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The digitalization of sales channels in the Agri-food sector post Covid-19

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Introduction

The agri-food sector includes the set of activities oriented to the production, processing and distribution of food products and is a sector that in recent years has seen an evolution of all stages of the production chain. In particular, in the last two years of the pandemic there has been an acceleration of the evolution that has mainly affected the sales channel of this industry.

The consequences of the Coronavirus pandemic have accelerated the adoption of digital technology; there has been, immediately, a greater use of technology to work and stay in touch, which has given rise to new digital habits. In Italy, in fact, the restrictions imposed by the government in order to limit the spread of the virus, have led to the closure of all commercial and catering activities throughout the country and to prolonged periods of lockdown. The entire economy of the country has, therefore, undergone profound changes.

In particular, the agri-food sector has incurred in major changes following the spread of the pandemic. One of these changes concerned the market targeted by companies; in fact, one of the main features was the targetization of the B2B and Ho.Re.Ca market, concerning the Hotel, Restaurant and Caterings. As a result of the restrictions, and with the closure of all the catering activities, the business model has been changed both to adapt to the changes in the market and to avoid the complete cessation of the activity and, most of the companies, has shifted their focus from the B2B market to the B2C one.

The other big change that has affected this sector has been the one regarding the digital transformation that it has gone through.

As already stated, Covid-19 has accelerated the digitalization of many companies, and specifically to the agri-food sector, has increased the digitalization of sales channel, favoring the birth of e-commerce.

The aim of this thesis is twofold: on the one hand, study the phenomenon of digitalization of sales in the agri-food sector, and on the other, enrich the scarce literature on this subject.

To achieve this objective, the author has chosen to conduct interviews with people working for these kinds of companies.

The work is divided into four chapters: the first will provide an overview of the sector on three levels, international, European and Italian; the second will deal with the phenomenon of digitalization that has affected the agri-food sector; the third will talk about the methodology followed and will report the results of the interviews; the fourth will deal with the analysis of the results and conclusions.

Chapter I – The Agri-food sector

1.1 Overview of the Agri-food sector

By definition, the agri-food system is “the set of agricultural production, industrial processing, distribution and consumption of food products¹”. This set is part of a more extensive system, called agro-industrial, in which downstream of the production there are the processing activities of agricultural products, while upstream there are the industries that supply technical means (agricultural machinery, chemical products, etc.) and institutions providing services. The set of these procedures is also referred to as agribusiness. Agri-food products reach the final consumer after a series of complex technological and economic steps. There are usually three subsystems: agriculture and livestock; the industry; the distribution system, which are defined as follow:

- Agriculture is the practice of cultivating the land to obtain products for the feeding of people and animals, as well as raw materials for many industries (cotton, linen, oilseed and so on); in a broader sense, the word agriculture also includes livestock farming and forest cultivation. It is one of the basic elements of the economy of the people.
- Industrial economic activities are included in the secondary sector and are characterized by the intensive use of technology for the production of goods. It is one of the main productive sectors of an economic system and the name "secondary" derives from the fact that industry is the second stage of economic development.

It deals with the processing of raw materials and products from the primary sector with the ultimate aim of producing new finished products to be distributed on the sales markets. This secondary sector includes all kinds of industries.

¹ <https://www.treccani.it/enciclopedia/sistema-agroalimentare/>

- Distribution means the set of activities necessary to make a product or service available to the final consumer. In its widest and most modern sense it includes both commercial intermediaries (distribution channels) and transport and storage systems.

Commercial distribution, in particular, includes the structuring of the distribution network: it typically concerns decisions related to the choice of distribution channels, the type of commercial intermediaries and the number of levels of intermediation between the producer and the consumer.

The agri-food system has a strong interdependent link with the rest of the economy; in fact, the more the economy is developed, the more agricultural goods are used as intermediate goods by other sectors, the more the proportion of agricultural goods, which are directly at the disposal of the final market, decreases. In this way, the relationship between agriculture and industry tends to maintain a balance. At the same time, there is an increase in integration with the industry of technical means alongside with the process of deconstructing agricultural enterprises, which leads to the shifting of more and more functions outside the company.

As mentioned above, the economic sectors that make up the agri-food sector are:

- Agriculture
- Suppliers of technical equipment for agriculture
- Food processing industry
- Trade sector (food distribution)

The current characteristics of this sector derive from the various changes that have occurred in relation to some important phases of the development of Western economies.

Historically the sector that has always responded to food needs has been agriculture and only recently has the role of industry and food distribution developed.

It is possible to identify seven phases that the food sector has gone through during its evolution:

- *Primary phase*: food production and consumption rested solely on a local basis with a diet deeply correlated with the agricultural production capacities of a territory.

- *Trade opening*: marked by the growing increase in trade in basic commodities and, subsequently, by the opening of international trade in special commodities since the development of the maritime trade in the XVI century.
- *Pre-industrialization*: during this period there was a gradual territorial specialization of food production and consumption, in conjunction with urban concentration and the beginning of the industrial revolution starting in the XVIII century. In this phase, the food distribution sector began to emerge, supported by the progressive development of transport.
- *Expansion of trade*: which took place mainly on a regional basis, it responds to the spread of a more modern vision of the relationship between city and countryside and to the needs of a socio-economic reorganization required by the industrial development of Western economies.
- *Modernization*: this phase was characterized by:
 - the birth of the modern food industry thanks to the large-scale diffusion of industrial techniques for preserving and processing food
 - the industrialization of agriculture favored by the large-scale introduction of chemistry and mechanization
 - an increase in international trade with the propensity for a territorial specialization of production
 - consolidation of mass consumption.
- *Outsourcing and internationalization*: gradually, with the spread of globalization, the major food distribution companies began to expand their trade and to go beyond national borders to enter international markets.
- *The transition phase*: defined by the coexistence of conflictual phenomena:
 - the globalization of consumption and the protection of typical products
 - the search for low cost and differentiation
 - the concentration of large-scale distribution and e-commerce

- the extreme industrialization of the agricultural sector and the development of organic agriculture.

The last three stages mentioned are those that have had the greatest influence on the evolution of the system.

In the modernization phase, two periods can be identified: 'first competition' and 'national consolidation'.

In the first period the sector is characterized by small and medium-sized enterprises which used to operate on a local scale. There is a high level of competitiveness in the agricultural field and commercial sector and food industry companies are oriented towards poorly differentiated products. The leading sector of the supply chain is that of wholesale trade.

The second phase, called national consolidation, on the other hand, is distinguished by an increase in the average size of industrial companies that expand their sales areas throughout the country, developing brand policies supported by high advertising efforts. The demand, thanks to the increase in the average family income, begins to move towards "convenience" services added to the primary food good. The wholesale sector continues to have a high level of control over the supply chain.

During the internationalization phase, the structure of the sector takes the shape still present in many countries: an oligopoly, with a few large industrial enterprises and large distribution chains, and many small producers and distributors. Large companies expand their sphere of activity beyond national borders. The competitive environment is characterized by the leadership of large industrial companies, which have a strong bargaining power both with end consumers and retailers. Marketing strategies are based on brand policies and control of the supply chain is held by companies that own the big national brands. Demand is beginning to undergo some profound changes that push the system towards the next stage of development; the demand for food consumption, is increasingly directed towards "qualitative" aspects of products.

The last phase, globalization, is distinguished from the others by a sharp increase in the concentration of companies in the industrial and distribution sectors. Large industrial companies are present on the global market and the competitive environment is full of very aggressive marketing policies. Furthermore, thanks to the spread of commercial brands, the bargaining power of the industry towards its customers has been drastically reduced and this has determined, together with the competitive advantages deriving from the use of new information technologies, the passage of the leadership of the company supply chain to the distribution sector.

Currently the agri-food sector is going through a phase of internationalization, spurred on by developing countries and by the need to find new markets.

1.2 The global development of the Agri-food sector

A fundamental part that constitutes international trade between countries and regions of the world is certainly the exchange of agri-food products. In 1937, 66% of world imports were represented by European countries, which also held 35% of exports of agri-food products, while for what concerns the countries of North and Latin America, 30% of total exports of agri-food products were to be attributed to them, as well as 20% of the imports².

From the data recorded in 2020, it emerged that European countries were responsible for around 43% of global exports, and 41% of imports; on the other hand, the Americas accounted for 18% of imports and 27% of exports globally.

From this it can be deduced that, in the period 1937-2020, the importance of European countries as regards the export of agri-food products, has had an increase and, at the same time, there has been a

²Pawlak, K. (2021). Competitiveness of the EU Agri-Food Sector on the US Market: Worth Reviving Transatlantic Trade? *Agriculture*, 12(1), 23.

decrease in the degree of penetration of imports in this sector. The Americas, on the other hand, still hold a stable status in the agri-food market.

The 1970s saw the expansion of trade in the most economically developed countries; in fact, the greater export potential, a wider range of goods to trade and strong and integrated mutual economic ties have meant that goods produced in these countries became more competitive on international markets. This trend can also be found in the agri-food sector, for which, during the XX and XXI centuries, a concentration of trade was found in the more economically developed countries.

To date, the world's largest exporters for the agri-food sector include the European Union (EU) - not including the United Kingdom - and the United States of America (USA). Given the preponderant role that European countries play in intra-regional trade, the relations between the EU and the US can be analyzed from both a cooperation and a competitive point of view. However, in the 21st century, both EU and US, on the one hand, faced a crisis that reduced their geostrategic position, while on the other hand, they began to suffer more and more competitive pressure from emerging economies of the countries belonging to the BRICS (Brazil, Russia, India, China and South Africa). The strengthening of these economies now plays a vital role in influencing bilateral relations and the overall trade policy of the EU and the US.

The intense positioning of the EU and the US in international agri-food trade is evidenced by both the strong negotiating power within the World Trade Organization (WTO) and the significant share held by both in world trade.

1.3 The Agri-food sector in Europe

From an economic and social point of view, the European agri-food system has played, and continues to play, a fundamental role, in fact it is a central element of the integration process of EU countries.

The primary instrument used by the European Union is the Community Agricultural Policy (CAP), thanks to which in the 1970s subsidies were obtained for about 75% of the budget, and, in more recent years, for 50% of total expenditure.

The merit of having favored the creation of a common market for agriculture must be attributed to this policy, as the EU has in fact become the main commercial area in the world as regards the agri-food sector³.

Introduced in 1962, the Common Agricultural Policy (CAP) represents a tight relationship between agriculture and society, between Europe and its farmers.

It is a policy common to all EU countries, managed and financed at European level with resources from the EU budget. It pursues the following objectives:

- help farmers and boost agricultural productivity by ensuring a stable supply of affordable food
- protect EU farmers so that they can have a reasonable standard of living
- help tackle climate change and the sustainable management of natural resources
- safeguard rural areas and landscapes across the EU
- keep the rural economy alive by encouraging employment in the agricultural sector, in the agri-food industries and associated sectors

There are two funds that finance the CAP:

- the European Agricultural Guarantee Fund (EAGF) which provides direct support and funds market support measures

³ <https://www.europarl.europa.eu/factsheets/it/sheet/103/la-politica-agricola-comune-pac-e-il-trattato>

- the European Agricultural Fund for Rural Development (EAFRD) which finances rural development.

Payments are managed nationally by each EU country, which publishes information on the recipients of CAP payments, in accordance with EU transparency rules⁴.

More specifically, the CAP operates in a wide range of sectors, among which stand out the quality of food, its traceability, and trade and promotion of products; furthermore, one of the main objectives is to encourage the application of sustainable and environmentally friendly practices, through investment in the development of rural areas.

In order to achieve these objectives, different EU institutions collaborate for the drafting of food and agricultural policies, and for the implementation, monitoring and evaluation of the entire process, in order to foster collaboration between the central and peripheral level of the EU. This coordination, in fact, is necessary as the policies and choices made at Community level must subsequently be adopted by the national and local authorities. In addition, it is then required that the application of these laws be supervised, to verify their effectiveness.

For the year 2021, the European Union has allocated € 182.9 million for the promotion of EU agri-food products inside and outside the Union. This policy aims to intensify the competitiveness of the sector by taking advantage of the development of global agri-food markets and by drawing attention to the high standards used in the agriculture, in terms of sustainability and quality.

Almost half of the budget (€86 million) has been used for campaigns that contribute to the achievement of the objectives of the European Green Deal⁵, in particular the Farm to Fork strategy, which supported the renewal of the agri-food product promotion policy in the year 2021.

⁴ https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_it

⁵ The European Green Deal is a set of political initiatives proposed by the European Commission with the objective of achieving climate neutrality in Europe by 2050. The intention is to revise all existing laws on climate and in addition, to introduce new laws on the circular economy, on the renovation of buildings, on biodiversity, on agriculture and on innovation.

The president of the European Commission, Ursula von der Leyen, has declared that the European Green Deal will be for Europe "like the landing of man on the moon", as this pact would make Europe the first continent to have achieved climate neutrality.

The purpose of these promotion policies, aimed at European and non-European consumers, was the dissemination of information about organic and sustainable agriculture in the EU and about the role of the agri-food sector in the commitment to the climate and the environment.

Among the topics of interest for the campaigns:

- raising public awareness on issues related to organic and sustainable agriculture and heightening the recognition of the organic brand among consumers.
- promotion of healthy eating and balanced diets
- highlighting the high standards of safety and quality, as well as the diversity and traditional aspects of EU agri-food products, including the promotion of EU quality assurance systems
- for campaigns outside the EU, priorities are set on markets with high growth potential, such as Japan, South Korea, Canada and Mexico. The intent of these campaigns is to improve the competitiveness and consumption of European agri-food products, increase their visibility and their market share in these recipient countries.

According to the data, the total value of EU agri-food trade (exports and imports) for the period January-September 2021 amounted to € 239.5 billion, an increase of 6.1% compared to the same period last year. Exports increased by 8%, to € 145.2 billion, with an increase in imports of 3.5%, reaching € 94.2 billion. This reflects a total agricultural and food trade surplus of € 51 billion for the first nine months of the year, an increase of 17% compared to the same period of 2020.

For the majority of 2021, the largest increase in exports was to the United States, whose value grew by 2.3 billion euros, or 15%. This was mainly driven by products such as wine, liqueurs, chocolate and confectionery. Exports to South Korea also grew strongly (€ 593 million higher), thanks to the excellent performance of wine, pork, wheat and meslin, as well as exports to Switzerland (+ €570 million). While total exports to China increased by EUR 504 million, EU pig exports to China fell by 13%, down by € 525 million from the same period last year.

In 2021, for the first time, agri-food exports to the UK have risen above their value for the corresponding period of 2020, growing by € 166 million, equal to 0.5%⁶. Considerable decreases were observed for the exports to Saudi Arabia (-447 million euros), Hong Kong (141 million euros) and Kuwait (-115 million euros).

