economical point of view. At the moment, in the European Union (still including United Kingdom), the agriculture is the largest manufacturing sector that employs around 4,72 million people and represents € 1.2 trillion of annual turnover according to Food & Drink Europe (2019). The sector

accounts of more than 285 thousand SMEs and micro SMEs in the European Union, where 0,9% of the companies contribute to almost 50% of the activity (Bakalis et al., 2020).

As European Commission has established in the 2019 report, European food market is highly influenced by social demand, whether related to health, environment, climate change, animal welfare and lifestyle. Massive market shifts were expected and while some activities like dairy or meat industries were expected to decline, others like olive oil and wine production and their export volume could increase. Despite of possible decrease in income by 2025 (due to the fall of pig meat, wheat, maize and soya beans prices), by the 2030 an average EU farm income could increase, the labor force outflow from agricultural sector was expected to decline and technological progress in machinery and equipment (together with decision-support tools) prognosed to be implemented (European Commission, DG Agriculture and Rural Development, 2019).

Even though around 79% of food produced worldwide is consumed in the cities (Galli et al., 2020) with the highest concentration of population, small farms play very important role in quality food production, at the same time providing diversification of rural economy, management of natural resources, supporting employment and family income. In spite of their small family household nature, small farms may be empowered through the connections to the bigger markets, value chains and innovation (Tisenkopfs et al., 2020).

The new modernization provided by Agriculture 4.0, such as new sensing, automation and digital technologies, can easily increase efficiency and flexibility of the agrifood sector. Innovation and stock minimization contribute for transformation of agricultural industry from traditional to “on-demand” system, increasing dependence on more effective transportation, that was highly affected during the COVID-19 pandemic, inhibiting or complicating the food access for large number of people. This proved that one of the greatest challenges in crisis planning is a development of a resilient food system, where one failure in normal functioning of any of the actors, can provide the failure of the entire food supply chain (Bakalis et al., 2020).

2.1 COVID-19 pandemic in origin of a food crisis

The COVID-19 pandemic, besides direct threat to human health and well-being, evoked colossal food crisis worldwide. Lockdowns and social distancing measures caused supply chain disruption and, therefore, increase food losses especially in high value and nutrient-rich products like dairy, meats, fruits and vegetables (Cattaneo et al., 2020). Empty shelves in supermarkets were reported in many countries. If before the pandemic 50% of food was purchased in supermarkets and the other half in food services, after virus spread almost 100% of customers shift their preferences to supermarkets, that were not able to cope with demand. The same shift of purchasing habits, alongside to confinement measures, were responsible for cease of a big part of food services (Bakalis et al., 2020), resulted in induced unemployment that contributed to food insecurity, especially in low-income households.

The catastrophic impact of COVID-19 crisis on agrifood sector stroked mostly small and medium-sized agribusiness enterprises, and, as it was mentioned in previous chapter, these companies are critical to the functioning of entire food system in Europe. Because of short-term cash flow shortages and decreasing of operational capacities, agrifood sector suffered employment and income crisis. Food and Agriculture Organization of United Nations expects even further negative impact, especially on most vulnerable population groups and countries, small family farms, small-scale food producers, seasonal and migrant workers, elderly population and others (FAO, 2020b).

This negative impact of COVID-19 virus spread, however, cannot be seen as a singular event, but an extended crisis that gradually affected different parts of world, sectors, populations and lifestyle patterns, and can be divided in three stages (Table 2): short-term, medium-term and long-term impact (Petrikov, 2020)

The first, short-term impact was experienced worldwide at the very beginning of pandemic, between March and June depending on the start point of first wave in every country (ex. mid-April in Portugal and in June in Russian Federation). The medium-term impact (decreasing income and purchasing power together with governments struggle to keep companies from bankruptcy) is something that characterizes current daily life of populations in different countries. As for long-term impacts, these are possible outcome of this crisis, that should be analyzed by all actors of agrifood sector.

Table 2-The impact of COVID-19 on agrifood sector

Short-term impact	Medium-term impact	Long-term impact
• Higher demand for food at the start of the pandemic • Decrease in demand for food from the hotel business, tourism and catering • Disruptions in the supply of resources and services for agriculture, as well as in the “food chain” due to restrictions in the operation of transport, complication in logistics, closing of retail markets • Closure of a number of processing plants with a high concentration of workers • Shortage of seasonal workers due to reduced (restricted) migration • Disruption of the functioning of global agri-food markets due to export restrictions	• Reduction of budget support for agriculture and investments in the sector due to general economic crisis • Decrease in demand for food due to a decrease in real incomes of the population • Growth of production costs due to the rise in prices for imported capital goods and materials	• Strengthening of “green trends”, increase of more biological agriculture and animal farming, use of resource and energy-saving technologies, less dependent on external supply of resources and materials • Increasing the role of regional and local food supply systems operating outside global markets and in this regard, the growth of the importance of small and medium-sized businesses, agricultural cooperation, small-format trade, direct links between food producers and consumers • Deurbanization, a more even distribution of the population throughout the country to reduce risks of epidemics and other emergencies

Source: Personal adaptation from Petrikov (2020).

Besides the transition to a “new normality” and necessary adjustments that should be considered for agrifood sector, there are actions that should be taken on organizational and governmental levels. Measures like support for innovation (machinery, microbiological industry, plant protection products, etc.) could reduce dependence on external suppliers, creation of new digital platforms could be an alternative to traditional retail chains and facilitate market access for small local businesses (Petrikov, 2020). In addition, the financial support for agricultural sector is essential.

2.2 Recovery strategies

The sudden drop in demand and decrease in clients purchase power created a high pressure on governments and financial institutions (FAO, 2020b), requiring creation of different recovery strategies designed on organizational and governmental level (Table 3)

Table 4- Recovery strategies

Organizational level	Governmental level
New digital channels Enhance productivity and market visibility Short food supply chains Direct sales, minimized logistics disruptions, new distribution technologies, development of locally sourced foods, allocate efficiently resources, suppliers, retailers, home delivery via small distribution centers in cities Innovation Enhance market transparency through IT, e-commerce app, apps for ordering and delivering, interconnection within agrifood sector, waste reduction/processing/reusing New layout Of workplaces, manufacturing facilities, retails, ensure safety of workers and customers.	Urban agriculture Enhance better resilience, better food access, population decentralization Regulations Public sector involvement, supervision, infrastructure development, institutional support Financial Support Stimulus New loan schemes interest free for six month (United Kingdom) or five to ten years (Japan), dedicated credit lines for small family farmers below market rate (Brazil), credit package about 3.3% of GDP for small farm household (Thailand), monthly grants of €9 to €15 thousand for SMEs (Germany), renegotiation of existing loans and new schemes for lending (Italy), simplified procedures and access for support (USA), more flexibility and six-month moratorium on bankruptcy applications (Russian Federation) Digital transactions Internet banking, mobile money systems, reducing transaction fees, regulation for expansion of the use of technology

Source: Personal adaptation from (FAO, 2020b) & (Bakalis et al., 2020)

All of these and other measures were conceived in order to allow close to normal functioning and faster recovery of small and medium-sized businesses. Through better coordination of all stakeholders, including industries and governments, could be achieved global trade flow with minimum of logistics disruptions. Automation should provide efficient production even with a reduced number of workforce and agile distribution and market access even for smallholders. New regulations have to aim to maximize health and safety to both customers and business holders, and to determine new food standards where information can be used in order to provide results. Innovation tools such as food apps need to provide more extensive information regarding nutrition and ingredients and highly regulated to protect both producers and clients and serve for more than merely marketing purposes (FAO, 2020a).

2.3 Agro-sector in Russia and Portugal

The fact that Russian Federation and Portugal are two completely different countries on cultural, dimensional and economic levels can be taken as an advantage for present research in order to compare similar and different approaches towards COVID-19 crisis.

Despite obvious differences in proportions (geographical area and population), there are similar characteristics. For example, the age structure in both countries is similar, with predominant age between 25 and 54 years (41.49% Portugal / 43.38% Russia) with higher number of female gender representatives over male. At the same time, however, Portugal represents superior count of senior population (65 years and over – 20.92% in Portugal and 15.53% in Russia). Nevertheless, both countries represent major concentration of population in urban areas (66.3% Portugal and 74.8% Russia)³.

As for agricultural sector, there are more distinctive aspects than similarities (Table 4). The farm structure is considerably different in both countries. Portugal farming consists mostly (90%) of small-sized family farms and in 2016 the average farm size was 14ha, according to Eurostat, with almost 52% of used agriculture area running the High Nature Value farming ("green" low-intensity farming valuable for wildlife and environment (European Commission, DG Agriculture and Rural Development, 2020).