On the other hand, the greatest increase in agri-food imports was recorded in products from Brazil, which grew by 1.4 billion euros compared to the same period in 2020. Imports also increased from Indonesia (+601 million euros), Argentina (+ 545 million euros), Australia (+541 million euros) and India (+388 million euros).

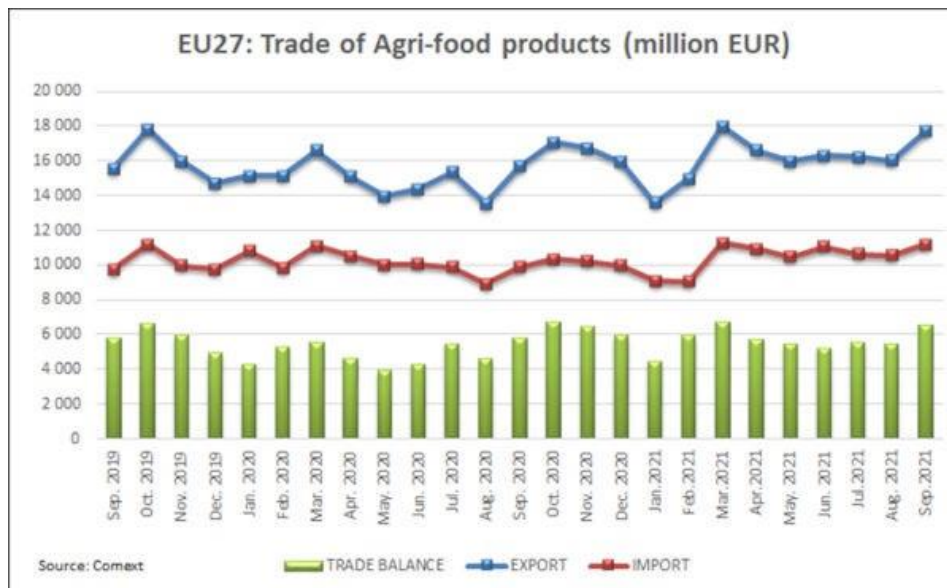
Imports from a number of countries have fallen sharply, the largest of which has been a fall of € 2.9 billion, or 27%, of the value of imports from the United Kingdom. The most significant drop in imports from that country was recorded in tropical fruit, nuts and spices (-88%). Imports from the United States (-570 million euros), Canada (-218 million euros), New Zealand (-111 million euros) and Moldova (-105 million euros) also fell.

The January-September period saw strong growth in the export values of some products such as wine (+2.9 billion euros) and spirits (+1.3 billion euros), which increased by 30% and 28% respectively. Other significant increases concerned rapeseed and sunflower oils (+751 million euros), chocolate and confectionery products (599 million euros). Declines, on the other hand, were recorded in exports of baby food (-757 million euros) and wheat (-390 million euros)⁷.

The following graph shows the trend of European exports and imports for agri-food products in the period September 2019- September 2021.

⁶ https://ec.europa.eu/info/news/eu-agri-food-trade-continues-show-notable-growth-compared-2020-2022-jan-04_en

⁷ https://ec.europa.eu/info/news/eu-agri-food-trade-continues-show-notable-growth-compared-2020-2022-jan-04_en



Graph 1.1: Imports-Exports trends September 2019-September 2021⁸

1.4 The Agri-food sector in Italy

The Italian agri-food sector is an excellence that stands out in terms of quality, technological innovation, sustainability, biodiversity and respect for tradition. Italy is, in fact, a country characterized by great territorial and climatic differences that have been shaped into cultures, stories and traditions, exceptionally varied and unique. These characteristics have led to the creation of a large number of small, often family-run businesses, which have focused on enhancing the uniqueness of their products.

The Italian agri-food industry has long been considered a protagonist of the economic development of the country. The success achieved in recent decades by this sector on international markets has stimulated a widespread and cross-cutting interest that has included, in addition to companies in the sector, institutions, companies and scholars of various disciplines. In particular, today, the agri-food

⁸ https://ec.europa.eu/info/news/eu-agri-food-trade-continues-show-notable-growth-compared-2020-2022-jan-04_en

sector represents the first Italian manufacturing sector in terms of turnover and the second in terms of added value, after the engineering sector⁹.

There are several elements that make up its success:

- good quality of products
- transparency in labelling and production processes
- the strong partnership between industry and agricultural production
- the prestige in the world markets of food excellence, which enhance its excellent reputation in terms of quality, safety, tradition and sustainability.

In particular, the reputation for the excellent quality of Italian food products is supported by the system of Geographical Indications of the European Union.

This system recognizes three labels for the quality of the food:

- Protected Designation of Origin (PDO): the qualities and characteristics of the food are exclusively due to the limited and well-defined production area. Ex.: Balsamic Vinegar of Modena, Parmigiano Reggiano
- Protected Geographical Indication (PGI): the food has at least one characteristic linked to a defined territory, but some stages of production can take place in other areas, in compliance with certain production specifications. Ex.: mortadella of Bologna or Roman abbacchio
- Traditional Specialty Guaranteed (TSG): there is no relationship between the food and a specific production area, but it has characteristics that clearly distinguish it from similar products. Ex.: amatriciana, mozzarella, Neapolitan pizza

⁹ <https://italiaindati.com/agroalimentare-in-italia/>

1.4.1 The system of the Italian Agri-food sector

In 1973 Malassis, a well-known French agronomist, outlined for the first time the production chain as all the agents (enterprises and administrations) and operations (production, distribution and financing) which contribute to the formation and transfer of the product to the final stage of use and to all related flows. The chain is considered long or short based on the number of actors between product and consumer.

The food chain involves all three sectors of economic activity: agriculture with the production of raw materials, industry through their processing and the supply of machinery, the service sector mainly with distribution and marketing.

The first sector, agricultural production and livestock farming, represent the first stage of the supply chain, and it includes producers of raw materials of animal and vegetable origin and all the related activities that revolve around agriculture, animal husbandry, fishing, aquaculture and forestry.

The second phase is carried out by the food industry sector and includes all the transformation and processing steps of raw materials and packaging. The various stages are different for each food product and can be carried out by several companies.

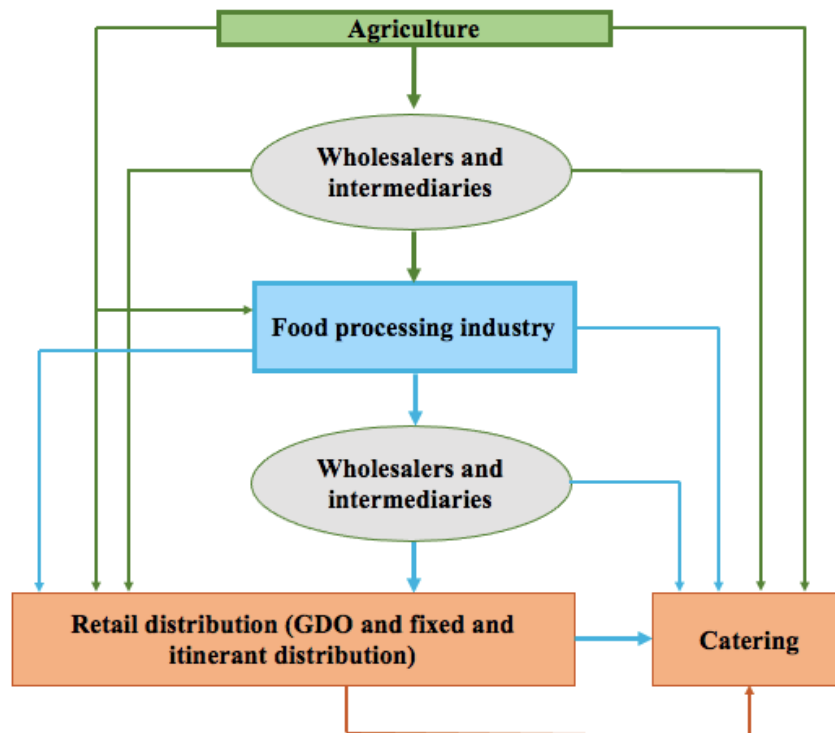
Distribution represents the last phase of the chain in which finished food products are marketed to consumers. Food can be distributed through the retail trade, large-scale distribution or the Ho.Re.Ca. sector (catering, hotels, canteens, etc.).

Planning, market analysis and cost and investment evaluation activities are also part of the production chain and are integrated into the various steps described.

The three sectors are directly or indirectly related through a variety of economic actors that allow the agricultural product to reach, after several stages, the final consumer.

In addition to this, external actors support these three phases, to help ensure proper functioning, through the provision of technical means, transport, logistics, advertising of products, etc.

The graph below summarizes the main relationships linking the three stages of the agri-food chain.



Graph 1.2: Relationship between the three stages of the agri-food chain in Italy

The graph shows how the product can reach the consumer through three ways: directly (in this case we talk about the short chain) through Farm shops or Farmers market; through catering and/ or organized distribution; or it may pass to processing undertakings which in turn present it to consumers through catering and/or distribution.

There are also cases in which the industrial transformation consists of two different phases that contribute to further increase the agents involved in the supply chain. One example is the pasta industry, which at first sees the transformation of cereals into flour and then the actual pasta is produced. In cases where the product reaches consumers directly, we talk about a short chain; an example is the fresh fruit and vegetable products that are collected, organized and immediately distributed without processing.

The link between the various stages of the supply chain is represented by producer organizations, wholesalers and intermediaries. In particular, the activity of intermediation between the first two phases, production and industrial and distribution, is carried out by cooperatives, producer associations, collection centers, wholesale markets as well as agents and brokers.

1.5 The impact of COVID-19

The outbreak of the Covid-19 pandemic has caused a serious global health crisis, with cascading effects on the economic system. The growing spread of the virus has prompted governments around the world to take extraordinary measures to mitigate its consequences, such as the temporary closure of commercial activities, closing of foreign borders which have inevitably led to serious consequences for economic and financial markets.

On the economic side, it's possible to find similarities between the pandemic shock and the global financial crisis of 2008-09.

In both cases, government intervention measures concerned monetary and fiscal policy with the aim of coping with the recession and providing income support for families and businesses. The substantial difference between the two crises, however, lies in the restrictions on movement and activity and social distancing that have been implemented to reduce the transmission of the disease. The type of crisis, in fact, is different: the crisis of 2008-09 caused a decrease in both supply and demand which were then accompanied by pressure on prices due to speculative movements; in the pandemic crisis instead, it was mainly lockdowns that influenced the economy¹⁰.

The shutdown of national economies has involved many sectors, such as hotels, catering, non-essential retail, which have also had an impact on the agri-food sector. Nevertheless, the agri-food sector has not been among those most affected by these measures, although many aspects have contributed to changing its balance.

¹⁰ VALUTAZIONE DELL'IMPATTO SUL SETTORE AGROALIMENTARE DELLE MISURE DI CONTENIMENTO COVID-19, Crea

1.5.1 Impact of the COVID-19 pandemic on the EU agri-food chain

As stated above, the agri-food sector has not been particularly affected by the spread of the virus, in fact, during the pandemic, the EU agri-food chain has shown a high degree of resistance. In 2020, on the one hand, there was a decrease in the value of production in the agricultural sector of 1.4% compared to 2019, but on the other hand, the same value grew by 2.9% compared to the average of the 2015-2019 period.

Agricultural incomes also decreased compared to 2019 (-7.9%), as well as food and beverage production (-9% in the second quarter of 2020 compared to 2019) and the catering sector (with estimated losses of 60-90 % compared to 2019). On the contrary, there has been an increase in retail sales and online food sales have recorded the highest growth during the first months of the pandemic (+45% compared to the levels before the pandemic).

The first challenges that the European agri-food chain had to face were the increase in demand for food due to the rush for purchases by consumers; the shortage of labor caused by restrictions on movement; delays in the supply of food, raw materials and other agri-food production factors as well as a slowdown in food production due to outbreaks at processing sites.

Most of the losses faced by European farmers, especially during the first wave of pandemics, resulted from disruptions to the supply chain and/or the closure of specific commercial channels, such as catering services. These interruptions resulted in production surpluses which had to be disposed of.

One of the areas that has been most affected is that of catering services, as bars, restaurants and canteens which have been repeatedly closed for long periods due to the restrictions applied. By contrast, food retailers were among the few allowed to remain open even during lockdowns.

However, precisely because of the pandemic's limitations, retail business models have increasingly undergone a digital transformation in order to adapt to the rapid changes that have occurred.

Ultimately, a major change has also occurred in consumer preferences as a result of the pandemic: indeed, the propensity to buy food online or in convenience stores has spread among customers, as well as more attention to healthier products.

Several studies show that in Europe in 2020, despite the pandemic, production and trade of agri-food products have remained stable and that, overall, this sector has achieved fairly positive results. Prices have remained stable, and according to FAO, there has been a global upward trend in the last months of the year.

However, there are areas that have had more difficult consequences than others. Among these, the wine sector suffered a decrease compared to the average figures for the period 2015-2019 for production and exports to third countries (by 5% and 2% respectively). Since it is a sector that depends heavily on catering services, it has faced several difficulties during the pandemic, linked to the consequences of the pandemic itself, obstacles to trade and lack of financial support.

In the same way, the beef sector has also suffered from the closure of the catering sector: in fact, in 2020 there was a significant drop in the values of production and intra-EU trade compared to the average of the years 2015-2019 (6% and 7% respectively).

Despite the many difficulties encountered, the EU has readily succeeded in safeguarding the integrity of the single market through the creation of "green lanes" dedicated to transport and the formulation of common guidelines on the workforce in the agri-food sector.

On the contrary, the measures taken with regard to the CAP have had heterogeneous effects, since, on one hand, these measures have produced more flexibility in the implementation of the CAP rules, but, on the other, for certain agri-food sectors, the new market management has been incomplete or inconsistent in the various Member States, so its impact has been severely limited.

The EU Member States have allocated € 63.9 billion under the Temporary Framework for State aid measures (March 2020 to January 2021) for the agri-food sector, to which additional financial and/or non-financial measures have been added. It was also decided that the economic burden of these appropriations would be borne mainly by the Member States.

In addition, it was decided that due to the limited CAP budget for the period 2021-2027, in the event of future crises in the EU's agri-food sector, Member States will play a key role in the resolution.

1.5.2 Impact of COVID-19 on the Italian agri-food sector

In contrast to the general collapse of the industry in 2020, the agri-food sector has proved resilient, keeping the turnover substantially stable compared to the previous year, and even reaching with exports the historical record of € 46,1 billion, in clear contrast with the other productive sectors. This is reported by the analysis of Coldiretti on the basis of Istat data that record for the industry the worst result since 2009.

The best resistance of agri-food compared to other sectors has determined a clear increase of the incidence of the field on the commercial exchanges of Italy. The weight of agri-food exports on total exports exceeds the threshold of 10%, while import reaches 11.4%, with a growth of one percentage point compared to 2019.