³ <https://www.indexmundi.com>

Table 5 - Portuguese and Russian agro-sectors overview

Criteria	Portugal	Russia
Territory	43% of the territory (3.9million ha)	13% of the territory (222 million ha ⁴)
Structure	Small-sized family farms (below 20ha) 90% ⁵ Medium-sized farms (20-100ha) Large-sized farms (>100ha)	Large agricultural organizations (56.5%) Medium-sized agricultural households (31%) Farms (including private) (12.5%)
Specialty	38% fruits and vegetables, 10% wine, 9.9% dairy 7.8% cattle, 7.1% pig and poultry sub-sectors ⁴	Cereals, Oilcrops, Sugar, Pulses, Fruit and Vegetables, Livestock
Enterprises	34.427 enterprises ⁶ 259 000 farms	210 700 companies (2016 all categories Rosstat) 23,5 million small private fields ⁷
GVA (sector)	€2.7Billion (2.3% GVA in Portugal)	₽2883,4billion (≈€32billion) (3.1% GVA in Russia)
Output	€7.1Billion (60% Crop/ 38% Animal)	₽206,2 billion (≈€2.3billion) (51,5% Crop/ 48,5% Animal)
Employment	298.3 thousand 4% of the population 52% (65years old), 8% (under 40)	4.3 million (2018) decreasing ⁸ 2.9% of the population
Products⁹	grain, potatoes, tomatoes, olives, grapes; sheep, cattle, goats, pigs, poultry, dairy products; fish	grain, sugar beets, sunflower seeds, vegetables, fruits; beef, milk
Export	Fish, Wine, Olive oil, Fruit and Vegetables ¹⁰	\$25 billion (2019) 10-13% (grain), 20-23% (wheat) worldwide ¹¹
Export partners (all products)	Spain 25.2%, France 12.5%, Germany 11.3%, UK 6.6%, US 5.2%, Netherlands 4% (2017)	China 10.9%, Netherlands 10%, Germany 7.1%, Belarus 5.1%, Turkey 4.9% (2017)

Source: Personal formulation from several sources.

⁴ (Federal State Statistics Services, 2019) – Russia in Numbers, statistics report⁵ (European Commission, DG Agriculture and Rural Development, 2020)⁶ https://infoempresas.jn.pt/A_AGRICULTURA-PRODUCAO-ANIMAL-CACA-FLORESTA-PESCA.html (last visit 27.12.2020)⁷ Next sector census in 2021⁸ (Federal State Statistics Service, 2019) - Agricultural sector of the Russian Federation, statistic report⁹ (Barrientos & Soria, 2020) - <https://www.indexmundi.com>¹⁰ (AICEP - Portugalglobal, 2020)¹¹ (Yakupova & Lorenzen, 2020)

The Russian agro-sector includes agricultural organizations (large farms with large areas land and livestock farms), family farming households of an individual family with a limited number of employees (without any family relation), and personal minor lands of the population (small plots of land next to rural houses). About half of agrifood is produced by large agricultural organizations (The World Bank, 2017). In terms of agro-politics, even prior pandemic, Russian government established supportive measures for agro-sector, in order to reduce dependence on imports and increase exports of agro-products. Since 2017, agro-system was focused on technical and technological modernization, innovative development, development of financial and credit system of the agro-industrial complex, stimulating investment activities (releasing 36.5% of federal budget) and agro-export. Being the part of the Eurasian Economic Union provided for Russian Federation several benefits, such as possibility to reach various export agreement with Saudi Arabia and Iran (regulations for trade of poultry, sheep and goat meat, beef in 2017), with China and Thailand (quality control and others regulations in wheat, oats and seeds in 2018) (FAO, 2020c).

Innovation is one of the core factors for sector competitiveness and importation decrease. As it was previously mentioned, implementing digital technology in agriculture can raise productivity, predict and adapt to climate changes, bring more sustainability, generate profit through growth of agricultural production, cost efficiency and market opportunities. (Anishchenko, 2019) However, the implementation of new technologies can be very challenging due to machinery in use (inventions of different years, sometimes hundred years of difference), lack of know-how and competent workforce, high cost of logistics and general exportation operations (Anishchenko, 2019). Ignoring of locally developed innovation systems (instead of domestic platforms designed in accordance with Russian reality, the foreign technology is preferred), scientific and educational institutions that specialize on developing of precise farming are disunited and subordinate to different governmental and private institutions, out of dated education methods and programs for agro-sector, lack of educational institutions in some regions are factors that hinder sector development (Lyasnikov, 2019).

The importance of up-to-date machinery became more obvious since the beginning of pandemic. To support agro-sector and stimulate modernization of dairy complexes, storage facilities and other necessary transformations, Russian Government provided ₺6.74 billion (≈€75.9 million) to distribute among 34 regions to support 102 investment projects. (Government of Russian Federation, 2020)

Others measures to win the COVID-19 impact are Import and Export restrictions to protect consumers and producers (20th of March 2020 were established export quotas on some varieties of crops). Tax deferral and low interest rate loans (the Ministry of Agriculture of Russian Federation requested additional funds). Conducting stress tests to evaluate the ability of large agro-organizations to withstand the crisis (tests designed to determine if strategically important companies are able to meet their financial obligations throughout the ongoing crisis). Cash payments to vulnerable categories of citizen (single payment) and relocation of available workforce to the agricultural sector (individuals who lost their jobs in their sector of the economy as well as students of agricultural universities to work in agro-sector). (The World Bank, 2020)

Equally, in Portugal, the importance of agro-sector is indisputable, and on its reinforcement depends the post-pandemic economic recovery (Jornal de Noticias, 2020). For the last decade, agro-sector in Portugal had a major exportation growth of 50% (2011 – 2019) reaching new non-European markets like Canada, Russia, China and India. Experts addressing a major part of this growth to innovation and modernization of agro-sector. Even during the pandemic agro-export increased in June in 5.2% comparing to the same period last year (Sousa, 2020). The general growth of agro-sector was confirmed in communication released by Ministry of Agriculture on 23-d of December, stating that the utilized agricultural area (UAA) increased by 7%, now occupying 3.9 million hectares (43% of the territorial area). (Ministry of Agriculture, Portugal, 2020)

In order to maintain sustainable growth of agro-sector and rise citizens' awareness regarding food and natural resources conservation with the more innovative and competitive value chain, was created Innovation Agenda for Agriculture 2030 (10 years strategic plan). The implementation of advised strategies, according to Ministry of Agriculture prognosis, should increase income of agrifood sector by 15%, allocate at least 80% of new young farmers in interior territories and increase by 60% investment in research and development for agro-sector. This program defines 15 initiatives: Healthy food, One health, Mitigation of climate change, Adaptation to climate change, Circular agriculture, Sustainable territories, Revitalization of rural areas, Agriculture 4.0, Agrifood products program, Excellence in the organization of production, Agro-energy transition, Promotion of research, Innovation and training, Innovation Network, Single Agriculture Portal and Reorganizes. (Ministry of Agriculture, Portugal, 2020)

As for COVID-19 crisis measures, an emergency stimulus package of €140 million was created to support farmers, especially of small and medium size. According to minister of Agriculture, this financial support has two positive outcomes, first helps to minimize financial loss induced by COVID-19 pandemic, and at the same time, creates opportunity for continuous development of agro-sector. (Ministry of Agriculture, Portugal, 2020)

3. Methodology

The methodology is fundamental for the development of a research work, it is what allows, to define objectives and the most appropriate method to interpret the objectives as well as their results (Almeida, 1995). It is necessary in the methodology to determine steps, procedures, and strategies (Polit & Hungler, 1995). This chapter presents the methodology that was used in this study, which made it possible to answer the research questions, supported by the literature review, based on scientific articles, academic thesis, and current studies.

3.1 Research purpose

The main purpose of this research is to find out and compare Russian and Portuguese attitude towards crisis in two dimensions: crisis management approach and ways for lessen crisis outcome. Both dimensions include sub-categories for deeper analysis.

1) Comparison of crisis management approach through:

Prediction and preparation for crisis.

Considered important VS realized actions during the crisis

Involvement of external crisis management experts

Governmental support

2) Crisis aftermath mitigation through innovation:

Consideration given to importance of innovation and “risky” measures

Implementation of innovation and digital technologies

Given importance VS implementation of circular economy processes

Cost of circular economy

Both dimensions have been analyzed separately for each country and compared afterwards.

3.2 Literature review

The literature review is a foundation for present case study, not only for two major reasons: preliminary search and critical review (Sharp et al., 2002 as cite in Saunders et al., 2009), but also to understand the current state of knowledge in crisis management, innovation and state-of-art in agro-sector.

The predominant sources were of secondary nature: scientific articles and books (B-on, ScienceDirect, Google Scholar, Cyberleninka, etc.), governmental publications and news. The prime keywords used in research were COVID-19 impact, crisis management, agro-sector, innovation, circular economy.

At the same time, since no similar research was found, the literature review served as a foundation for development of research theories.

1) Comparison of crisis management approach:

T1: Managers in both countries considered COVID-19 crisis predictable and were able to prepare for it since the beginning.

T2: Managers in both countries were able to apply measures they considered important during crisis.

T3: Managers in both countries have the same attitude regarding inviting or not external experts.

T4: Portuguese managers would apply more for financial support than Russian ones.

2) Crisis aftermath mitigation through innovation:

T1: Even though managers in both countries would consider innovation important, none of them would be willing to implement processes that were considered risky before crisis.

T2: Portuguese managers would implement more new technologies (digital and production levels) than Russian ones.

T3: Even though managers in both countries would give great importance to Circular Economy, they would not implement

T4: Managers in both countries would consider Circular Economy too expensive to implement.

In order to explore these theories were created 16 questions based on literature review:

Table 6- Research questions sources

Questions	Authors
Q1: Do you consider that COVID-19 crisis impact was predictable?	Pearson and Clair, (1998) in Paraskevas, (2006)
Q2: Did you manage to prepare your company for possible impact at the beginning of the pandemic?	Robinson, (2005) in Vardarli, (2016)
Q3: What actions, in your opinion, are important while dealing with crisis?	Crandall et al. (2008, 2010, 2014)
Q4: Which of the following actions were implemented in your company during the COVID-19 crisis?	Crandall et al. (2008, 2010, 2014)
Q5: Were any external crisis management experts involved?	Robinson, (2005) in Vardarli, (2016)
Q6: Small and medium sized companies are more vulnerable to crisis.	Giannacourou, Kantaraki, & Christopoulou, (2015)
Q7: Governmental (economic) measures against COVID-19 impact are adequate.	FAO, (2020b) , Bakalis, et al., (2020)
Q8: Have you applied for governmental financial support?	Personal experience question
Q9: Innovation is an advantage in times of crisis.	Shakina & Barajas, (2020) Nguyen, Vo, & Vo, (2020)
Q10: What types of innovation your company implemented during the COVID-19 pandemic?	Bjorklund, Mikkonen, Mattila, & Marel, (2020) Chesbrough, (2020)
Q11: Implementation of new digital technologies:	Bakalis, et al., (2020) Rowan & Galanakis, (2020)

Q12: Implementation of new digital technologies on internal level:	Zhai, Martínez, Beltran, & Martínez, (2020) Zocca, et al., (2019) Sturialea & Scuderi, (2013)
Q13: Did you employ any innovations that would be considered risky before COVID-19 crisis?	Bjorklund, Mikkonen, Mattila, & Marel, (2020)
Q14: Circular Economy activities can mitigate COVID-19 crisis impact.	Borrello, Pascucci, Caracciolo, Lombardi, & Cembalo, (2020)
Q15: Which Circular Economy processes are used in your company?	Geissdoerfer et al. (2018) in Borrello et al. (2020) Borrello, Pascucci, Caracciolo, Lombardi, & Cembalo, (2020)
Q16: Circular Economy processes are too expensive to implement.	Donner, Gohier, & Vries, (2020)
Q17: In your opinion, does this questionnaire contain question(s) that are unclear, inappropriate, or not connected to the topic under investigation?	Content validation

Source: Personal formulation

3.3 Research design

The research strategy determined for this dissertation is a case study, defined by Robson (2002) as a *“strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence”* (Saunders et al., 2009, p. 145).

Originally, the face-two-face semi-structured interview with agro-sector professionals (business owners or managers) was established as a data collection method, however, due to COVID-19 restrictions and technical issues the method was changed to self-administrated questionnaire. The use of questionnaire provided an opportunity to increase the number of cases (participants), which according to Yin (2003) is preferable, due to possible difficulties when choosing and justifying only one case.

3.4 Sampling

Since the amount of agro companies in both countries counts thousands of firms, the total population analysis was impossible, and, according to Henry (1990) the smaller number of cases makes it possible to dedicate more time for piloting and preparation of data collection tools and, as a result, collect more detailed information (Saunders et al., 2009).

The stratified random sampling was selected as a sampling technique. (Saunders et al., 2019) The first criteria was to choose the sector and to overview the population. Considering the amount of industries in agro-sector, it was necessary to choose companies of industries that could be comparable in both countries. According to this criteria, companies from agro and agrifood sectors were selected for present research, excluding agro-industry, machinery and forest exploration sectors. All selected companies were ranked according to their net income (2018 in Russia¹² and 2019 in Portugal¹³) providing top 50 companies in each country.

First unsuccessful pilot research and low participation rate within selected companies in both countries drove to a mandatory strategy change and more companies were included in study. The total of 1029 Russian and 2002 Portuguese companies were contacted with the request for participation in study.

3.5 Data collection

The prime data collection method used in present research is a self-administrated questionnaire, created online and administrated via e-mail.

The questionnaire (Annex A) consists of 16 questions divided in 2 groups. The purpose of the first group of questions, denominated Crisis Analysis, is to provide general idea of attitude that participants had towards COVID-19 crisis, as well as their actions and crisis management choices. The second part, Crisis Response, was developed to explore managers opinion and experience regarding crisis mitigation options and tools, such as innovation and circular economy. Since the validation through statistical methods was not possible, question Q17 was added in order to provide content validation.

Since the study was designed for and administrated to professionals in area, criteria like questionnaire's layout, question types and time necessary for responding were took in count. The most efficient type of questions in this particular situation is closed questions (Dillman, 2007 in Saunders, 2009), such as list questions, where participants could choose one or more of predetermined answers with the possibility to add additional information in "other" field. Other type of closed questions used in this case study was a rating questions, where participants could express their opinion and attitude through five-point Likert scale (Saunders et al., 2009, p. 374,378). In order to facilitate general comprehension of the questions, questionnaire was translated in Portuguese and Russian languages.

According to Dillman (2007, as cited in Saunders, 2009, p. 387) *"the layout of self-administered questionnaires should be attractive to encourage the respondent to fill it in and to return it, while not appearing too long"*. For more intuitive and rapid response, questionnaire was created in Google Forms platform, at the same time providing participants with sense of security due to enormous

¹² <http://www.acexpert.ru/analytics/ratings/50-krupneyshih-kompaniy-apk-rossii---2019.html>

¹³ <https://ranking-empresas.dinheirovivo.pt/>

amount of phishing emails. Cover letter was included in all emails, introducing myself and explaining main reasons for this study, as well as the importance of their participation.

For the pre-test a group of 10 individuals (5 of Russian and 5 of Portuguese origins) was chosen. The pilot questionnaires were submitted in order to understand the general comprehension of questions, clarity of provided responses and if all the questions seem to be essential for research. The pre-test highlighted the importance of including Q17 in order to gather more opinions about content of questionnaire that could be used in further research.

The total number of 2.052 and 1.086 emails with link to questionnaire were send to Portuguese and Russian agro-companies respectively between 11th of April and 6th of May 2021. The questionnaires for both countries were open until 25th of May and counted 19 responses from Russian companies and 109 from Portuguese. After the several attempts to contact some of the Russians companies via phone call, the final conclusion was that Russian managers, generally, were not open for participation, in one attempt even the legal proof of research was requested. As for Portugal, from 109 responses 4 questionnaires were submitted empty leaving 105 valid responses. Besides the high rate of participation, several feedbacks were received from Portuguese managers, with wishes of academic success and one invitation for participation in doctorate research with one company owner/doctorate alumni.

3.6 Data analysis

The data analysis was conducted separately for each country. Excel was used for cross analysis of collected data to test proposed theories and to create comparison charts for visual demonstration of similarities/differences in both countries. Google Forms provided automatic charts used for analyzing additional data like managers' open answers, that provided us with better understanding of real-life actions and experience, at the same time motivating further research.

4. Results and Discussion

Due to the characteristics like risk to physical integrity of population (Rosenthal & Kouzmin, 1997), its unpredictability (Dekker & Hansen, 2004) and chaos and stress generated from it (Broekema et al., 2017), COVID-19 pandemic can definitely be considered crisis.

The following section will provide comparative analysis of results obtained through responses collected from Portuguese and Russian managers. The main purpose is to explore their approaches towards COVID-19 crisis, to respond on research questions and to gain better understanding on similarities and differences in their methods.

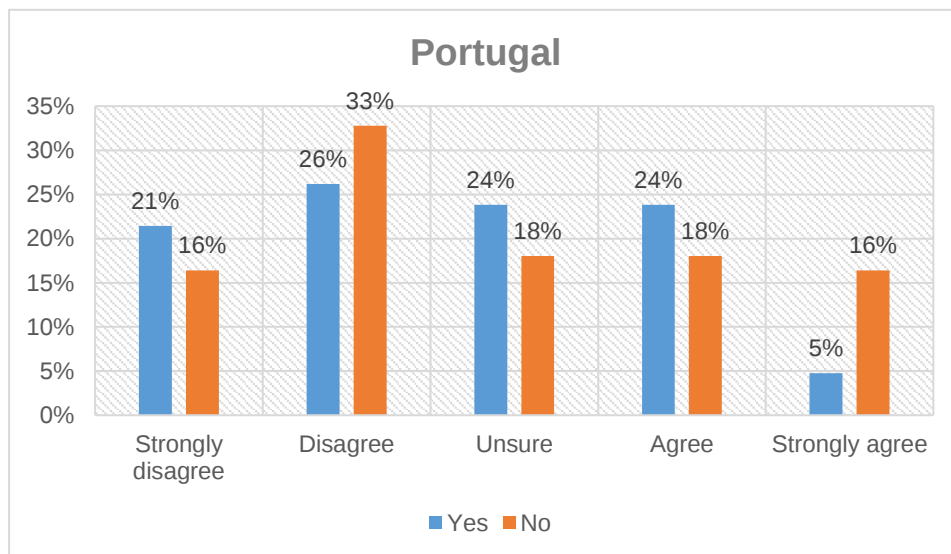
4.1 Comparison of crisis management approach.

T1: Managers in both countries considered COVID-19 crisis predictable and were able to prepare for it since the beginning.

Generally most of the managers in both countries (59.6% of Portuguese and 52.6% of Russian) were not able to prepare their companies to possible crisis outcome from the very beginning. According to Crandall et al. (2014) and Giannacouroua et al., (2015), crisis includes several stages, starting with preconditions (prodromal) crisis stage, however due to COVID-19 disease nature and spreading speed, it is fair to conclude that this particular crisis had insignificant first stage, passing over to the second one – trigger event stage.