Compared to other sectors symbol of Made in Italy such as textiles and automotive, which have recorded dramatic cuts, the agri-food sector, with the results obtained, has become the first wealth of the country for a value equal to 25% of GDP with € 538 billion along the entire agri-food chain and 4 million workers engaged in 740 thousand farms, 70 thousand food industries, over 330 thousand catering businesses and 230 thousand retail outlets. A result also depended on the reputation acquired by Made in Italy all over the world where, despite the Covid-19 pandemic, there was a positive trend with an increase of 1.4% in 2020 compared to the previous year¹¹. In fact, with the lockdowns, the habits of foreign consumers have changed, there has been a rush to the accumulation of stocks, and above all the purchase of Made in Italy products has greatly increased.

¹¹ <https://www.coldiretti.it>

In this context, as highlighted, Italian agri-food exports continued to show a positive trend reaching a value of about € 46.1 billion and reporting a change of +1.4% compared to 2019.

More specifically, 65.4% of the sales of agri-food products went to EU countries, 13.1% to North America, 7.6% to Asia and 7% to other non-Mediterranean European countries.

The countries where the highest import rates were recorded were Germany (5.5%) and the United States (5.2%) despite the duties that affected the most significant products during the first eleven months of 2020.

As for the imports, they have suffered a clear decrease, with a contraction of 4.7% compared to 2019 and a value of € 42.3 billion. After an initial growth in flows in the first two months of the year, there were successive negative changes compared to the corresponding periods of 2019. The biggest contractions were registered at the most restrictive periods: April and, above all, May during the first lockdown and October/November. Indeed, the closure of the Ho.Re.Ca. channel, especially in certain periods, had a significant impact on imports.

Compared to 2019, there were slowdowns in purchases from the EU (-6.3%), Oceania (-23.5%), other non-Mediterranean European countries (-13.5%) and Mediterranean Third Countries (-6.3%)¹².

At national level, the effects resulting from the spread of the pandemic were found to be significantly differentiated at the territorial level, linked to the production specialization and to the reference markets of the different Italian regions. Although there has been an overall increase in Italy's agri-food exports, half of the regions registered a drop in foreign sales during 2020. The decline, especially in the second quarter, of exports of products such as wine, dairy products, prepared meats, coffee and confectionery products, has affected the negative result of some regions of Central and Northern Italy, more specialized in such productions. On the other hand, five regions in southern Italy showed a positive trend even in the months most affected by the restrictive measures, mainly thanks to the increased sales abroad of pasta, tomato preserves and olive oil. Despite these specific sectoral

¹² Rapporto Commercio Estero 2020, Crea

performances, overall, since the second half of 2020, there has been an improvement in agri-food exports in many Italian regions.

1.6 Italian Agri-food sector in 2021

Despite the crisis generated by the Covid-19 pandemic, the Italian agri-food sector has recorded a memorable record in exports, reaching a value of € 52 billion for 2021, the highest ever.

From what emerges from the projection of Coldiretti, exports of this sector have recorded a +11% compared to 2020, achieved also thanks to the impact that the world-famous sports and music victories have had on the agri-food sector and on Italian tourism over the past year.

According to Coldiretti, the triumph achieved is due to the change in social habits worldwide that has led to a change in the eating habits of consumers, thus favoring the Mediterranean Diet and home cooking.

The most exported agri-food product in 2021 was wine that recorded almost € 7 billion, with a surge for Italian sparkling wines that increased by almost 29% the demand from abroad.

Germany was ranked as the first among the Italian food importing countries with an increase of 7%, while in second place, there were the United States, with an increase of 15%.

Immediately after qualified France with a +7% and in fourth place there is Great Britain where, instead, the exports are diminished of 1% due to the obstacles resulted from the Brexit, like the customs procedures and the increase of the transport costs. As for the markets outside Europe, the Russian one grew by 15% while the Chinese one by 31%¹³.

At the same time, in the past year, agri-food imports recorded a growth of almost 12% over 2020, reaching a value of over € 48 billion.

¹³ <https://www.coldiretti.it/economia/commercio-estero-record-storico-alimentare-a-52-mln>

One of the major factors that have favored the success of Made in Italy concerns sustainability in both agriculture and livestock farming: Italian agriculture, in fact, was the greenest in Europe with absolute leadership in organic, in the production of traditional food products and the highest number of recognized PDO/PGI/TSG specialties.

In 2021 Italy became a European leader in the production of rice, durum wheat, wine and many vegetables and vegetables typical of the Mediterranean diet such as tomatoes, aubergines, artichokes, fresh chicory, endive, celery and fennel. But also, in the production of fruits such as apples and fresh pears, cherries and table grapes, kiwi, hazelnuts and chestnuts.

Chapter II - Evolutions of sales models in the Agri-food sector

2.1 Industry 4.0: the IV Industrial Revolution

The global competitive environment of the last twenty years has been strongly influenced by the increasingly intensive use of technologies and inventions that are part of the so-called "fourth industrial revolution"¹⁴.

A characteristic that unites all the revolutions of past eras is the possibility of being represented by a single invention; the first industrial revolution developed in the second half of the XVIII century and the invention to which it is associated is the steam engine that led to the mechanization of production in the textile and metallurgical sector.

In 1870 the second revolution began, characterized by the introduction of electricity and chemicals, the creation of the combustion engine and the increase in the use of oil as a new energy source.

About a hundred years later, in 1970, the world entered its third industrial revolution that saw the birth of computer science, fundamental for the transition to the digital age destined to increase industrial automation through the electronic systems of the Information Technology (IT). In the concept of the "third industrial revolution" are also included all the processes of evolution of the productive structure and the socio-economic context, which occurred in the second half of the XX century in the most industrialized countries, in which there was a strong push to technological innovation, linked to the birth of computers, robots, satellites and the first spacecraft¹⁵.

¹⁴ Santi, F. (2019). *Industria 4.0 nelle imprese top performing: modello per una ritrovata competitività globale*.

¹⁵ Schwab, K. (2016). *La quarta rivoluzione industriale*. FrancoAngeli.

“Industry 4.0” is the term used to refer to the fourth industrial revolution and is an expression that relates to a vision of the future according to which, thanks to the use of digital technologies, the competitiveness and efficiency of manufacturing and industrial enterprises will increase, through the interconnection and cooperation of its own internal resources and those distributed along the value chain.

The term was born in 2011 when the German term *Industrie 4.0* was coined at the Hanover Trade Fair in Germany, to indicate an extensive program of introduction of new technologies and new business models in the industrial sector. On that occasion the German government began to lay the foundations for a project included in the broader plan "High-tech Strategy 2020" aimed at promoting German industrial development. The assumption on which such a program was based was that the production of goods, which in the past had been mass production, could now be customized on a large scale. The idea was that smart manufacturing and logistics systems could contribute to the creation of new business models and generate maximum value to meet demand in real time, through improved predictive and managerial capabilities, as well as adaptable logistics¹⁶.

On April 8th, 2013, the final report was published with a forecast of all the investments planned for schools, energy systems, research bodies and companies, needed to make the German manufacturing industry globally competitive again. This model was subsequently the inspiration for all other countries. Since then, a new series of industries, called Smart Factories, have started to emerge, which have shown to have a new approach compared to the past. The new technologies implemented have made it possible to efficiently combine all the stages of the creation of goods.

What makes the fourth revolution substantially different from the previous ones is the fact that while the first three were marked by "key" discoveries, from which new inventions were then developed,

¹⁶ Thoben, K. D., Wiesner, S., & Wuest, T. (2017). “Industrie 4.0” and smart manufacturing-a review of research issues and application examples. *International journal of automation technology*, 11(1), 4-16.

this new revolution is the result of the convergence of several innovations in science and technology often related to each other such as:

- *Industrial Internet of Things (IoT)*: an evolutionary path of the Internet Network through which every physical object acquires its counterpart in the digital world
- *Industrial Analytics*: applications of new techniques and tools to highlight the information hidden in the data and the ability to use it to support decisions
- *Cloud Manufacturing*: enables, through the Internet network, widespread, easy and on demand access to a set of resources to support production processes and supply chain management
- *Advanced Automation*: refers to the latest developments in automated production systems, characterized by high cognitive capacity, interaction and adaptation.
- *Advanced HMI*: concerns recent developments in the field of wearable devices and new human/machine interfaces for the acquisition and/or transmission of information
- *Additive Manufacturing*: reverses the approach of classic production processes (removal or plastic deformation of material) creating an object through its "printing" layer by layer

2.2 The phenomenon of digital transformation

The adoption of the new technologies mentioned above and their subsequent exploitation that has radically changed the organization of businesses, is called digital transformation. In a short time, these innovations have revolutionized the concept of enterprise and represent a technological and cultural revolution within organizations. A peculiarity of this revolution is that it has embraced

companies of any industry and size, not only young startups or innovative businesses, but any company operating in the most diverse markets¹⁷.

Being digital has become a fundamental requirement for the survival of any organization and has led to the redefinition of the organizational structure and the implementation of strategies based on the canons of the digital era, conceiving an entirely new type of organization capable of seizing the opportunities that the digital transformation has created.

2.2.1 The five pillars of digital transformation

Before analyzing the impact that the digital transformation process has had on the agri-food industry, it is crucial to understand which are the pillars on which this transformation is based and on which aspects the management must focus to maximize its effects.

Consumers are the first pillar on which digital transformation is based as they are the fuel of every business. In the pre-digital period, mass-marketing tools were used to attract consumers and persuade them to buy products, since the start of the digital age there has been a profound change in the relationship between consumers and businesses¹⁸.

In fact, whereas in the past the attention of companies was directed to the creation of a product or service that would satisfy the needs of the greatest number of consumers because consumers themselves were characterized by a passive attitude towards businesses and products, in the digital age, there has been a profound change that can be explained by the model of the *Customer Network Model*.

¹⁷ Dal Porto, L. (2016). La trasformazione digitale nelle imprese: fenomeni digitali e pratiche organizzative dopo l'avvento della trasformazione.

¹⁸ Rogers, D. (2016). The digital transformation playbook. In *The Digital Transformation Playbook*. Columbia University Press.

The main feature of this model is the central role played by consumers and the rather complex relationship that has developed between them and businesses. This statement is justified by the many tools that consumers now have available to interact with businesses, tools such as digital platforms where they can publish, dialogue and influence the image of a company, a brand or a product. Based on this, within the "Customer Network" model, consumers are recognized as nodes of a network, interconnected by various digital tools; businesses continue to play a crucial role, however, in addition to creating value for consumers, they must listen and understand the interactions with the different nodes.

The second pillar on which the digital transformation is based are *platforms*, tools with which the interests of several consumers can be combined and simultaneously create value for different categories of customers¹⁹.

The first to introduce the platform concept as a business model were Jean Charler Rochet and Jean Tirole whose study aimed to explore the nature of two-sided markets and how they could create value for two types of connected consumers. Through this study, the markets called multi-sided markets were highlighted and in particular the business model to which they refer. These types of business models are defined as multi-sided platform or simply platform. They have been defined as a business that facilitates direct interaction between different consumers creates value²⁰. There are three main features that emerge from this definition:

- thanks to this new tool different types of consumers have the opportunity to interact with each other
- platforms allow direct interaction, an important feature that differentiates platforms from resellers or other sales channels

¹⁹ Rochet, J. C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the european economic association*, 1(4), 990-1029.

²⁰ Hagiu, A., & Wright, J. (2015). Marketplace or reseller?. *Management Science*, 61(1), 184-203.

- the platforms, in general, facilitate the interactions between the parts leaving however a certain independence in the same interaction

The third pillar is the *data*. They were already present in the pre-digital era and played a fundamental role, however, they were used only in operational planning and technical forecasts because they were very expensive and difficult to store in special databases.

To date, with the digitization of enterprises in all sectors, the data has taken on an unprecedented importance due to their infinite potential. In fact, for the last ten years, Big Data, unstructured information that is acquired and then reused by companies, have gained more and more notoriety²¹.

This phenomenon has spread rapidly thanks to two trends: the rapid growth of such structured information and the rapid growth of the ability to analyze these data. Moreover, the impact of these trends has been influenced by the emergence of infrastructures that help to benefit from such information in every business. In any sector data is considered a key intangible asset, however, it is important to note that the role they play varies from sector to sector.

Every company therefore needs a Data Strategy in order to be able to make the most of this data.

In “*The Digital Transformation Playbook*”, Rogers identifies five requirements that each Data Strategy must possess to be efficient:

- *different types of data*: it’s important to use different types of data, for example, for process optimization, reference can be made to the use of process data, whereas product or service data can be used for product/service innovation in a way that best meets the needs of consumers
- *use data as a tool for decision-making*: it is important to program how to use the data
- *use data to innovate products*: companies can predict the behavior of their consumers in advance by creating tailor-made products and services through data acquisition

²¹ Benedetti, G. (2020). Digitalizzazione e performance: analisi empirica della relazione tra i due fenomeni.

- *pay attention to consumer behavior*: behavioral data (online searches, transactions, or clickstream) is much more reliable than opinions or statements that result from market research
- *use data from different sources in a combined way*: it is important to use data in a combined way because the information they provide is much more accurate and reliable

The fourth pillar is *innovation* meant as the way in which a company brings innovation.

Innovation is defined in this case as any change in a product, service or even process that leads to value creation. Before digitization, innovation was only about the finished product and was the result of the analysis and visions of the managers involved in the project, while in the digital age, innovation is based on continuous experimentation and step by step learning. In particular, the innovative process focuses not on the finished product but on the identification of the problem that you want to solve and then on testing, developing and learning from the process itself. Thus, it is now common practice among companies to create prototypes of a finished product that have all the essential features, and then quickly modify them based on consumer feedback received during testing. Digitalization has made testing faster, with lower cost, lower risk and better organizational learning.

The last field on which digitalization had an impact was the *value proposition*. Over the years, it has been possible to observe a substantial difference between companies that managed to adapt their value proposition, and others that failed.

The sector that managed to adapt its value proposition to the best was the Real Estate, which succeeded to identify the new needs of consumers and was able to understand how new technologies could be exploited to create new opportunities²².

²² Rogers, D. (2016). The digital transformation playbook. In *The Digital Transformation Playbook*. Columbia University Press.

In some cases, it has been shown that these new technologies have allowed companies to update their value proposition but in many other cases it has been almost impossible to detect an opportunity for growth.

In these cases, the matrix of Igor Ansoff allows the companies to point out three growth paths characterized respectively by three different types of strategy to be implemented²³.

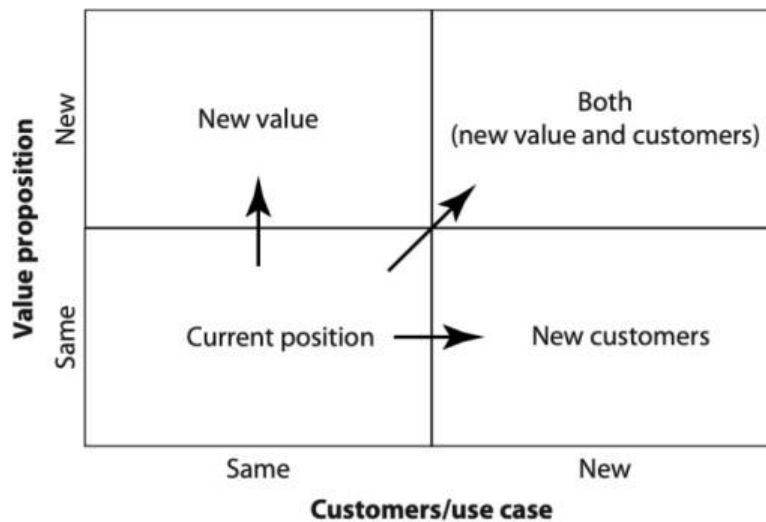


Figure 2.1: Matrix of Igor Ansoff²⁴

The first path is to seek a new market segment by providing the same value offer. In this case the economic risk is inferior because it is not required a huge investment and a consequent change of the business model, however the risk of not being able to identify a new segment or not to have the right value proposal, is very elevated. For this reason, this path has many limitations as new market segments will be offered the same value proposition that is losing strength and consistency in other businesses.

The second path, according to Ansoff, plans to serve the same market segment with a new value proposition. In this case, it is important for companies to ask themselves how they can continue to be as valuable to their customers as they have been in the past.

²³ Ansoff, H. I. (1957). Strategies for diversification. *Harvard business review*, 35(5), 113-124.

²⁴ Benedetti, G. (2020). Digitalizzazione e performance: analisi empirica della relazione tra i due fenomeni.

In the third path the solution proposed is the search for a new market segment to satisfy through a new value proposition, developed with the tools of digitalization. In many cases, in fact, it happens that the change of the value proposition of a company allows to identify new market segments especially thanks to digitalization, which can remove the barriers that previously prevented the entry of many sectors.

The five pillars show that digitization not only involves the use of new tools, but that it affects the whole sphere of business, from consumers to value proposition.

2.3 The digitization of the Agri-food sector

As previously stated, one of the main sectors of the Italian economy, is the agri-food industry, which, in recent years, has undergone major changes, following the acceleration of digital transformation and the evolution of final customers. Today's final consumer, in fact, feels the need to remain always informed in the food field, wanting to know the origin of food, the raw materials used and the subsequent processing processes, in order to be attentive to health and sustainability²⁵.

Rapidly many companies in the sector have opened up to digital innovation and have started to apply it throughout the agri-food chain: from the production of raw materials to their transformation, up to the logistics part.

Over the past decade, the concepts of Artificial Intelligence (AI), Internet of Things (IoT) and Machine Communication have become the focus of technology applied to the agri-food industry and mark the digital transformation that has taken place in this sector.

²⁵ Kosior, K. (2018). Digital transformation in the agri-food sector—opportunities and challenges. *Roczniki (Annals)*, 2018(1230-2019-3703).

Through these changes, production and services related to the food sector have come out of the "traditional" vision to embrace a more modern one.

In today's world, data is the center of attention, becoming the key to optimizing the entire development phase; in fact, digitalization, through the improvement of the interconnection between the stages of the process, has managed to create a new order in distribution²⁶.

By collecting data, it is possible to have a better and more accurate understanding of customers and the market. Therefore, customized mobile or web applications have been created to accelerate innovation in the agri-food industry.

In general, digital transformation has helped to improve every process in this sector, and all actors in the supply chain, including farmers, industrial producers, distributors, retailers and restaurants, recognize its leading role. As a result, digital transformation has enabled companies to turn what was previously considered challenges into opportunities.

Digital transformation can bring many benefits to all the various activities of companies engaged in the food sector, among them we have²⁷:

- *Prediction of food supply and demand to reduce waste*: IoT applied to inventory management allows, through reports and analysis, to predict the potential of producers and customers to make sure to reduce food waste
- *Better Equipment Control*: smart sensors help food companies identify abnormalities in machines and equipment used at every stage of the production process
- *Improve customer experiences*: the strong diffusion of technology in the agri-food sector, has led companies to reduce the production time of raw materials and finished products that in

²⁶ Annosi, M. C., Brunetta, F., Capo, F., & Heideveld, L. (2020). Digitalization in the agri-food industry: the relationship between technology and sustainable development. *Management decision*.

²⁷ Galanakis, C. M., Rizou, M., Aldawoud, T. M., Ucak, I., & Rowan, N. J. (2021). Innovations and technology disruptions in the food sector within the COVID-19 pandemic and post-lockdown era. *Trends in Food Science & Technology*, 110, 193-200.

this way can be ready for the final consumer in a short time. In addition, integrated data analytics enable entrepreneurs to better understand their customers and meet their needs immediately.

- *Increase flexibility*: in an increasingly fast and global market, the ability of companies to adapt, the implementation of digital innovation solutions that reduce the risk and respond quickly to the needs are crucial to this ability.
- *More safety in the agri-food sector*: Not only by providing customers with products of consistent quality, new food processing technologies provide safe environments for workers who carry out their activities there.

One of the sectors that has been most touched by this process within the agri-food chain has been the part related to agriculture, which is often thought of as a "traditionalist" sector and not inclined to change, but which has proved fertile ground for technological innovations.

As in the manufacturing sector the term "industry 4.0" is used to indicate the digital transformation in production environments, so the term "agriculture 4.0" is used to indicate the entry of technological revolutions in agri-food²⁸.

2.3.1 Agriculture 4.0

Agriculture 4.0 is considered as an improvement of precision agriculture, being the result of the implementation of innovative technologies in the field of agri-food, including, the automation of harvesting, and the integration and the analysis of data from the fields themselves through the use of sensors. This new type of agriculture is based on the use of hardware and software that allow the

²⁸ <https://www.agrifood.tech/precision-farming/agricoltura-4-0-cose-incentivi-e-tecnologie-abilitanti/>

collection, processing and "reading" of a considerable amount of data whose ultimate goal is to improve the efficiency of the production chain through the use of data.

In this context, the digital technologies of the fourth revolution provide support - in combination with data analysis - to farmers in their day-to-day tasks and in the planning of their activities, including relations with all the links in the supply chain, creating a status where value is created for both the individual company, and subsequently for its partners. Through these new solutions that include the use of many technological tools, from IoT to artificial intelligence, from the analysis of large amounts of data to the use of drones, the profitability and the economic and environmental sustainability of farms has seen a visible increase in a short time.

As a matter of fact, the application of technologies to precision agriculture is a practice that began in the 1990s: in fact, digital solutions were used for specific problems that took into account the particular needs of the soil and plants. The aim was to strengthen as much as possible the productivity of the plantations by containing costs and environmental impact; these interventions include those to make irrigation more efficient without the waste of water resources, planting technologies adjusted according to the physical and biochemical characteristics of the soil and the use of pesticides and fertilizers appropriate to the needs of plants and land.

For these reasons, precision farming is considered both as the predecessor of agriculture 4.0 and as one of its main pillars, because it has laid the foundations so that production processes can be adapted to individual needs through rapid and precise actions, able to adapt to the needs of the moment.

The prerequisite for an effective rendering of these technologies lies in the real-time use of data from the fields; through special sensors capable of transmitting information, it is possible to decide in a timely manner which solution to adopt and entrust to automated systems.

The most widely used technologies in agriculture 4.0 are: Internet of Things (IoT), Big Data, Artificial Intelligence and Robotics to expand, speed up and make more efficient the activities that affect the entire production chain.

- Agriculture is one of the sectors that exploits and benefits most from the use of innovations IoT, *internet of things*. The IoT provides for the connection of devices, tools and software aimed at the optimization of processes, consumption and revenue²⁹.

The agricultural sector, although considered the most "conservative" sector, has been perfectly able to adapt this type of solution to its problems.

One of the fundamental roles of the IoT in this context is the one played by sensors. A sensor is a device that makes it possible to measure certain parameters and communicate them to a management system. In the agricultural sector the sensor is of fundamental help as there are many factors that must be kept under control: the temperature, humidity, the minerality of the earth, the presence of pests etc.

So, it is easy to understand how having a more or less real-time overview of all these parameters can greatly facilitate the whole process of field management. For example, through the IoT in agriculture it is possible to constantly keep under control the level of humidity present in the soil so as to operate the irrigation only when necessary, allowing optimal conditions for different types of crops and at the same time greatly reducing the waste of water. The IoT also allows more complex analyses: the monitoring of chemical composition and changes in soil characteristics allows the use of fertilizers specific to the specific conditions of their fields, in order to optimize harvests and production.

- With the emergence of *big data*, huge volumes of high-speed digital data from a wide range of sources and in different formats, the agri-food industry has seen the opening of new possibilities. In Big Data agriculture, in order to extract significant new knowledge to make production and management decisions, aggregated data from other farms and other sources such as weather stations, mobile phones, and social media are used³⁰.

²⁹ Stočes, M., Vaněk, J., Masner, J., & Pavlík, J. (2016). Internet of things (iot) in agriculture-selected aspects. *Agris on-line Papers in Economics and Informatics*, 8(665-2016-45107), 83-88.

³⁰ Kosior, K. (2018). Digital transformation in the agri-food sector—opportunities and challenges. *Roczniki (Annals)*, 2018(1230-2019-3703).

Moreover, this practice, on the one hand, makes it possible to predict the consequences of specific agricultural operations and, on the other, to intervene promptly in the various events that occur.

One way to apply big data is by collecting a data set containing useful information for the decision, such as rainfall, drought, weather and vegetation index. In this way it is possible to determine with greater precision which are the best crops for the different types of fields. At the same time, it is possible to make forecasts based on information obtained from large amounts of data and to notify farmers how to better manage their fields and help them increase productivity.

- As for the role of *robotics and artificial intelligence*, their recent developments have radically transformed different agricultural production processes. Agricultural robots are used both for cultivation in greenhouses and in open head, automating various activities such as monitoring the status of plants, pruning, harvesting, weeding.

The spread of these robots has been accompanied by the development of the artificial intelligence methods that allow to automate increasingly complex processes. In fact, methodologies and technologies are available for the monitoring of crops, the prediction of yield, up to the autonomous and targeted execution of agricultural operations ensuring the reduction of waste and greater efficiency in cultivation.

2.4 Digital transformation within the sales channel

The phenomenon of digitalization, which has affected the agri-food sector, as already stated, has affected all the links in the supply chain, including the last one, the one concerning the distribution and sale of products.

Until a few years ago, the sale of this type of goods still followed the traditional path, focused on the use of the physical store, owned or third parties, through which the act of sale took place. For some time now, all sectors have witnessed a digitalization of sales processes. This term refers to all the methodologies and digital tools that assist and improve the sales operation. The aim is to go beyond traditional sales methods in order to be able to take care of the customer relationship in detail in every step and increase the trust and loyalty between the company and the consumer.

During the pandemic period, especially in the first year, characterized by long periods of lockdown, all companies had to accelerate the digital evolution and implement online sales platforms to replace, at least temporarily, the offline ones.

One of the digital tools that saw the greatest implementation in this area was e-commerce.

2.5 The e-commerce platform: main features

E-commerce has been defined as the set of commercial transactions carried out via the Internet³¹. In this transaction the main protagonists are the final customer and the company that represent respectively supply and demand. The substantial difference between e-commerce and traditional commerce is only the presence of the Internet, as a means that replaces physical contact between counterparties. Transactions relating to physical goods may take place electronically up to the time of payment of the goods purchased, but still involve the performance of traditional activities such as transport and delivery to the buyer; instead, in the case of digital goods (software, audio files, video files) the whole process can take place exclusively electronically.

³¹ Agus, A. A., Yudoko, G., Mulyono, N., & Imaniya, T. (2021). E-commerce performance, digital marketing capability and supply chain capability within e-commerce platform: Longitudinal study before and after COVID-19. *International Journal of Technology*, 12(2), 360.

In summary, e-commerce is a commercial activity composed of a person who sells and one who buys the good or the service, with the absence of a physical place where such exchange takes place, replaced by the Internet.

E-commerce is a growing global trend. Its strong growth was due to the spread of smartphones, through which web browsing became easier and faster. For a functional use of this platform, it is essential that each company evaluate its business and choose the business model that better suits it, in order to organize its online strategy, conquer its target audience and achieve success.

The development of e-commerce has always been marked by a strong gap between countries and geographical areas: widespread and evolved in the USA and northern Europe, more marginal in poorer countries, in fact, despite the significant development in the 1990s, there are still several difficulties for wider dissemination.

The key feature of e-commerce is to be able to connect two parties that may be resident in different parts of the world. E-commerce can be classified according to the type of end customers and sellers.

The main categories are as follows:

- *B2B (business to business)*: It is a transaction between two or more companies or between a supplier and a company. The profit comes from sales to other companies, it also allows to make lasting relationships with different customers. Currently it's the branch of the e-commerce more developed that constitutes 70-85% of the total value; although it interests all the productive activities, it's more developed in the tertiary field and in particular in the financial one.
- *B2C (business to consumer)*: it is a commercial exchange between the enterprise and the end customer. E-commerce can be an online store or the copy of a physical one. An example of this category is Amazon, a platform where you can buy different types of products. In this case the gain for the owner of e-commerce comes from purchases made by consumers. This type of business is well developed for higher-end standardized goods (books, DVDs), but also for more traditional goods (consumer durables, such as cars) and digital goods.

- *C2C (consumer to consumer)*: this type of category represents an exchange that takes place on the web between the final customers. In this case the transaction is handled only by the final customer, who is both consumer and seller. It can be considered as a type of online auction and is one of the most recent methods³². An example is Ebay, a platform that allows you to connect the same type of users. The earnings, for this mode, derive from a taxed percentage on sellers and advertising.
- *C2B (consumer to business)*: it is the type in which final consumers choose the price of a product or a service and then companies decide whether to accept it or not. User reviews and comments about the product or service are essential for this type of products, as they allow you to create value for free for businesses³³.

Over the years the difference between the B2C and B2B markets has become smaller and smaller. They share the definition H2H (human to human), since both sides are represented by actors who use technological innovation in their lives.

Two major changes have led to this definition:

- the *democratization of products*, thus making it possible for the majority of the population to have access to products and information
- *disintermediation*, the possibility of reaching final customers without the use of an intermediary³⁴.

The practice of e-commerce can be further classified according to the different actors that interact with each other during the exchange and according to the type of goods sold.

³² Chu, S. C., Leung, L. C., Van Hui, Y., & Cheung, W. (2007). Evolution of e-commerce Web sites: A conceptual framework and a longitudinal study. *Information & Management*, 44(2), 154-164.