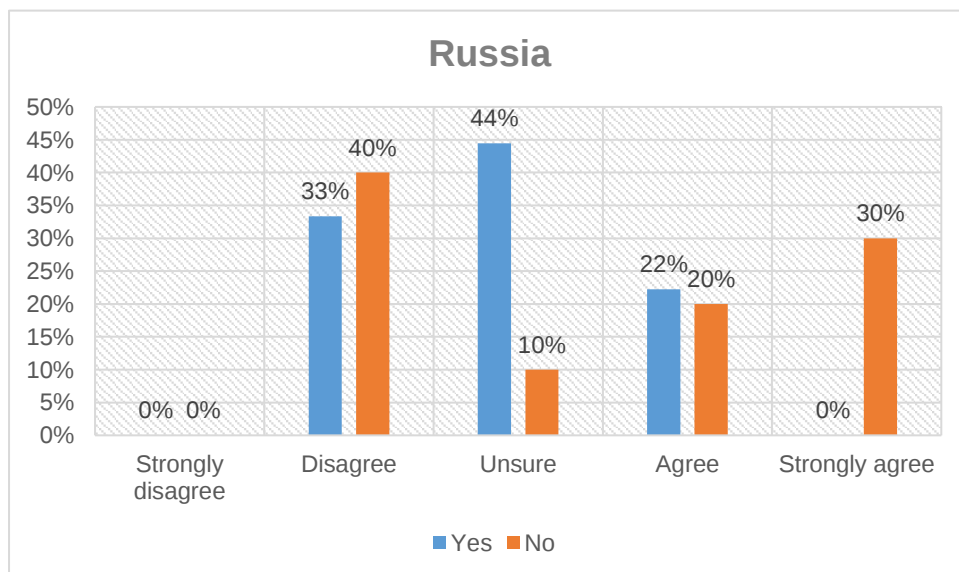
As it shows on following graphs, of those managers who were completely aware of crisis dimension, only 5% of Portuguese companies were prepared for it (Figure 3; Figure 4)

Figure 3- Crisis awareness VS companies preparation: Portugal



Source: Based on our research. Cross analysis Q1 and Q2 from <https://forms.gle/ViLzkoJM4zHasHhu5>

Figure 4-Crisis awareness VS companies preparation: Russia



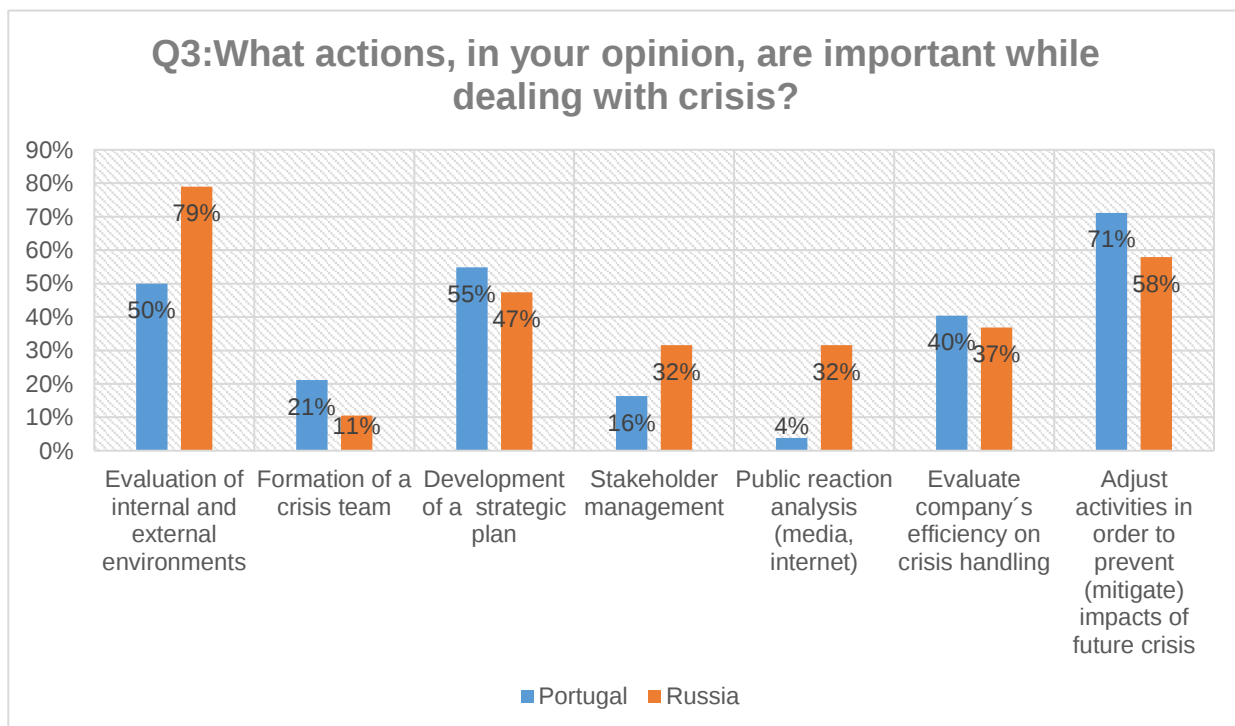
Source: Based on our research. Cross analysis Q1 and Q2 from <https://forms.gle/Rb93NV2WVwa7s7268>

The similar results can be seen among managers in both countries who agreed that the dimension of COVID-19 pandemic impact was predictable, nevertheless, Russian managers represent higher level of preparation even in uncertain situations (44%).

T2: Managers in both countries were able to apply measures they considered important during crisis.

According to Crandall et al. (2008, 2010 p. 11, 2014 p15), there are four stages to be taken in consideration within crisis management framework. The Q3 and Q4 were created to explore if the managers actually consider those important and which ones they were able to implement during the COVID-19 crisis.

Figure 5- The importance of crisis management framework



Source: : Based on our research results from Q3 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2WVwa7s7268>

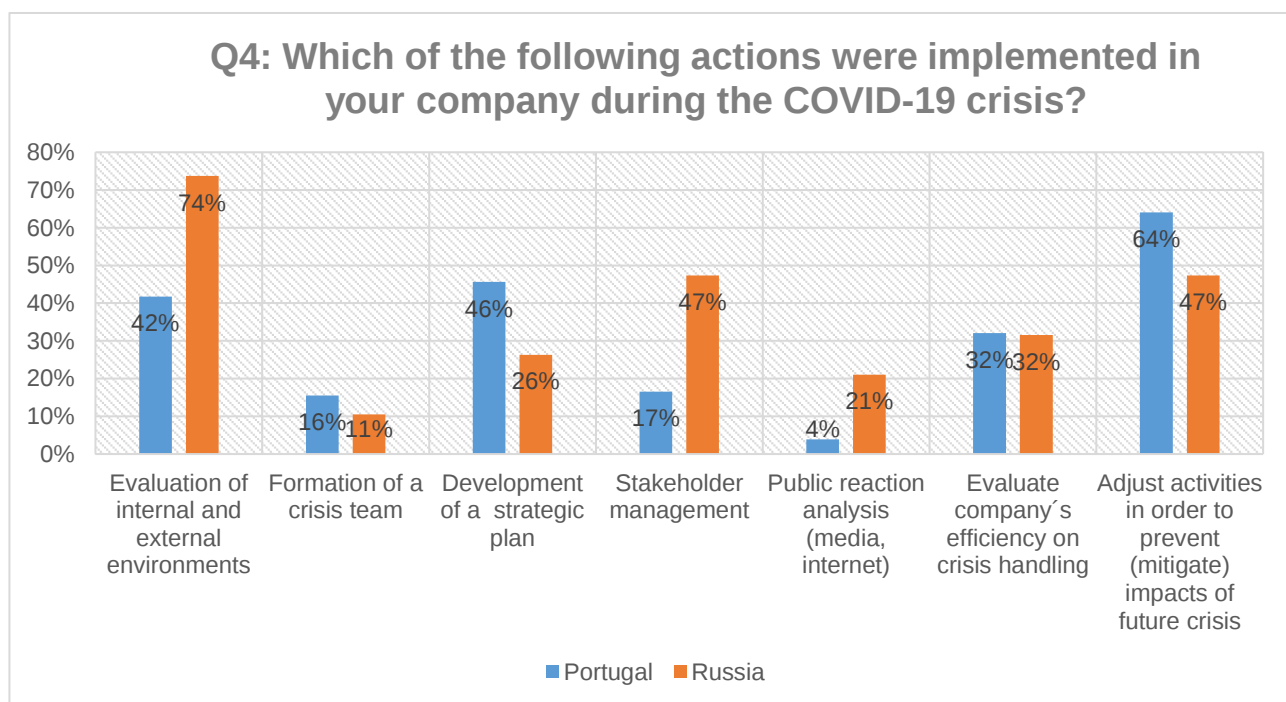
As the results show, the first stage of framework - Landscape Survey, was considered an important one by 50% Portuguese and 79% Russian managers. An Organizational Learning stage through evaluation of company's efficiency proved to be more important for Portuguese than for Russians participants. It is important to point up that the adjustment of company's activities in order to prevent negative impact of future crisis (Paraskevas, 2006) is considered very important in both countries (71% Portugal/ 58% Russia). As for Strategic Planning stage, more importance was given to strategic

plan development, than to crisis management team formation in both countries. Secondary stakeholders management and public opinion analysis presented insignificant results.