³³ Ghislandi, R. (2012). *Il manuale dell'e-commerce*. Apogeo Editore.

³⁴ Bricalli, M. (2019). *Sviluppo di un sito e-commerce nel B2C; principali requisiti ed aspetti operativi* (Doctoral dissertation, Scuola Universitaria Professionale della Svizzera Italiana).

Three types of platforms have been identified:

- *Direct e-commerce*: intangible goods and online services are sold without the shipment of products
- *Indirect e-commerce*: goods sold are physically delivered to the buyer
- *E-commerce marketplace (or portal)*: a shared platform is used for the sale of products, which is considered as a real showcase.

The division of these categories is very important because each is addressed to different customers and interacts with them in a different way. Each system is managed differently and has unique strategies and rules that can create a successful e-commerce based on the needs of its customers.

2.5.1 Risk and opportunities

The spread of e-commerce has been an important element in the development of the economy, as it has helped to increase the efficiency and productivity of businesses and bring benefits to consumers. In fact, the main purpose of this platform is to increase the turnover of businesses through online sales; in addition to that there have been numerous advantages that the affirmation and the diffusion of the electronic transactions have brought to the enterprises: a reduction of the transaction costs, a fast system that allows the decrease of the supplies of raw materials and semifinished materials, a quick and low-cost acquisition of customer information. Competitiveness has also been positively affected by the influence of e-commerce: geographically distant companies can easily compete with local ones.

However, the use of e-commerce platforms has also led to disadvantages compared to the traditional offline channel of sales.

Among these the most obvious are:

- Not being able to establish a relationship with the customer as the whole process takes place electronically, even the exchange of communications is via chat or email. The experience, therefore, is completely different also with regard to the purchase of the product itself: the customer does not have the opportunity to touch, analyze and be sure of the product he is buying.
- When you buy online there will always be a delay in receiving the item. Even making the fast delivery to receive the product as soon as possible, you will not be able to enjoy it immediately, as happens when you buy in the physical store, but you will have to wait for at least a day.
- One disadvantage that concerns online sellers surely is the greater control and comparison of prices that consumers can make. In the past a product could be offered from two distant shops and the consumer would have to go to both stores to compare the two prices. Today, with a few clicks online, the consumer can compare prices and find the most advantageous for him.
- One of the biggest concerns caused by online shopping is definitely the risk of fraud. This fear, of course, is less with big brands, but it grows when it comes to independent brands that can generate doubts about data security and reliability. In fact, this has discouraged online purchases despite the appearance of increasingly secure systems and services offered by online brands.

To achieve the benefits that e-commerce can bring, the company must perform analysis and formulate a suitable strategy. The first survey to be carried out is to determine whether selling online can bring real added value to the company; the purpose of e-commerce can be to operate only online by applying competitive prices, or to enlarge the market share through a multichannel or omnichannel strategy. Subsequently, organization, funds, skills and large initial investments will be needed, which will be recovered only after time. Therefore, in order to take advantage of the opportunities of e-

commerce it is essential that companies pay the utmost attention to every aspect of it and continually improve it³⁵.

2.6 The case of wine e-commerce: the acceleration of 2020

As previously stated, the last two years have seen a strong digitalization of sales channels in the agri-food sector, which has led to the implementation of e-commerce sales platforms.

The main reason for this acceleration has been the spread of the pandemic, which has led, on the one hand, businesses to shift their focus towards the consumer market, and, on the other, has led private consumers to purchase food products via the Internet. Products that were previously purchased exclusively at the physical store, began to register an increase in sales through online channels.

An example is the case of wine e-commerce that developed during 2020, in fact, the pandemic has contributed to the definitive consecration of e-commerce as a portal for the purchase of wine and alcohol. The International Wine & Spirit Research (Iwsr) has conducted a research on consumers from 16 different countries (Australia, Brazil, Canada, China, Colombia, France, Germany, Italy, Japan, Mexico, Holland, Nigeria, South Africa, Spain, United Kingdom and USA), which showed that the online alcohol market is expected to grow by 66% in the period between 2020 and 2025, reaching a value of 42 billion dollars, or 6% of the global market³⁶.

Moreover, between 2019 and 2020 there was a huge difference, as in 2019 there was a growth of 12%, while in the year of the pandemic, growth reached +43% at the peak of the pandemic crisis, especially thanks to China and the USA. Today, a quarter of wine and alcohol purchases are made online via e-commerce platforms (International Wine & Spirit Research, 2020).

³⁵ Ghislandi, R. (2012). *Il manuale dell'e-commerce*. Apogeo Editore.

³⁶ International Wine & Spirit Research, 2020

In addition, the results of the IWSR show that online business models for alcohol sales are gradually becoming more and more diverse, leading consumers to choose between channels and retailers according to their needs and necessities.

In general, there are two distinct but overlapping worlds of the online alcohol market:

- traditional e-commerce, often omnichannel or online specialists, who use websites and who are favored by older consumers looking for well-known brands and affordable prices, prone to wait for delivery times
- app-driven e-commerce, more modern forms of e-commerce, mainly used by younger customers of legal drinking age, intent on finding premium brands and willing to pay for quick deliveries

Data reported by the IWSR show that wine is the most purchased alcoholic beverage in online markets and accounts for 40% of the total value of e-commerce, with few exceptions being China, Colombia, Mexico and Nigeria where online sales of alcohol exceed those of wine. Although beer, cider and ready-to-drink are worth less than a fifth of the total value of e-commerce, it is expected a strong growth over the coming years, taking shares mainly from the sale of wine³⁷.

As already stated, China has the highest percentage of consumers who buy alcohol online through e-commerce, reaching 60%; although there is a slower average growth compared to other countries, China

represents an essential contribution to this type of purchases. As for the United States, they hold the record for the highest percentage of consumers (54%) who started buying wine & spirits online during the pandemic and who have an average growth of 20% per year. It has been predicted that in 2025 it will be the first market for online wine & spirits (International Wine & Spirit Research, 2020).

³⁷ International Wine & Spirit Research, 2020

As for Italy, even in our country the wine e-commerce, marginal sector until a few years ago, has had a very rapid exponential growth reaching a figure that - according to Wine Monitor³⁸ - is between 150 and 200 million euros.

In 2019, just before the health emergency, in Italy e-commerce represented only 1% of retailing sales, against 4% in the USA, 10% in the UK and 29% in China, where e-commerce has been a fundamental channel for the sales of alcoholic products and wines for several years³⁹.

However, in Italy, 2020 led to a fast acceleration when, due to the lockdown, more than 8 million consumers started buying their wine bottles online. This represented as many as 27% of total wine consumers, an even more significant figure when compared to 17% in 2018 (Nomisma, 2020).

According to the Wine Monitor, this is a direct consequence of the spread of the pandemic and the rapid change in habits of the consumers of this industry.

³⁸ Wine Monitor is the Nomisma Observatory dedicated to the wine market, born with the aim of helping companies and institutions of the Italian wine industry to correctly interpret the dynamics of the market

³⁹ <https://www.nomisma.it/e-commerce-vino-dati-da-nomisma-wine-monitor/>

Chapter III- Practical Research

3.1 Research Design

As mentioned in the previous chapters, the agri-food sector has undergone many changes in recent years, as the digital transformation has affected all the phases of the chain, in particular the distribution and sale of final products.

In the last two years, since the beginning of the pandemic, this phenomenon has intensified, because, due to the numerous lockdowns and restrictions that have followed, this transformation has undergone a remarkable acceleration, leading companies on the one hand to develop online sales platforms for the sale of products, and on the other hand to shift the focus from a B2B to a B2C market.

Being a phenomenon developed in recent times, the literature is still scarce of contents concerning this specific trend; for this reason, the main purpose of this study is to contribute to the enrichment of the little literature present at the current time regarding the digitization of high-quality agri-food enterprises in Italy; on the other hand, it will also serve to expand the existing literature on digital transformation.

More specifically, the goal of this work is to understand if and to what extent the presence of Covid-19 has contributed to the acceleration of the digitalization of the sector within the sales channel, and whether the use of online sales channels for private consumers is a practice that will continue even after the end of the pandemic or whether it is destined to disappear over time.

In order to try to answer these two questions, a series of interviews were conducted with workers in the sector through a methodology that will be explained in the following paragraphs.

3.2 Research Questions

The choice of the main research questions of this study was made by taking into consideration the criteria set out by Bell et al., 2022 for conducting a qualitative study.

The three criteria are reliability, replicability and validity of the questions. First, reliability concerns the question of whether the results of a study are repeatable or not. The term is commonly used to address the question of whether measures applied to business and management concepts (such as teamwork, employee motivation, organizational effectiveness) are consistent or not⁴⁰.

The idea of reliability is closely related to the criterion of replicability of research. In fact, sometimes researchers choose to replicate the results of others for several reasons, such as the suspicion that the original results do not match other evidence that is relevant to understanding the topic. So, in order for replication to take place, a study must be replicable⁴¹.

The last criterion of research, and in many ways the most important, is validity. It concerns the integrity of the conclusions that are generated by a piece of research⁴².

Taking these criteria into account, the two research questions are as follows:

RQ1: Has the Covid-19 pandemic helped accelerate the digitalization of sales channels in the Agri-food sector?

RQ2: Will the use of online sales channels continue over time even after the end of the pandemic, or is it destined to disappear?

⁴⁰ Bell, E., Harley, B., & Bryman, A. (2022). *Business research methods*. Oxford university press.

⁴¹ Bell, Harley & Bryman, 2022

⁴² Bell, Harley & Bryman, 2022

3.3 Methodology

To answer these two questions, it was decided to use the qualitative method as it was considered the best method because of its advantages. One of the greatest benefits of the qualitative research approach is to be able to obtain a rich number of details, that is not easy to obtain through the quantitative method, such as emotions, opinions, experiences and perspectives of the participants, through the interpretation of their actions in meanings; moreover, it is useful for the comparison between different perspectives of a same phenomenon. The qualitative methodology is in fact considered holistic, as it includes the analysis of the social, cultural, value and personal context of the investigated phenomenon, adding meaning to the quantitative value⁴³. As a result of the flexibility and freedom of qualitative analysis, it is also possible to make particularly complex phenomena easier to understand.

In addition, three types of interviews can be distinguished:

- structured, the list of questions is predetermined and structured (generally used in quantitative research)
- semi-structured, in case there are potential topics to be discussed, but based on the conversation their order can be changed, and other questions may be asked in order to further deepen the topic covered
- unstructured, or in-depth interviews where the topic is declared, but the debate remains rather open⁴⁴.

For the purpose of this study, it was chosen the semi-structured type of interviews in order to gather the necessary information, while leaving room for potential discussions and new insights at the same time.

⁴³ Medicinanarrativa.eu

⁴⁴ Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

As for the research approach used, there are two main categories to choose from: inductive and deductive.

The first is commonly used when the literature available on the subject is scarce. In this way, the theories that arise are based on observations and patterns found within the collected data. On the other hand, the latter methodology is used when the theory is presented, the assumptions are declared and must be tested on new data. Therefore, when the deductive method is used, the existing theory is first re-examined, and on the basis of the main conclusions some hypotheses are presented, followed by data collection and further analysis to verify or reject the hypotheses.

These two methods present many differences in the execution of the survey. By its nature, the inductive method allows you to be more flexible and lends itself to exploration, especially at the beginning. The deductive method instead is more closed and is more oriented to test or confirm hypotheses. This study is mainly deductive, in that first the theories regarding the digitalization of the sector have been revised, both in the course of the last years, and during the pandemic period, and now, and then, through the interviews conducted, data have been collected to answer the research questions.

On the basis of the literature, the major changes that have occurred over the years, and in particular during the Covid-19 pandemic, have been observed in order to identify, if and how the pandemic affected the digital transformation of agri-food. The contents of the interviews were then analyzed in order to gather the data and information needed to have a clear view of the evolution of this sector in the last two years.

3.3.1 Primary Data

At the basis of each research, one of the main elements is the collection of data, and in particular, the collection of primary data is the most important.

Primary data are data collected from the main sources through interviews, surveys, experiments etc. and are considered as the best type of data in the field of research.

As mentioned above, it was chosen to collect the primary data through semi-structured interviews, as this method was considered the most suitable for two main reasons.

The first lies in the ability to gather detailed information from key informants and gain a thorough understanding of the interviewee. The second reason is the presence of a structure that interviewers can follow, which allows to cover all those topics related to the research question, while also granting greater flexibility and comparability during the interview. Moreover, thanks to the particular adaptability characteristic of this method, the order of the questions could undergo deviations, based on the previous answer. In fact, semi-structured interviews allow the interviewer to interpret and changing the order of the questions, while ensuring that the overall purpose of the interview is followed.

The sources from which the data are collected are generally chosen in such a way as to adequately respond to the requests or requirements of the research in question. In addition, before selecting sources from which the data are taken, it is essential to identify both the research objective and the target. As regards the aim of the thesis, as already stated, it is to answer two fundamental questions: if and to what extent Covid-19 has contributed to the acceleration of the digitization of the industry regarding the sales channel and whether the use of online sales channels will persist over time or whether it is destined to disappear over time.

3.3.2 Sampling

In order to identify a strategically relevant sample for both research questions, the purposive sample⁴⁵ was considered appropriate. The criterion applied to select the sample concerns two aspects, the quality of the products offered by the selected companies and the presence of an online sales channel owned by the companies. In this regard, it was chosen to select companies with quality certifications and/ or health certifications, and companies that sell their products through online owned channels.

10 were the interviews that were made; the respondents were contacted well in advance via an email that briefly explained the topic of the thesis and asked if it was possible to schedule an online meeting. Although the online meeting does not allow to fully exploit the benefits of a semi-structured interview, it was used this method both for the geographical distance between the author and the respondents, and for the still ongoing pandemic situation.

Before starting the interview, the author made a brief summary of the thesis, both to explain the main purpose and to contextualize the questions that would be asked.

To get a correct transcription, the interviews were recorded, with the permission of the respondents, and then re-listened. In fact, a complete transcription, allows to take benefit of many advantages, including the possibility of being able to capture every single detail significant for the analysis, while minimizing bias⁴⁶.

Of the ten people interviewed, only two gave their consent for their name, the name of the company they work for and their role within it, to appear within the thesis. As for the other eight people, in the section dedicated to the reporting of answers, they will be indicated as Respondent 1,2...n, as they did not give permission to write their personal information. In the following table, the list of respondents,

⁴⁵ The purposive sampling is a form of non-probability sampling in which researchers rely on their own judgment when choosing members of the population to participate in their surveys

⁴⁶ Graue, C. (2015). Qualitative data analysis. *International Journal of Sales, Retailing & Marketing*, 4(9), 5-14.

their role, and the company they work for will be presented. Where necessary, personal information will be omitted for lack of consent by the respondents.

<i>Respondents</i>	<i>Role</i>	<i>Company</i>	<i>Date</i>
Manuela Cestaro	Marketing & Digital Communication Manager	High Quality Food (HQF)	3/05/2022
Vincenzo Cannata	Digital e-commerce director	Longino & Cardenal	5/05/2022
Respondent 1	E-commerce manager	Primary company active in the distribution of agri-food products both in Italy and abroad	6/05/2022
Respondent 2	E-commerce manager	Agri-food company, highly present in northern Italy, specialized in the sale of products with quality certifications	8/05/2022
Respondent 3	Digital marketing director	Agri-food company specialized in the sale of dairy products	9/05/2022
Respondent 4	Digital e-commerce director	Agri-food company, with health certifications, which distributes mainly in central Italy	10/05/2022
Respondent 5	Digital marketing director	Company active in the distribution of certified agri-food products	11/05/2022
Respondent 6	E-commerce manager	Agri-food company active in the sale of high quality Italian products both in Italy and abroad	13/05/2022
Respondent 7	E-commerce manager	Agri-food company active in the distribution of top quality products in Italy and abroad	13/05/2022
Respondent 8	Digital communication director	Agri-food company, a reference point for both catering and private	15/05/2022

		consumers, active in the sale of quality products	
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In Appendix A it is possible to find the interview guide followed.

3.3.3 Secondary data

In order to provide a theoretical background, the review of secondary data was carried out as part of the literature review. The literature review is considered a valuable tool for building the basis on which the researcher bases the research question and its design. It was conducted a systematic review of the literature with the aim of identifying the literature gap regarding this specific topic and finding out what such work can bring to the existing literature⁴⁷.

The systematic revision focuses on a broader scope than the narrative revision, and therefore has been considered more suitable for this type of study. The main advantage of this choice is that biases are minimized as this approach uses an explicit procedure that allows to define the criteria according to which the existing literature is consulted.

In fact, papers were consulted concerning:

- the agri-food sector and its main features
- its development in the last two years
- the specific digitization of the sector
- the impact of covid-19 on the agri-food sector

While were excluded papers concerning:

- the general digitization of enterprises

⁴⁷ Bryman, A. (2011). Research methods in the study of leadership. *The SAGE handbook of leadership*, 15-28.

- the impact of Covid-19 on the general economy of countries

because they were considered not relevant to the topic of work.

Since secondary data collection is a preliminary phase to the development of a new theory, it was performed at the beginning of the research process.

3.3.4 Data Analysis

For the analysis of the data, it was followed a process of preparation of the collected data and later a development of a thematic analysis. Through this process, the interpretation and breakdown of information has been easier.

The first step of this analysis concerns the process of encoding, performed through Word, in which sentences related to the same topics have been grouped together and then compared to identify similarities or differences between the responses. To facilitate the process, the answers were grouped according to the key argument of the question, both to find similarities and differences, and to then analyze them and draw the appropriate conclusions. Next, the second step, is the condensation of concepts into broader topics, divided by themes, which have been defined by the identification of similar concepts related to a specific factor. The elaborate categories were developed on the basis of the literature reviewed. In the Appendix B it is possible to find the guide to the coding.

3.4. Quality of the research

In order to evaluate the quality of the research, 3 main criteria were considered, suitable for qualitative studies: credibility, transferability and confirmation.

3.4.1 Credibility

The criterion of credibility serves to assess the reliability of the research⁴⁸; it has been achieved through transparency in the explanation of the purpose of the interviews, clarified before starting the interview itself. At the beginning of each interview was explained the main topic of the thesis and its main purpose.

3.4.2 Transferability

Transferability refers to the degree to which results can be generalized (Bryman and Bell, 2011). Qualitative research is distinguished from quantitative research by a lack of objectivity. Other issues regarding thematic analysis are related to data reduction. To address these issues, a description of the case study and the conditions of the sector analyzed was provided.

3.4.3 Confirmability

Confirmation evaluate the extent to which the researcher has been conditioned by his own values in the collection of data and in the preparation of the results. Qualitative research, in fact, can undergo a high level of subjectivity associated with the judgments that the author of the research gives in the interpretation of data⁴⁹.

This aspect was diminished through follow-up questions, asked with the aim of understanding the true meaning of the answers and asking at the end of the interview if the interviewee had something to add to the questions already asked.

⁴⁸ Bryman, A. (2011). Research methods in the study of leadership. *The SAGE handbook of leadership*, 15-28.

⁴⁹ Bryman, A. (2011). Research methods in the study of leadership. *The SAGE handbook of leadership*, 15-28.

3.5 Empirical Findings

As stated above, after the data were revised, they were grouped into four categories, based on the key topics of the questions and the answers that were provided.

The categories found are:

- Market changes after the Covid-19 outbreak
- Digital transformation within the sales channels
- Pros and cons of e-commerce and online strategies
- The online trend

3.5.1 Market changes after the Covid-19 outbreak

The first category identified concerns the changes that the market has had with the outbreak of the pandemic in March 2020.

Before this event, the Italian agri-food market was characterized by companies that sold mainly to the B2B market, and supplied the Ho.Re.Ca., market referred to hotels, restaurants and catering.

As a result of the lockdowns and all the restrictive measures that have seen the closure of restaurants and all catering activities, in a very short time companies, historically oriented to the B2B market, have had to change their business model and, to avoid throwing the products stored in stock, start selling to the B2C.

With the reduction in the restrictions applied and the gradual return to normality, these companies have resumed selling to restaurants and caterings, while maintaining the direct sale to private consumers, which started because of the pandemic.

“Longino was born as a company focused for 30 years on B2B [...]. This is his historical business. A year and a half ago began the direct sale to the public by taking the part of the catalog that was more consumer and through the direct online channel has also opened to the public sale. So, today there are two peaks, a direct intermediation to a B2B channel through agents and very little through e-commerce and then a direct B2C sales channel only through e-commerce” – Vincenzo Cannata, Digital e-commerce director from Longino & Cardenal

“Following the lockdown measures, HQF, a company created to spread the Italian food excellence through the offer of highly selected raw materials, has launched a project that could offer high quality products; from 2020 the sale of products, usually reserved for quality starred restaurants, was open to private consumers. A choice taken for ethical and social reasons [...]. We have provided consumers with a commercial offer that includes all HQF products, at fair and affordable prices” – Manuela Cestaro, Marketing & Digital Communication Manager from HQF

“[...] The Covid-19 led to change what was our historical business model, in no time we had to start selling to private consumers to avoid wasting the goods we had in stock and that we could no longer sell to restaurants and chefs. It was a change that might have come a little bit further in time, but that the pandemic anticipated” – Respondent 4, Digital e-commerce director

All the participants in the interviews agreed that the pandemic has completely changed their target market, and that it has introduced them into a market where they were mostly unknown to the public. This has led most companies to sell their products at prices significantly lower than those usually applied with the aim of attracting as many customers as possible.

3.5.2 Digital Transformation within the sales channel

Another change brought about by the pandemic has been a speeding up of the digitalization of this sector, digitalization that has affected all stages of the supply chain, in particular the one relating to the sale of products.

This process, actually, began a few years ago, but it is with the pandemic that it has had a strong acceleration, caused by the closure of shops apt for the sale of food products. In fact, before the pandemic, companies that used to sell some percentage of products to private consumers did so through the use of physical retailers. With the closure of commercial activities, and the subsequent change of target market, companies have been forced to implement, or in some cases to improve or revolutionize, online sales platforms as to sell products to private consumers.

In some cases, the e-commerce was completely non-existent at the time of the start of the pandemic, while in other companies it was already present, although not particularly used, as in the case of HQF:

“The presence on digital channels has always been there, however, after the pandemic, more investments have been made, to expand the target audience also to the private market.

[...] we verticalized our investments to create a technological upgrade of the e-commerce platform that already existed before the pandemic but was not used because the focus was on the B2B market.

We are proud to have been able to implement the platform for private consumers very soon after the start of the lockdown. The implementation of the site was made in a short time not to run the risk of no longer having a target market.” – Manuela Cestaro, Marketing & Digital Communication

Manager from HQF

In other cases, the online channel was born as a response to the spread of the pandemic:

“The e-commerce project started with the pandemic, before that time we did not have it, because selling through agents to the B2B there was just no need for it [...] probably without Covid-19 we would have implemented it in the coming years [...]” – Respondent 8, Digital communication director

“E-commerce was born as a need and an opportunity to start with a project thanks to Covid-19. The idea was already present to the management at the time when everything stopped, with restaurants closed, not to throw the goods, it was practically organized an e-commerce overnight. A few months later this e-commerce project was launched in a more structured way, the beginnings were in April 2020, the first version of e-commerce started in June 2020 and then in 2020/2021 a new platform was launched but we started selling to the public in 2020 [...]” – Vincenzo Cannata, Digital e-commerce director from Longino & Cardenal

The presence of Covid-19, however, according to some, has been advantageous for the implementation of online sales platforms, as it has given the possibility to focus the attention on the creation of valid and reliable sales platforms.

“[...] At the time when the main business functions were not working, the whole company was focused on the set-up of the site, so there was a very strong acceleration to make everything work, because there were no other distractions [...]. There was a lot of attention on that, on what was the situation of the products, information to put, the business effort was all directed there and so it was a great opportunity. If we had tried to do it in another period probably the set-up curve and optimization time would have been much longer.” – Respondent 2, E-commerce Manager

Although Covid-19 accelerated the implementation of this platform, many of the respondents agreed that this would happen in the future and that the pandemic only anticipated an inevitable transition.

While the focus of digital transformation has been on the sales sector in the last two years, it's actually a process that affects all aspects of the enterprise. In particular, Vincenzo Cannata, digital e-commerce director of Longino & Cardenal, wanted to specify that the whole company is subject to digital transformation, which, if done correctly, contributes to the improvement of all activities:

“Even the company itself in it changes because of the DT, e-commerce is just the tip of the iceberg, then all that follows if you actually have a full digital approach is just a transformation of the company to optimize everything that can be optimized and strengthen weaker aspects of the enterprise [...].”

From what emerged from the interviews about this category, the digital transformation of this sector after Covid-19, in addition to having had an acceleration, has had a strong impact on the sales sector, as it has led companies to make huge investments in the implementation of online sales platforms, which before the pandemic, were used by few companies. However, it is an evolution that has embraced all aspects of the enterprise, and that, in a few years, will lead to a complete revolution in the sector.

3.5.3 Pros and cons of e-commerce and online strategies

During the interviews one of the key aspects that was analyzed, were the advantages and disadvantages arising from the use of the e-commerce platform. Being a channel used by most companies only in the last two years, the focus has been on the strengths and weaknesses, and especially on the first obstacles that were encountered during the period of the implementation.

One of the main advantages of selling online is certainly a simplified organization of work, as the platform handles payments and only a few people are required for the management of the platform. In addition, e-commerce gives the opportunity to collect a lot of information about your customers through the study of data related to them, in order to know their tastes and preferences in terms of products, prices etc... It also gives the possibility to follow the customer even after the sale and delivery of the product, through tools such as the newsletter that is received after the purchase.

“You can set up a series of realities, cross-referencing the data; the online allows you to immediately have a very specific detail of what is purchased, placed in the cart, the same online campaigns are based on conversion points that can be added to the cart, we ourselves do marketing automations for which we send emails to those who bought a certain product rather than those who bought another one so there is the ability to be more relevant [...]” – Respondent 3, Digital marketing director

Another great advantage of selling online is the ability to reach consumers who are outside your city, your region, or in some cases your country, having the ability to ship products and receive payment online. In this way it is possible to acquire notoriety and customer base even outside of your localization area.

“Surely there are online advantages that are, for example, a more facilitated work organization, because it is the platform that handles payments so basically you need a few people proportionately to the business [...]” – Respondent 4, Digital e-commerce director

“It’s definitely a tool that allows you to reach more customers that aren’t necessarily close to you geographically. So, it’s a tool that allows distant customers to get to know you and get you even where you’re not physically present [...]” – Respondent 5, Digital marketing director

On the contrary, however, the online channel also has negative sides because, specifically to this sector, the customer, buying online, has no way to taste the products and therefore test their quality, he must rely only on photos, descriptions and in some cases, reviews from other users. This is a disadvantage for companies that have to use alternative methods to entice the customer to buy their products.

Asking one of the substantial differences with selling through physical store, one of the more specific answers was this one:

“[...] The online does not allow you to try the product, so I will never have the opportunity to tell you to try this product, which is clearly a very strong tool to show you immediately the quality, I have to fill it online explaining, telling, inserting as much information as possible to understand how much we know, but online I have the possibility to have visibility on many more people than the physical channel. The physical channel on the contrary gives me a much higher persuasive force than the online channel” – Respondent 1, E-commerce Manager

“[...] With the online channel you do not have the advantages that instead the physical store offers, such as the ability to physically show your products, make tastings to bring more customers in, establish a personal relationship with customers, all things difficult if not impossible with selling online [...]” – Respondent 6, E-commerce Manager

Another aspect on which the author has considered important to dwell are the obstacles encountered immediately after the first implementation of the platform. In fact, for many companies, it took place in a rapid and approximate way, to cope with the health emergency that threatened to damage huge quantities of goods that could no longer be sold to the B2B market.

The biggest obstacle was the entry into a market where such companies were not known; since these companies normally refer to the B2B channel, it was necessary to make themselves known quickly

also by private consumers who in a short time and for several months, have become the unique and main target of this sector.

“[...] There is a starting process from an awareness point of view, it was more difficult because nobody knows you and all the first orders are orders with a low receipt [...]. Two years ago, nobody was looking for shop Longino, but now it has a minimum of monthly traffic that is already counted in the statistics of SEO rather than others, so it is a process that goes on over time based on the commercial push [...]” – Vincenzo Cannata, Digital e-commerce director from Longino & Cardenal

Another obstacle encountered concerned the quantity of products offered to individuals, namely kilograms sold per piece of products. Those normally sold to the Ho.Re.Ca sector, were of sizes that did not fit the B2C market. It was therefore necessary to revise the quantity sold so that they could be adapted to the needs and demand of private consumers.

The quantities offered were therefore reduced to bring them into line with those requested by private individuals.

“We had to create new operating systems within the warehouse to offer new customers lower quantities, because being the main target audience catering, were offered larger cuts not suitable for private consumers [...]” – Manuela Cestaro, Marketing & Digital Communication Manager from HQF

Regarding e-commerce, it was then asked to respondents, what kind of strategy was followed to advertise the presence on online platforms and what digital tools are used most to promote the portal. It was thought interesting to compare responses to see how similar businesses could employ different strategies to advertise to consumers for whom they were unknown.

One method used by Longino & Cardenal was to exploit the awareness acquired in the B2B market, restaurants and chefs, to gain the trust of private consumers.

In addition, being a company based near Milan, they have leveraged on this aspect, ensuring same-day deliveries in Milan, if orders were made within a certain time.