There were two opinions given by Portuguese managers regarding important actions: one regarding importance of understanding crisis impact on customers (that can be considered as a stakeholders management) and another one highlighting the importance of company's competitiveness, especially when managers have no control of raw materials, and market prices of product (milk in this case).

In order to analyze if it was possible to implement the same actions during the actual crisis period Q4 was developed (Figure 6).

Figure 6- The actual use of crisis management framework



Source: Based on our research results from Q4 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2WVwa7s7268>

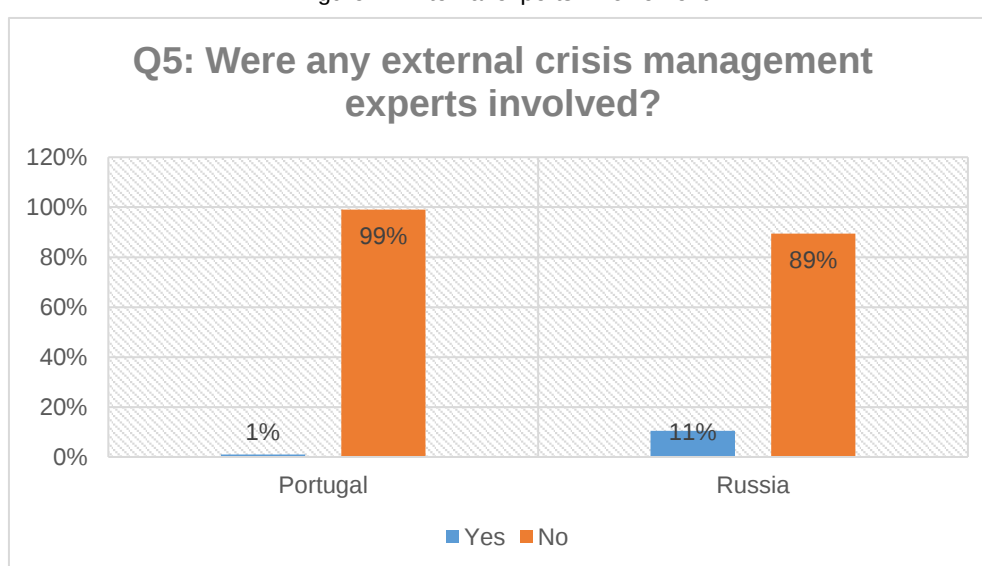
As it shows, managers in both countries were able to apply actions and procedures during the COVID-19 crisis they were considered important, however, not all managers were able to apply preferable actions during the real crisis situations. The interesting fact is that the Stakeholders' management, that was not considered important, presented higher result in implementation in both countries. This can be considered expected result, since COVID-19 crisis affected everybody from clients and suppliers to governments in general.

Two open answers were collected on this stage of investigation, both were from Portuguese managers. One participant referred to the importance of investment containment as an action implemented on his company, in order to be safe from future "surprises", and other one pointed out, one more time, the importance of keeping regular contact with clients.

T3: Managers in both countries would have the same attitude regarding inviting or not external experts.

According to Robinson (2005, as cited in Vardarlier, 2016), the formation of crisis management team is an essential step in controlling any crisis situation, in other cases the external team or adviser may be hired. As the results in **Figure 5- The importance of crisis management framework** showed, managers in both countries did not give significant importance to existence of crisis management team, and only created it in a few cases (16% in Portugal and 11% in Russia). The results presented in Figure 7 support the same attitude towards inviting external experts:

Figure 7- External experts involvement



Source: Based on our research results from Q5 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2WVwa7s7268>

Most of the managers in both countries were not inclined to invite external crisis management experts into their companies during the ongoing crisis. However, from the Russian side, 11% of managers eventually hired external experts, this fact can be explained by the size and structures of Russian companies comparing to Portuguese ones. Bigger in size or with their affiliation to agro-holdings, Russian companies in agro sector have more resources available for hiring additional staff, than companies in Portugal, where the predominant company's size is SME (**Table 5 - Portuguese and Russian agro-sectors overview**).

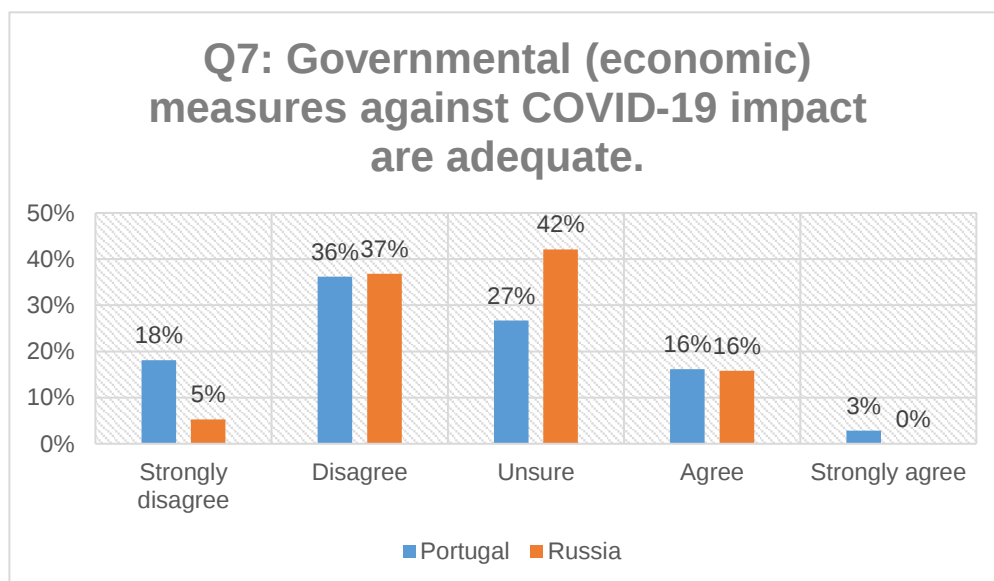
T4: Portuguese managers would apply more for financial support than Russian ones.

According to Giannacouroua et al. (2015) the SMEs are more vulnerable to crisis and the results obtained from Q6 (Small and medium sized companies are more vulnerable to crisis) show that managers in both countries strongly agree with this statement (44.2% in Portugal and 42.1% in Russia).

As it was described in **Table 4-** Recovery strategies, one of the recovery strategies on Governmental level was the implementation of financial stimulus in most of the countries. The difference is that in most of the European countries, agro-business is represented as SMEs with higher needs for financial support, whereas in Russia, where most of the agro-sector production concentrated in agro-holdings, where means can be found within the companies resources.

According to results obtained from both countries most of the companies did not requested governmental support, only 31.4% of Portuguese and 36.8% of Russian managers applied. Even though, in Portugal €140 million support package was created, it seems that most of Portuguese managers (36%) showed more discontent with recovery measurements, when 42% of Russians were unsure. (Figure 8).

Figure 8 - Attitude towards governmental financial stimulus



Source: Based on our research results from Q7 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2WVwa7s7268>

These results prove that in this particular case (COVID-19 crisis), nor company's size, nor the easier access to financial support, had impact on decision to apply for one. As a result 5.4% less Portuguese than Russian companies had benefit from governmental stimulus.

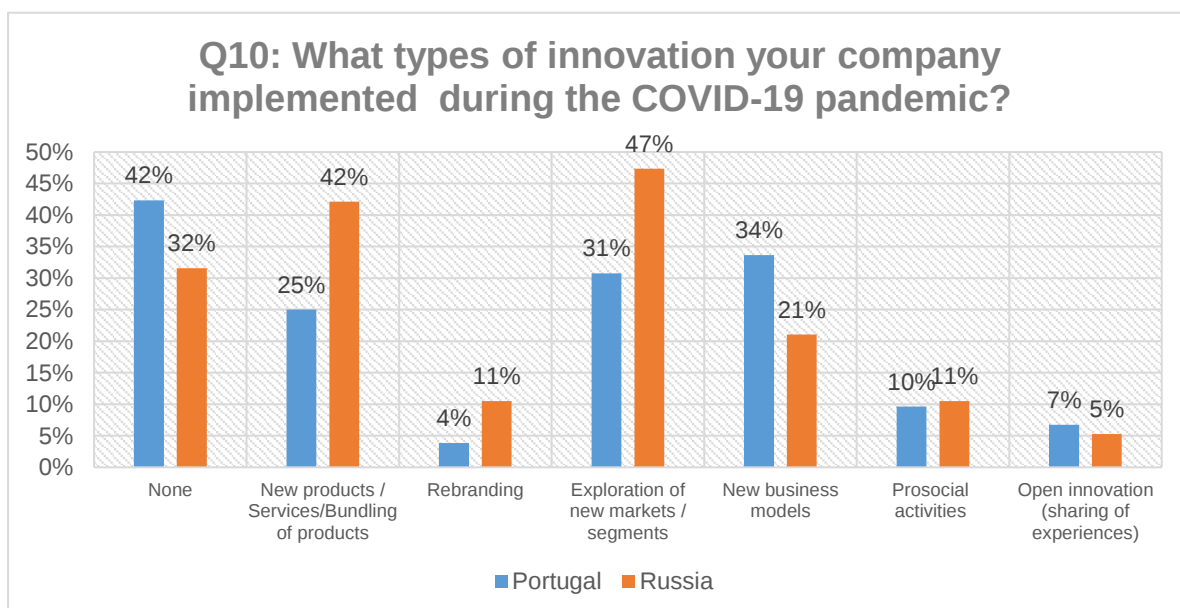
4.2 Crisis aftermath mitigation through innovation.