“[...] Then one of the advantages of being able to communicate for us that we offer and sell products to about 80% of the starred restaurants is that it already positions you and give you a minimum of trust to the public. We made two types of communication that are a little more related to Milan where we can deliver even in the day, and another that relies only on the high quality of products and that we have conveyed by other types of systems like campaigns on google and social media...” - Vincenzo Cannata, Digital e-commerce director from Longino & Cardenal

One of the most important aspects was the communication of the quality of the products sold.

“We decided to tell the origin, the history, the traditions and the traceability inherent in each product. We develop editorial plans that give space to 4 main themes: high-end food raw materials, [...] breeding, [...], events and company news” – Respondent 8, Digital communication director

“In a society where the consumer, especially the Italian one, is very attentive to the quality of food, we have focused on transmitting this value. Obviously doing it through words and photos rather than through real food was a challenge, but over time, we figured out what most consumers are attracted to” – Respondent 3, Digital marketing director

As for the digital tools, all respondents said they use social media to promote their products and have made google campaigns to attract customers.

Sometimes tests have also been done on google to collect qualitative data on consumers and understand their interests. Among others, some also use customer care-related software so as to make it easier to manage customers who land on the platform and ask for information or order products.

“We do online advertising via Google and Facebook mainly, then we have other tools inside the company that have improved the efficiency, such as Zendesk which is one of the most known software in the world for the part of customer care and marketing for which all the people who write or call are all managed by the same platform [...]” – Respondent 4, Digital e-commerce director

“Direct sales on social channels, inorganic sponsorships to support sales, dedicated newsletters, email marketing, offline communication. We recently launched a smartphone app to allow customers to shop even faster. Advertising investments have also been made to increase our online reputation as sponsored on social media [...]” – Manuela Cestaro, Marketing & Digital Communication Manager from HQF

3.5.4 The online trend

The fourth category, of those that have been found in the phase of grouping answers, is the one related to the online trend, which concerns the continuation of the use of online sales platforms even in a post-pandemic future.

As one of the two research questions on this topic, respondents were asked about their views on the future of the industry, and in particular whether, according to their experience and the evolution

experienced by the sector, the future of the sale of food products will continue to be online, or if the prevailing use of the physical channel will return.

The view shared by all respondents was that the trend of selling products online will continue to persist in the future, when the pandemic situation will be over and restrictions will cease, because what has happened has been an evolution, that although it has been accelerated by the presence of Covid-19, it would have happened later in time and going back would represent an unnatural involution.

Furthermore, although online platforms were initially implemented in a rapid and approximate manner, they have been a valuable tool for this sector as they have allowed businesses to approach and enter the market of private consumers at a time when it was vital to change their target and business model to be able to survive.

In addition, a large number of investments have been made by enterprises to implement and improve e-commerce in such a way as to offer customers a viable and functioning platform that would meet their needs and those of the market and that could be able to withstand competition with similar businesses. These investments have covered the logistic aspect regarding the deliveries, the implementation of the platform itself, which in all the cases interviewed was owned by the company, the publicity, fundamental in order to communicate the change of business and all the necessary instruments in order to approach the public, like the sponsorships, opening of social pages etc...

“Digital evolution took over during the pandemic, but it would have developed just the same, albeit more gradually. [...] Considerable investments have been made to start the platform and subsequently to improve it, investments of which we have just started to see the return, so it would be impossible to stop using the platform [...]” – Respondent 7, E-commerce Manager

“The pandemic has only accelerated what would have happened anyway in a more or less near future [...] in recent years the market has had this evolution that was not completely unexpected because we

are in the digital era, in a time when you can buy everything on the internet, it was only natural that it would also happen to food [...]” – Respondent 5, Digital marketing director

“[...] It would be unnatural to return only to the physical store; now even the private consumer is looking for particular products that several times you cannot find at the store below your house, so he searches them on the web and it's there that the work starts to convince him that our products are the best choice [...]” – Respondent 1, E-commerce Manager

The idea shared by all, therefore, is that e-commerce will remain over time; nevertheless, this does not mean that the use of the physical store will disappear, in fact, the use of the online channel does not exclude the contemporary use of the physical one. They are two tools that can be exploited together and lead to the same goal, namely that of selling products and customer loyalty.

In fact, the physical shop, can bring the customer closer to the products in a way in which the online channel fails, that is, through the view of the product in reality, the ability to test its quality and to establish a physical contact and personal relationship with the company.

The online channel, on the other hand, gives the possibility to reach customers geographically far from the company's headquarters and the opportunity to make the business known internationally and to demonstrate that the company is up to date with all the digital trends in place.

“[...] There is always a bad diatribe between online and offline, in the end the data shows that the offline experience can be strengthened by the online one, those who have been online then also goes offline to verify the product or vice versa: I see it offline and then calmly decide to buy it online; these are two very complementary channels, not necessarily that cannibalize each other, indeed can also generate much more loyalty.” – Vincenzo Cannata, Digital e-commerce director from Longino & Cardenal

Among all the respondents, moreover, the company High Quality Food (HQF) is the only one to also have a physical store in Rome, in fact, it was possible to deepen the topic of the relationship between online shop and physical store, and the greatest differences in terms of strategy and operational line. They decided to follow the same line in pricing and product selection, which is the same for both e-commerce and the shop.

However, through the physical store is followed a marketing strategy that includes events and tastings at the venue, with the dual purpose of advertising the store and the products themselves.

As for online strategies, they are based on targeted marketing campaigns via email marketing and targeted newsletters.

“Both channels go hand in hand, in terms of pricing and product selection. They follow the same operational and strategic line. From the e-commerce site it is possible, however, to constantly verify statistics related to the positioning of products on the market, the best-selling products, the most assiduous customers and, in addition, there is the possibility of carrying out target marketing campaigns, through targeted newsletters about products and the company [...]” – Manuela Cestaro, Marketing & Digital Communication Manager from HQF

“It is commonly thought that online and offline cannibalize each other, but, if there is a chance, they are two powerful tools to strengthen the loyalty of consumers, who have the opportunity to use the channel of their preference, especially if the company has several shops scattered in Italy or in the world [...] Surely, if the store is located in another city the consumer will order online, but otherwise, the customer can choose how to buy the product, based on the convenience [...]” – Respondent 3, Digital marketing director

In summary, all respondents agreed to say that the online trend will persist even after the end of the pandemic and all the restrictions applied as part of an evolution in the industry that would have

occurred in any case. Moreover, many have specified that online and physical channels do not necessarily tend to cannibalize each other, but that instead, if a company owns both, they can strengthen each other.

Chapter IV – Analysis of the results

4.1 Discussion

As previously stated, to meet the research purpose and answering to the research questions, four main categories have been identified: market changes after the Covid-19 outbreak, Digital transformation in industry-specific sales channels, pros and cons of e-commerce and online strategies, the online trend. In the following paragraphs will be presented the analysis of these four macro-categories and the conclusions drawn from the interviews conducted.

4.2 Market changes after the Covid-19 outbreak

Analyzing the responses in this first category, several changes to which the agri-food sector has gone through in the last two years can be noted.

The most obvious change was the one regarding the target market of companies: in fact, all participants agreed that the pandemic led the market to change its focus, shifting it to the market of private consumers. For this reason, there has been a reworking of the historical business model which has been modified and adapted to meet new market needs.

This was a choice dictated not by the desire to explore new markets, but by the need to adapt to the health emergency that the country has faced and the related virus containment regulations that have led to the closure of all catering activities. At that time, it was vital to change the business model to avoid wasting inventory and to avoid completely shutting down operations. When the restrictions on

commercial activities were relaxed, companies started selling to the B2B market again, without leaving the new market for private consumers.

4.3 Digital transformation within the sales channel

The other major change that the pandemic has brought, not only in this specific area, but in all economic fields, has been an acceleration of digital evolution.

In particular for agri-food, the greatest digital change has been the digitalization of sales channels. Previously, since the B2B market was the main one, the sale of products was based entirely on the actions of the agents; at the time of the closure of the commercial activities, in order to be able to sell the products on the new market of private consumers, it has had to resort to a rapid implementation of online sales platforms.

As it turned out from the interviews, some enterprises already owned their own e-commerce platform, however, with the beginning of the pandemic, all of them have made huge investments to favor a fast and functional implementation. In particular, e-commerce has been a primary need to adapt to a market that has undergone a major change in a sudden way and has seen the shift of previous balances. However, the presence of the pandemic, for this particular topic, according to some, was not entirely negative, as it allowed that almost the entire focus of the company was aimed at the realization of a satisfactory platform.

In general, it was common opinion that the spread of the use of e-commerce as a platform for the sale of food products, would have happened anyway in the future.

4.4 Pros and cons of e-commerce and online strategies

The third category analyzed was the one concerning the pros and cons of e-commerce and the related online sales strategies that were applied.

From the analysis carried out and the answers received, it was possible to have an internal view about the advantages and disadvantages that the use of this platform brings.

In accordance with what is found in the literature, one of the greatest advantages is to be able to collect information and data about consumers in order to have a deeper knowledge of their tastes and preferences. Through the use of this information, on the one hand it is possible to have a clearer vision of the consumers, and on the other it gives the possibility to make targeted proposals based on the specific tastes observed through the data.

Another important advantage, in agreement with the literature, is to be able to reach consumers who are far from the operational headquarters of the company; e-commerce, in fact, allows you to buy and pay for the goods online and have it sent directly to your home. Thanks to this feature, missing with the offline channel, the company has the opportunity to build a customer much wider base and acquire notoriety on a national and international territory.

It was then emphasized that the use of online platforms also gives an advantage in logistical terms of management of orders and payments that are entirely carried out online allowing easier management of logistics.

As for the negative aspects of exclusively using e-commerce as a means of sale, from the interviews, it emerged that the biggest disadvantage is not being able to give customers the opportunity to taste the products and test their quality. This, in fact, is a strong negative point because the consumer, while making his choice, must rely on photos, descriptions, and in some cases, reviews published by other

users. The enterprise, on the other hand, must fill the gap created by this feature by looking for the best ways to communicate the quality of their products and entice the consumer to buy.

Another interesting aspect that did not emerge from the literature but that emerged from the analysis of the answers were the obstacles encountered during the first implementation of the platforms. Having been a novelty, the first difficulty experienced by many companies was the little or almost non-existent awareness they had in the B2C market. To solve this problem, some companies have taken advantage of the notoriety gained at B2B to succeed in inspiring in new consumers brand confidence.

On the organizational level the difficulties were mainly in adapting the cuts in the goods offered, to the demand of private individuals, very different from that of business.

Then there were several online strategies that came out of the interviews; most companies use google and social campaigns to better advertise their products and gain more and more parts of the audience. In some cases, tests have been carried out to verify the interests of consumers and adapt their offers accordingly. At the base of all online strategies there is, however, the communication of the quality of the products, fundamental for this type of goods and to increase the reputation in the market.

4.5 The online trend

The last category analyzed was the one concerning the continuation of the trend of online sales that has affected this sector.

Being a recent phenomenon, the literature is still scarce, which is why the author decided to leave this topic for last, both in interviews and in the analysis of answers. This choice has been made to

allow to have a general view of the situation of the last two years and the developments that have taken place, and then to analyze what will be a possible future scenario.

From the interviews, the opinion about a possible return to the prevailing use of the physical channel was unanimous: given the increase in the customer base that companies have had and given the change that the market has undergone in the last two years, all respondents agreed that it is not possible to go back because this would represent an unnatural involution of the digitization process that has been present for several years now.

In addition, in the last two years, companies have invested heavily in order to adapt to what were and still are market needs, so it would be extremely difficult to return to a condition where the online channel was not used.

Conclusions

5.1 Answering the research questions

This work was driven by the desire to explore the agri-food sector which has undergone major changes due to the spread of the pandemic. The main focus was on the digitalization of the sales channel resulting from the change in the reference market, passed from B2B to B2C, influenced by the restrictive measures taken by the Italian government to contain the Coronavirus spread.

The first two chapters gave an overview of the current situation in the sector, both in Italy and internationally, and subsequently a synthesis of the digital transformation that the virus helped to accelerate. It has been described how Covid-19 has affected both domestic sales and import and export data recorded between 2020 and 2021, to understand how this situation of health crisis has affected the sale of food products.

In Chapters 3 and 4, instead, the primary purpose of the thesis, the results of the interviews conducted, and the related analyses were presented.

As already stated, the aim of this work was twofold: on the one hand to enrich the scarce literature on the subject of the digitalization of sales channels in the sector, and on the other to answer two questions: if and how the presence of Covid-19 has contributed to the digitalization of the agri-food sector and whether, in the light of the experience of the last two years, the practice of selling food online will continue over time.

To answer these two questions, interviews were conducted with experts working in the digital e-commerce department of agribusiness. Through the division into 4 macro categories, the responses received were compared in order to facilitate the analysis of the results. The categories were divided as follows: market changes after the Covid-19 outbreak, digital transformation within the sales

channels, pros and cons of e-commerce and online strategies, the online trend. The division was done based on the main topic of the analyzed responses.

Through the analysis and comparison carried out, an answer was given to both the first and the second research questions:

- As regards the extent to which Covid-19 contributed to the acceleration of digitization, the participants agreed that, although the digitization process had already begun, the virus has certainly contributed to intensify the developments in a short time, leading to changes in the business model that in a normal situation would have occurred more in the future.
- For the second question on the continuation of the trend of online sales, the general opinion is that, although it was a practice initiated because of the spread of Covid-19, it will not disappear once the health emergency has been declared finished. This is due to a natural process of evolution and development that has occurred, albeit quickly, and that would be unnatural to undo once back to normal.

In conclusion, through interviews with experts in the field and review of the scarce literature existing at the moment, it has been possible to achieve the dual purpose of this work.

In addition, this work could be the basis for further research that desire to contribute to the enrichment of the literature concerning the digitization of agri-food sales channels.

APPENDIX

Appendix A – Interview Guide

Research Question1: *What was the impact of digital transformation on the agri-food sales channels?*

How, if ever, did digital transformation help overcome the pandemic during the Covid-19 period?

Research Question2: *Will the use of online channels can continue over time even after the end of the pandemic, or is it destined to disappear?*

Guideline Interview

1. What is your role in the company?
2. Can you give me an overview of the organization of the company? How many departments are there? How many employees more or less
3. Does the sale of products take place only through direct or indirect channels?

If the answer is both direct and indirect channels:

- When did you start using e-commerce as a sales portal?
- What was the strategy followed to efficiently introduce an e-commerce system?
- Which sales channel is the most used, in terms of volume sold, the physical store or the online shop?

If only online:

- What skills are needed to make it work? What difficulties have been encountered in implementing this platform?