T1: Even though managers in both countries would consider innovation important, only a few of them would be willing to implement processes that were considered risky before crisis.

According to Giannacouroua et al. (2015) there is a strong relationship between crisis and innovation, due to its capacity to create benefit and increase competitiveness (Nguyen et al, 2020). Indeed in both countries (92.4% in Portugal and 72.2% in Russia) agreed that innovation is an advantage in times of crisis. Nevertheless, only 11% of Portuguese and 21% of Russian managers actually implemented innovations they were considering risky before COVID-19 crisis.

Since the COVID-19 pandemic can definitely be seen as a trigger factor for companies to implement more innovations (Bjorklund 2020), in Q10 managers were asked to choose from the list or indicate their own innovations that they implemented during the crisis (Figure 9).

Figure 9 - Types of innovations implemented during COVID-19 crisis



Source: Based on our research results from Q10 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2WVwa7s7268>

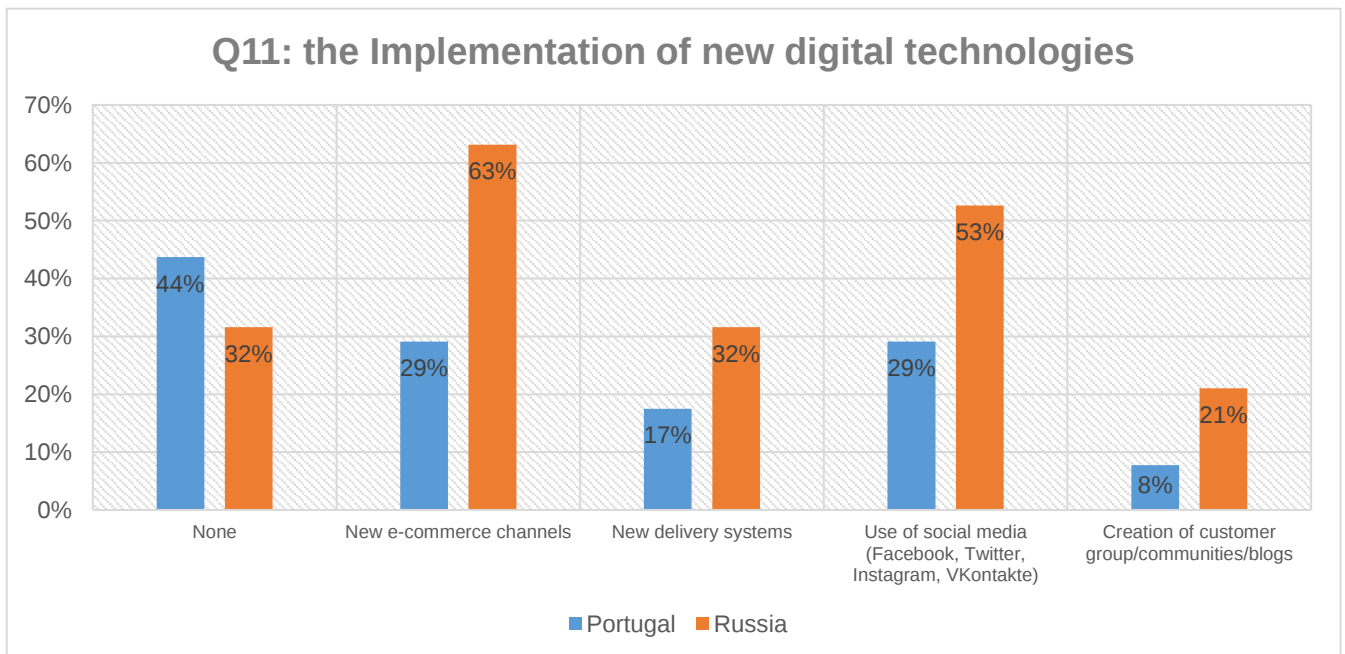
As we can see from the results, most of the Russian and Portuguese managers bet on new products, markets and business model. Without any doubt, there are similarities in the way managers in both countries tend to overcome crisis situation through innovation. As for other options, the investment in new technologies and development of new communication channels in order to minimize costs were identified as an important implementations during the pandemic.

T2: Portuguese managers would implement more new technologies (digital and on production level) than Russian ones.

The innovation in agro-sector in both countries considered important not only as a tool for sector competitiveness and grow, but also as an economic stimulator through its exportation rates (Anishchenko, 2019; Sousa, 2020; Jornal de Noticias, 2020) However, it seems that in Russia, the implementation of innovations and new technologies is quite a challenge (Anishchenko, 2019; Lyasnikov, 2019), thus it is logical to assume that the implementation of new technologies in Russia would be lesser than in Portugal.

The results presented on Figure 10 show that this assumption is incorrect.

Figure 10 - The implementation of digital technologies during COVID-19 crisis



Source: Based on our research results from Q11 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2VWwa7s7268>

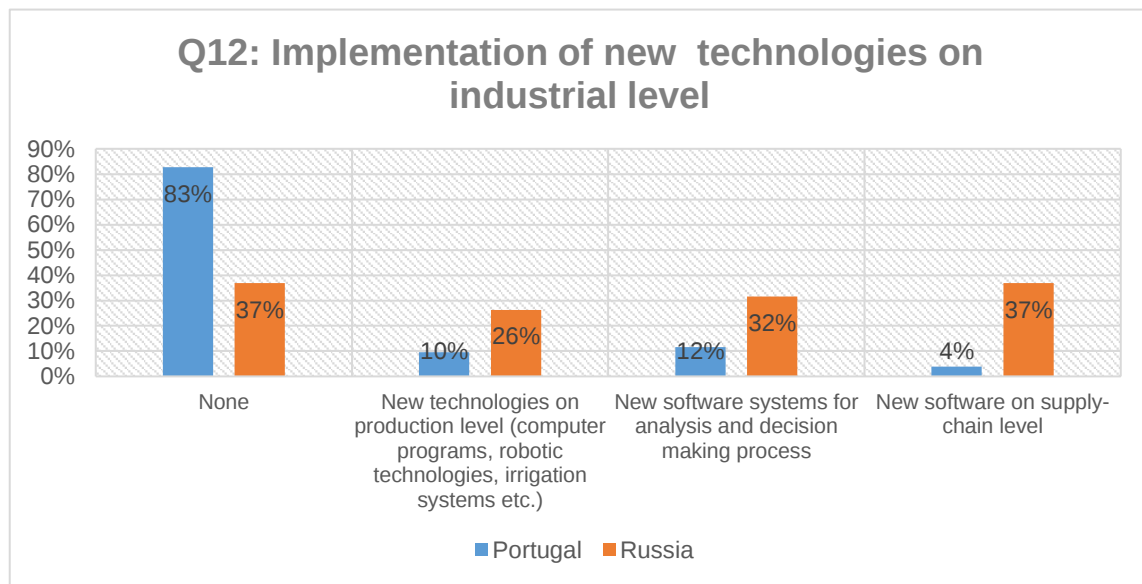
Even though Portuguese managers implemented less digital technologies than Russians, there is a pattern in both countries. The new e-commerce channels and use of social networks were two of the most popular innovations, motivated by the lockdown measures (Rowan & Galanakis, 2020) that were quite similar worldwide. It is important to take in consideration, that generally Russian companies have better presence in social media, than Portuguese ones. About a half of agro-sector production is produced in large organizations (The World Bank, 2017) and these agro-holdings retain all necessary means to create advanced communication channels like sophisticated web-sites or

presence in international social media, while Portuguese agro structure is based on SMEs that usually provide products for smaller range of customers and are more limited geographically.

On the other hand, there were two other forms of innovations mentioned by Portuguese managers: new training courses and telework. The mandatory telework in Portugal¹⁴ was established from October 2020 and caused companies urgently adapt to this new reality, investing in new technologies and training courses.

As for new technologies on industrial level, as it shows Figure 11, this kind of innovation was less popular.

Figure 11- The implementation of technologies on industrial level



Source: Based on our research results from Q12 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2WVwa7s7268>

The low popularity of innovations related to Agriculture 4.0 can be explained by considerably high costs (Klerkx & Rose, 2020) that cannot be supported during the uncertain state of affairs.

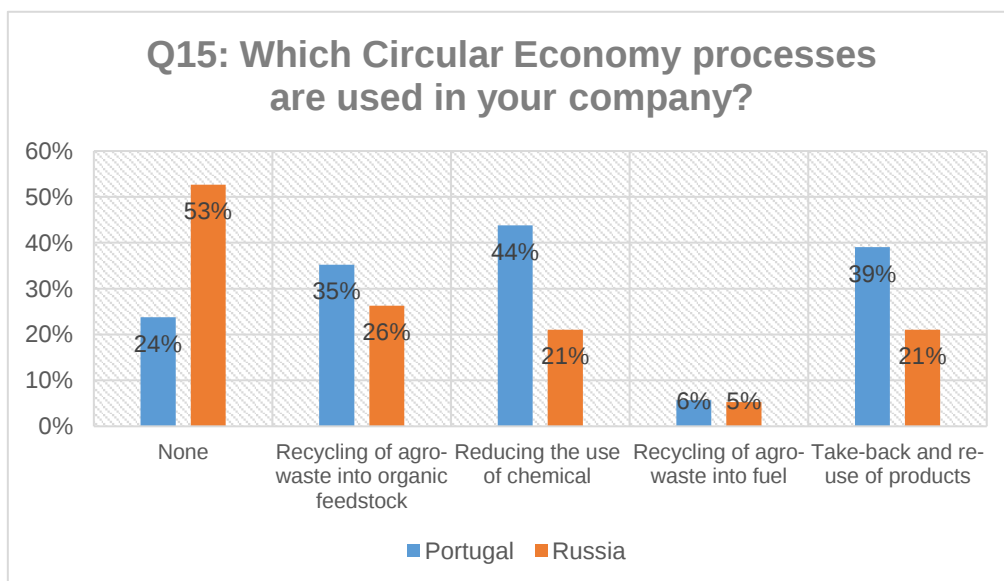
¹⁴ Law Decree n.º 79-A/2020

T3: Even though managers in both countries would give great importance to Circular Economy, they would not implement it.

The implementation of Circular Economy processes can be highly beneficial, not only for companies through additional value creation (Borrello et al., 2020; Donner et al., 2020), but also for vulnerable groups of society (Borrello et al., 2020). However, its capacity to mitigate COVID-19 crisis aftermath remains uncertain for most of the managers in both countries. According to the results obtained from Q14, 46% of Portuguese and 74% of Russian managers were unsure regarding possibility to mitigate pandemic impact through Circular Economy processes. In case of Portugal, the difference between participants who were unsure or agree (strongly agree) is insignificant (3%), in Russia the total number of managers who considered Circular Economy capable of reducing crisis impact is only 16%. Since no one from Russian side pointed Q14 as an “unclear” question, it can be assumed that the Circular Economy processes are simply not widely adopted in Russia.

To find out what kind of Circular Economy processes are actually employed in organizations was created a list of several examples (Figure 12)

Figure 12- Circular Economy processes employed in agro-sector



Source: Based on our research results from Q15 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2VWwa7s7268>

Even though there is no evidence that managers in both countries can completely rely on Circular Economy to minimize COVID-19 impact, Figure 12 proves that some processes are being implemented. Despite differences in shares there are three main processes used in agro-organizations: agro-waste recycling, re-use of products and reducing of chemical usage. The recycling of waste in fuel though is the least popular in both countries. Since the cost of fuel in Russia is low, it is probably cheaper to purchase the finished product than invest in its manufacturing. In

Portugal this can be connected to companies size and production volume, but in order to not speculate, this matter may be better analyzed in future research.

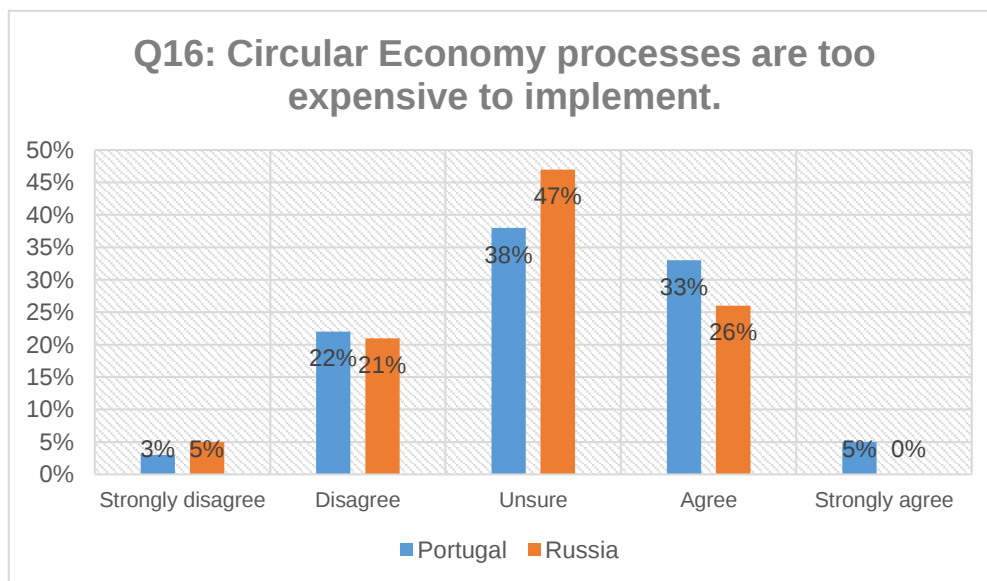
As for others methods of Circular Economy stated by Portuguese managers are: cooking oil collection, gathering raw product waste from local farmers, use of solar energy and self-sufficiency procedures adapted according Biological Production Mode¹⁵.

T4: Managers in both countries would consider Circular Economy too expensive to implement.

Indeed the high cost of implementation of Circular Economy can be related to products prices, involves numerous actors in chain of value and, sometimes, even requires the change of organizational structure (Donner, 2020). So it was expected that most of the managers would consider Circular Economy activities too expensive to implement.

The Figure 13 demonstrates that still the most of the participants were not sure regarding the cost of implementation.

Figure 13-The cost perception of Circular Economy implementation



Source: Based on our research results from Q16 in <https://forms.gle/ViLzkoJM4zHasHhu5> and <https://forms.gle/Rb93NV2WVwa7s7268>

However, 38% of Portuguese and 26% of Russian participants agreed (strongly agreed) on this matter.

¹⁵ <https://rea.apambiente.pt/content/%C3%A1rea-agr%C3%ADcola-em-modo-de-produ%C3%A7%C3%A3o-biol%C3%B3gico>

4.3 General overview

According to results collected on Q17 (validation question), all questions were cleared for 86.6% of Portuguese and 50% of Russian managers. The questions related to Innovation and Circular Economy were pointed out as unclear and inadequate in a very small amount. In Portuguese case, one participant mentioned that questions related to Crisis Management actions (Q3 and Q4) are redundant because *“no one implements voluntarily something they don’t consider important”*. This is an interesting observation, and the logical one, but since the main purpose of that part of research was to find out the difference in proportion between considered important and implemented processes, we can consider that implementation is not totally voluntary, but forced by circumstances.

The overall data collected, particularly from Portuguese side, can be considered quite insightful and clear, at the same time stimulative for further research.

Conclusion

The importance of agro-sector is unquestionable, not only through its product, but also due to its contribution to economy worldwide. The populations around the world depend on agriculture not only as a source of aliment, but also as a foundation of financial stability, that is why it is highly important to protect this sector from crisis impact.

The COVID-19 virus spread caused negative economic impact on almost every industry around the world affecting mostly small and medium-sized enterprises. And since the COVID-19 pandemic is not a singular event but an extend crisis, its influence tends to spread gradually affecting different parts of the world, their economy and populations. The changes in demand, customers' lifestyles and purchase behavior were some of the reasons for agro-sector to rethink and readapt to this new reality. The implementation of new technologies, development of recovery strategies on organizational and governmental levels are tend to mitigate the pandemic impact outcome.

The main purpose of this case study was to analyze business owners' and managers' attitude towards crisis provoked by COVID-19 pandemic and their strategies to defeat it. This research showed that it is not always possible to act "by the book" in crisis situation, that the adaptation of innovation and new technologies are necessary for crisis effect minimization and that there is still much to learn from this crisis.

There are several limitations that should be pointed out. The first, and the main difficulty was to reach out for Russian companies, even providing all necessary tools and explanations in Russian language. Culturally, Russian people are more private and protective of their ways of handling crisis situations. On a business level, the most of the companies in Russia are of a large dimension, the

bureaucracy and hierarchical structure made it almost impossible to reach up to top managers or owners with the participation request. This factor caused the elevated difference in proportions between samples from Russia and Portugal. Another limitation was caused by the difficulties in obtain openly sourced scientific data like research papers or recent statistics on Russian agro-sector, as well as the companies contact information like emails. The most of the Russian data bases provide only phone numbers and local address of the companies, what makes it impossible to deliver questionnaires.

Being just the basic case study, this paper motivates various lines for further research, that could be conducted in different fields like economy, sociology or technology among others. There are questions that surfaced during the data analysis and could be included in future papers. For example, what is the basis of differences in managers' awareness towards crisis like COVID-19? If it's cultural background, could the results be different while comparing managers' behavior only within European countries? Or what factors influence decision making process regarding crisis management? What prevents managers from reaching out to external experts? Is it costs of their services or risks related to confidential and critical internal information? What kind of incentives have to be created to motivate more innovation? How can be reduced the costs of Circular Economy and its implementation?

Circular Economy, besides the low importance given to this concept amid participants in this research, is the important practice, especially for reducing the food-waste. It is remarkable that even during crisis, countries like Portugal still tend to overcome this issue. The new project "Orgânico: Agora está na sua mão!" is a new way to minimize a food waste on individual level in Oporto city, collecting organic waste from households and transforming it into organic compost, 100% natural that can be used as fertilizer for various purposes (like organic farming).¹⁶ This kind of initiatives could be adopted more frequently on organizational level worldwide, in order not only to reduce food-waste, but also to add value to agro-sector products.

In the conclusion it can be recognized that COVID-19 crisis stroke agro-sector in both countries, but, besides all cultural differences and companies dimensions, there are similarities in the way managers and owners face crisis situations and use the innovation to defeat it.

¹⁶ <https://organico.portoambiente.pt/>

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Annex A

5/13/2021

GESTÃO DE CRISE NO SECTOR AGRÍCOLA: ANÁLISE COMPARATIVA ENTRE AS ABORDAGENS PORTUGUESA E RUSSA

GESTÃO DE CRISE NO SECTOR AGRÍCOLA: ANÁLISE COMPARATIVA ENTRE AS ABORDAGENS PORTUGUESA E RUSSA

Observações:

O inquérito contém duas partes: Análise da crise (o impacto da crise na sua empresa e no setor em geral) e a Resposta à crise (avaliação de meios de combate/mitigação da crise). O seu preenchimento é simples e intuitivo, tendo uma duração aproximada de 10 minutos.

O envio das suas respostas é feito através do botão Submit no final do inquérito.

A sua participação é voluntária pelo que poderá deixar de responder em qualquer momento.

É garantida a confidencialidade e anonimato de toda a informação recolhida.

Obrigada pela sua participação!

ANÁLISE DA CRISE

1. Q1: A dimensão do impacto da crise provocada pelo COVID-19 era previsível desde o seu início.

1 = Discordo totalmente, 2 = Discordo, 3 = Indiferente, 4 = Concordo, 5 = Concordo totalmente

Mark only one oval.

	1	2	3	4	5	
Discordo totalmente	☐	☐	☐	☐	☐	Concordo totalmente

2. Q2: No início da pandemia, teve oportunidade de preparar a sua empresa para o possível impacto da mesma?

Mark only one oval.

☐ Sim

☐ Não

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GESTÃO DE CRISE NO SECTOR AGRÍCOLA: ANÁLISE COMPARATIVA ENTRE AS ABORDAGENS PORTUGUESA E RUSSA

3. Q3: Quais as ações, que no seu entender , são importantes na gestão de crise:

Check all that apply.

- ☐ Avaliação do ambiente (interno e externo)
- ☐ Formação de uma equipa de gestão de crise
- ☐ Desenvolvimento de um plano estratégico
- ☐ Gestão de partes interessadas (stakeholders)
- ☐ Análise da reação pública com recurso aos media
- ☐ Avaliação da eficiência da empresa no tratamento da crise
- ☐ Adaptação dos procedimentos internos da empresa de forma a prevenir ou mitigar possíveis impactos de crises futuras

Other: ☐ _____

4. Q4: Quais das seguintes ações foram implementadas na sua empresa durante a crise provocada pelo COVID-19?

Check all that apply.

- ☐ Avaliação do ambiente (interno e externo)
- ☐ Formação de uma equipa de gestão de crise
- ☐ Desenvolvimento de um plano estratégico
- ☐ Gestão de partes interessadas (stakeholders)
- ☐ Análise da reação pública com recurso aos media
- ☐ Avaliação da eficiência da empresa no tratamento da crise
- ☐ Adaptação dos procedimentos internos da empresa de forma a prevenir ou mitigar possíveis impactos de crises futuras

Other: ☐ _____

5. Q5: Recorreu a entidades externas especializadas em gestão de crise ?

Mark only one oval.

- ☐ Sim
- ☐ Não

6. Q6: As pequenas e médias empresas (PME's) são mais vulneráveis face à crise.

1 = Discordo totalmente, 2 = Discordo, 3 = Indiferente, 4 = Concordo, 5 = Concordo totalmente

Mark only one oval.

	1	2	3	4	5	
Discordo totalmente	☐	☐	☐	☐	☐	Concordo totalmente

7. Q7: As medidas governamentais (de natureza económico-financeira) são adequadas na minimização do impacto do COVID-19.

1 = Discordo totalmente, 2 = Discordo, 3 = Indiferente, 4 = Concordo, 5 = Concordo totalmente

Mark only one oval.

	1	2	3	4	5	
Discordo totalmente	☐	☐	☐	☐	☐	Concordo totalmente

8. Q8: No combate à crise, recorreu aos apoios financeiros governamentais?

Mark only one oval.

- ☐ Sim
☐ Não

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9. Q9: A inovação é uma vantagem nos tempos de crise.

1 = Discordo totalmente, 2 = Discordo, 3 = Indiferente, 4 = Concordo, 5 = Concordo totalmente

Mark only one oval.

	1	2	3	4	5	
Discordo totalmente	☐	☐	☐	☐	☐	Concordo totalmente

10. Q10: Que tipo de inovação a sua empresa implementou durante a pandemia COVID-19?

Check all that apply.

- ☐ Não houve implementação
- ☐ Criação de novos produtos / serviços Desenvolvimento de pacotes de produtos
- ☐ Rebranding
- ☐ Exploração de novos mercados / segmentos
- ☐ Adaptação de novos modelos de negócios
- ☐ Atividades pró-sociais
- ☐ Inovação aberta (partilha de experiências com entidades externas)

Other: ☐ _____

11. Q11: Qual é o nível de desenvolvimento de novas tecnologias (na sua empresa) neste período?

Check all that apply.

- ☐ Não houve desenvolvimento
- ☐ Criação de novos canais de comércio eletrónico
- ☐ Adaptação de novos sistemas de expedição
- ☐ Maior recurso a redes sociais (Facebook, Twitter, Instagram, VKontakte)
- ☐ Criação de grupos de clientes / comunidades / blogues

Other: ☐ _____

12. Q12: Promoveu a implementação de novas tecnologias digitais específicas a nível interno?

Check all that apply.

- ☐ Sem alterações
- ☐ Novas tecnologias a nível de produção (software, tecnologias robóticas, sistemas de irrigação, entre outras.)
- ☐ Novos sistemas de software para controlo de gestão e análise
- ☐ Implementação de um novo software de gestão da cadeia de distribuição

Other: ☐ _____

13. Q13: Optou por implementar alguma inovação que seria considerada arriscada antes da crise do COVID-19?

Mark only one oval.

- ☐ Sim
- ☐ Não

14. Q14: As atividades de Economia Circular podem diminuir o impacto da crise do COVID-19.

1 = Discordo totalmente, 2 = Discordo, 3 = Indiferente, 4 = Concordo, 5 = Concordo totalmente

Mark only one oval.

	1	2	3	4	5	
Discordo totalmente	☐	☐	☐	☐	☐	Concordo totalmente

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15. Q15: Quais os processos de Economia Circular que utiliza na sua empresa?

Check all that apply.

- ☐ Nenhum
- ☐ Transformação de agro-resíduos em matérias-primas orgânicas
- ☐ Redução da utilização de produtos químicos
- ☐ Reciclagem de agro-resíduos em combustível
- ☐ Recolha e reutilização de produtos

Other: ☐ _____

16. Q16: Os processos de Economia Circular podem ser bastante dispendiosos para serem implementados.

1 = Discordo totalmente, 2 = Discordo, 3 = Indiferente, 4 = Concordo, 5 = Concordo totalmente

Mark only one oval.

	1	2	3	4	5	
Discordo totalmente	☐	☐	☐	☐	☐	Concordo totalmente

17. Q17: No seu entender, o presente questionário contém pergunta(s) pouco clara(s), inadequada(s) ou não interligadas(s) com o tema em investigação?

Check all that apply.

- ☐ 1. Todas as perguntas são claras
- ☐ Q1: A dimensão do impacto da crise provocada pelo COVID-19 era previsível desde o seu início.
- ☐ Q2: No início da pandemia, teve oportunidade de preparar a sua empresa para o possível impacto da mesma?
- ☐ Q3: Quais as ações, que no seu entender, são importantes na gestão de crise.
- ☐ Q4: Quais das seguintes ações foram implementadas na sua empresa durante a crise provocada pelo COVID-19?
- ☐ Q5: Recorreu a entidades externas especializadas em gestão de crise ?
- ☐ Q6: As pequenas e médias empresas (PME's) são mais vulneráveis face à crise.
- ☐ Q7: As medidas governamentais (de natureza económico-financeira) são adequadas na minimização do impacto do COVID-19.
- ☐ Q8: No combate à crise, recorreu aos apoios financeiros governamentais?
- ☐ Q9: A inovação é uma vantagem nos tempos de crise.
- ☐ Q10: Que tipo de inovação a sua empresa implementou durante a pandemia COVID-19?
- ☐ Q11: Qual é o nível de desenvolvimento de novas tecnologias (na sua empresa) neste período?
- ☐ Q12: Promoveu a implementação de novas tecnologias digitais específicas a nível interno?
- ☐ Q13: Optou por implementar alguma inovação que seria considerada arriscada antes da crise do COVID-19?
- ☐ Q14: As atividades de Economia Circular podem diminuir o impacto da crise do COVID-19.
- ☐ Q15: Quais os processos de Economia Circular que utiliza na sua empresa?
- ☐ Q16: Os processos de Economia Circular podem ser bastante dispendiosos para serem implementados.
- Other: ☐ _____

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