For both answers:

1. Has your company undergone a Digital Transformation in the last two years of the pandemic?
If so, what effect did it have on the business in terms of sales?
2. Compared to the pre-pandemic period, did sales increase or decrease during the Covid-19 pandemic?
3. Have you seen any changes in consumer attitudes in the last two years? Have you had to change/expand your target audience?
4. In addition to the e-commerce portal, do you use other digital tools for the sale/promotion of your products?
5. The pandemic has accelerated the digital evolution of businesses, do you think that this practice will continue to be used over time or will you return to the physical channel?
6. What are the advantages and disadvantages of the online approach?
7. What kind of added value does the online sales channel have compared to the physical one?
(e.g. data collection, target marketing campaigns, online discount coupons)
8. What practices and strategies are used to convince your customers to buy your products?
9. How do you convey the quality of your product to customers through online sales channels?

If a company sells with both channels:

- Are there products that you sell only online or only with the store?

Appendix B – Coding table

<i>Direct sale to the private</i>	Transition towards the B2C	MARKET CHANGES AFTER THE COVID-19 PANDEMIC
<i>From B2B to B2C</i>		
<i>Change of historical business</i>		
<i>Vital to change</i>		
<i>Commercial offer for consumers</i>		
<i>Investments in platforms</i>	Technological evolution	DIGITAL TRANSFORMATION WITHIN THE SALES CHANNEL
<i>e-commerce platforms for B2C</i>		
<i>Technological upgrade</i>		
<i>Important opportunity</i>	Accelerated digitization	
<i>Strong acceleration</i>		
<i>Transition towards the future</i>		
<i>Simplified organization of the work</i>	Logistic Organization	
<i>Information about customers</i>		
<i>Qualitative data</i>		
<i>Reach out-of-hand consumers</i>	Cover the distance	
<i>Visibility with people outside of your area</i>		

<i>No opportunity to taste the quality of the products</i>	Differences with physical channels	PROS AND CONS OF E-COMMERCE AND ONLINE STRATEGIES
<i>Alternative methods of sale</i>		
<i>Physical channels have higher persuasive force</i>		
<i>Physical channels can help develop a more personal relationship with costumers</i>		
<i>Rapid, approximate way</i>	Obstacles to the development of the platforms	
<i>Unknown market</i>		
<i>Sizes of products in kilograms</i>		
<i>Quality of the product</i>	Communication of the quality of the product	
<i>Quality as a value</i>		
<i>Editorial plans, words, photos...</i>	Technical tools	
<i>Google and social campaigns</i>		
<i>Customer-care management</i>		
<i>Newsletter, email marketing</i>		
<i>Persisting trend</i>	Digital evolution	THE ONLINE TREND
<i>Inevitable evolution</i>		
<i>Impossibility to go back</i>		

<i>Physical and online are not in contrast with each other</i>	Online and offline combination	
<i>Complementary channels albeit different</i>		
<i>Powerful combination</i>		

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Abstract

The agri-food sector includes the set of activities oriented to the production, processing and distribution of food products and is a sector that in recent years has seen an evolution of all stages of the production chain. In particular, in the last two years of the pandemic there has been an acceleration of the evolution that has mainly affected the sales channel of this industry.

The consequences of the Coronavirus pandemic have accelerated the adoption of digital technology; there has been, immediately, a greater use of technology to work and stay in touch, which has given rise to new digital habits. In Italy, in fact, the restrictions imposed by the government in order to limit the spread of the virus, have led to the closure of all commercial and catering activities throughout the country and to prolonged periods of lockdown. The entire economy of the country has, therefore, undergone profound changes.

In particular, the agri-food sector has incurred in major changes following the spread of the pandemic. One of these changes concerned the market targeted by companies; in fact, one of the main features was the targetization of the B2B and Ho.Re.Ca market, concerning the Hotel, Restaurant and Caterings. As a result of the restrictions, and with the closure of all the catering activities, the business model has been changed both to adapt to the changes in the market and to avoid the complete cessation of the activity and, most of the companies, has shifted their focus from the B2B market to the B2C one.

The other big change that has affected this sector has been the one regarding the digital transformation that it has gone through.

As already stated, Covid-19 has accelerated the digitalization of many companies, and specifically to the agri-food sector, has increased the digitalization of sales channel, favoring the birth of e-commerce.

The aim of this thesis is twofold: on the one hand, study the phenomenon of digitalization of sales in the agri-food sector, and on the other, enrich the scarce literature on this subject.

To achieve this objective, the author has chosen to conduct interviews with people working for these kinds of companies.

The work is divided into four chapters: the first will provide an overview of the sector on three levels, international, European and Italian; the second will deal with the phenomenon of digitalization that has affected the agri-food sector; the third will talk about the methodology followed and will report the results of the interviews; the fourth will deal with the analysis of the results and conclusions.

As previously outlined, the agri-food system is the set of agricultural production, industrial processing, distribution and consumption of food products, and it is part of a more extensive system, called agro-industrial, in which downstream of the production there are the processing activities of agricultural products, while upstream there are the industries that supply technical means (agricultural machinery, chemical products, etc.) and institutions providing services. There are usually three subsystems: agriculture and livestock; the industry; the distribution system, defined as follow:

- Agriculture is the practice of cultivating the land to obtain products for the feeding of people and animals, as well as raw materials for many industries
- Industrial economic activities are included in the secondary sector and are characterized by the intensive use of technology for the production of goods.
- Distribution means the set of activities necessary to make a product or service available to the final consumer. In its widest and most modern sense it includes both commercial intermediaries (distribution channels) and transport and storage systems.

The agri-food system has a strong interdependent link with the rest of the economy; in fact, the more the economy is developed, the more agricultural goods are used as intermediate goods by other sectors, the more the proportion of agricultural goods, which are directly at the disposal of the final market, decreases. In this way, the relationship between agriculture and industry tends to maintain a

balance.

The exchange of agri-food products constitutes a fundamental part of international trade between countries and regions of the world. In 1937, 66% of world imports were represented by European countries, which also held 35% of exports of agri-food products, while for what concerns the countries of North and Latin America, 30% of total exports of agri-food products were to be attributed to them, as well as 20% of the imports¹.

From the data recorded in 2020, it emerged that European countries were responsible for around 43% of global exports, and 41% of imports; on the other hand, the Americas accounted for 18% of imports and 27% of exports globally.

From this it can be deduced that, in the period 1937-2020, the importance of European countries as regards the export of agri-food products, has had an increase and, at the same time, there has been a decrease in the degree of penetration of imports in this sector. The Americas, on the other hand, still hold a stable status in the agri-food market.

To date, the world's largest exporters for the agri-food sector include the European Union (EU) - not including the United Kingdom - and the United States of America (USA). However, in the 21st century, both EU and US, on the one hand, faced a crisis that reduced their geostrategic position, while on the other hand, they began to suffer more and more competitive pressure from emerging economies of the countries belonging to the BRICS (Brazil, Russia, India, China and South Africa). The strengthening of these economies now plays a vital role in influencing bilateral relations and the overall trade policy of the EU and the US.

The European agri-food system is a central element of the integration process of EU countries.

The primary instrument used by the European Union is the Community Agricultural Policy (CAP), thanks to which in the 1970s subsidies were obtained for about 75% of the budget, and, in more recent

¹ Pawlak, K. (2021). Competitiveness of the EU Agri-Food Sector on the US Market: Worth Reviving Transatlantic Trade? *Agriculture*, 12(1), 23.

years, for 50% of total expenditure.

Introduced in 1962, the Common Agricultural Policy (CAP) represents a tight relationship between agriculture and society, between Europe and its farmers and it has the merit of having favored the creation of a common market for agriculture must be attributed to this policy, as the EU has in fact become the main commercial area in the world as regards the agri-food sector². It is a policy common to all EU countries, managed and financed at European level with resources from the EU budget.

More specifically, the CAP operates in a wide range of sectors, among which stand out the quality of food, its traceability, and trade and promotion of products; furthermore, one of the main objectives is to encourage the application of sustainable and environmentally friendly practices, through investment in the development of rural areas.

For the year 2021, the European Union has allocated € 182.9 million for the promotion of EU agri-food products inside and outside the Union. This policy aims to intensify the competitiveness of the sector by taking advantage of the development of global agri-food markets and by drawing attention to the high standards used in the agriculture, in terms of sustainability and quality.

Almost half of the budget (€86 million) has been used for campaigns that contribute to the achievement of the objectives of the European Green Deal³, in particular the Farm to Fork strategy, which supported the renewal of the agri-food product promotion policy in the year 2021.

From the Italian point of view, the agri-food sector is an excellence that stands out in terms of quality, technological innovation, sustainability, biodiversity and respect for tradition. Italy is, in fact, a country characterized by great territorial and climatic differences that have been shaped into cultures, stories and traditions, exceptionally varied and unique. These characteristics have led to the creation of a large number of small, often family-run businesses, which have focused on enhancing the

² <https://www.europarl.europa.eu/factsheets/it/sheet/103/la-politica-agricola-comune-pac-e-il-trattato>

³ The European Green Deal is a set of political initiatives proposed by the European Commission with the objective of achieving climate neutrality in Europe by 2050. The intention is to revise all existing laws on climate and in addition, to introduce new laws on the circular economy, on the renovation of buildings, on biodiversity, on agriculture and on innovation.

The president of the European Commission, Ursula von der Leyen, has declared that the European Green Deal will be for Europe "like the landing of man on the moon", as this pact would make Europe the first continent to have achieved climate neutrality.

uniqueness of their products. The Italian agri-food industry has long been considered a protagonist of the economic development of the country and, in particular, it represents the first Italian manufacturing sector in terms of turnover and the second in terms of added value, after the engineering sector⁴. There are several elements that make up its success: good quality of products, transparency in labelling and production processes, the strong partnership between industry and agricultural production, the prestige in the world markets of food excellence, which enhance its excellent reputation in terms of quality, safety, tradition and sustainability.

As already stated, the agri-food chain involves all three sectors of economic activity: agriculture with the production of raw materials, industry through their processing and the supply of machinery, the service sector mainly with distribution and marketing and they are directly or indirectly related through a variety of economic actors that allow the agricultural product to reach, after several stages, the final consumer.

The outbreak of the Covid-19 pandemic has caused a serious global health crisis, with cascading effects on the economic system. The growing spread of the virus has prompted governments around the world to take extraordinary measures to mitigate its consequences, such as the temporary closure of commercial activities, closing of foreign borders which have inevitably led to serious consequences for economic and financial markets.

The shutdown of national economies has involved many sectors, such as hotels, catering, non-essential retail, which have also had an impact on the agri-food sector. Nevertheless, the agri-food sector has not been particularly affected by the spread of the virus. During the pandemic, the EU agri-food chain has shown a high degree of resistance: although in 2020, there was a decrease in the value of production in the agricultural sector of 1.4% compared to 2019, on the other hand, the same value grew by 2.9% compared to the average of the 2015-2019 period. Agricultural incomes also decreased compared to 2019 (-7.9%), as well as food and beverage production (-9% in the second quarter of

⁴ <https://italiaindati.com/agroalimentare-in-italia/>

2020 compared to 2019) and the catering sector (with estimated losses of 60-90 % compared to 2019). On the contrary, there has been an increase in retail sales and online food sales have recorded the highest growth during the first months of the pandemic (+45% compared to the levels before the pandemic).

One of the areas that has been affected the most is the one of catering services, such as bars, restaurants and canteens which have been repeatedly closed for long periods due to the restrictions applied. By contrast, food retailers were among the few allowed to remain open even during lockdowns.

However, precisely because of the pandemic's limitations, retail business models have increasingly undergone a digital transformation in order to adapt to the rapid changes that have occurred.

Ultimately, a major change has also occurred in consumer preferences as a result of the pandemic: indeed, the propensity to buy food online or in convenience stores has spread among customers, as well as more attention to healthier products.

As reported from the analysis of Coldiretti on the basis of Istat data, in Italy too, the agri-food sector has proved resilient, keeping the turnover substantially stable compared to the previous year, and even reaching with exports the historical record of € 46,1 billion, in clear contrast with the other productive sectors. Compared to other sectors symbol of Made in Italy such as textiles and automotive, which have recorded dramatic cuts, the agri-food sector, with the results obtained, has become the first wealth of the country for a value equal to 25% of GDP with € 538 billion along the entire agri-food chain and 4 million workers engaged in 740 thousand farms, 70 thousand food industries, over 330 thousand catering businesses and 230 thousand retail outlets. A result also depended on the reputation acquired by Made in Italy all over the world where, despite the Covid-19 pandemic, there was a positive trend with an increase of 1.4% in 2020 compared to the previous year⁵. More specifically, 65.4% of the sales of agri-food products went to EU countries, 13.1% to North America, 7.6% to Asia and 7% to other non-Mediterranean European countries.

⁵ <https://www.coldiretti.it>

The countries where the highest import rates were recorded were Germany (5.5%) and the United States (5.2%) despite the duties that affected the most significant products during the first eleven months of 2020. As for the imports, they have suffered a clear decrease, with a contraction of 4.7% compared to 2019 and a value of € 42.3 billion.

In 2021, in Italy, the agri-food sector has recorded a memorable record in exports, reaching a value of € 52 billion for 2021, the highest ever. From what emerges from the projection of Coldiretti, exports of this sector have recorded a +11% compared to 2020, achieved also thanks to the impact that the world-famous sports and music victories have had on the agri-food sector and on Italian tourism over the past year. According to Coldiretti, the triumph achieved is due to the change in social habits worldwide that has led to a change in the eating habits of consumers, thus favoring the Mediterranean Diet and home cooking.

The second chapter analyzes the digital evolution that the pandemic contributed to accelerate, in fact, the global competitive environment of the last twenty years has been strongly influenced by the increasingly intensive use of technologies and inventions that are part of the so-called "fourth industrial revolution"⁶. The adoption of new technologies and their subsequent exploitation that has radically changed the organization of businesses, is called digital transformation. In a short time, these innovations have revolutionized the concept of enterprise and represent a technological and cultural revolution within organizations. Five are the pillars on which the DT is based on: consumers, platforms, data, innovation and proposition.

The agri-food industry, which, in recent years, has undergone major changes, following the acceleration of digital transformation and the evolution of final customers. Today's final consumer, in fact, feels the need to remain always informed in the food field, wanting to know the origin of food, the raw materials used and the subsequent processing processes, in order to be attentive to health and

⁶ Santi, F. (2019). *Industria 4.0 nelle imprese top performing: modello per una ritrovata competitività globale*.

sustainability⁷. Rapidly many companies in the sector have opened up to digital innovation and have started to apply it throughout the agri-food chain: from the production of raw materials to their transformation, up to the logistics part.

In particular, one of the phases that has been more affected is the one regarding the sales of the product, in fact, during the pandemic period, especially in the first year, characterized by long periods of lockdown, all companies had to accelerate the digital evolution and implement online sales platforms to replace, at least temporarily, the offline ones. One of the digital tools that saw the greatest implementation in this area was e-commerce.

E-commerce has been defined as the set of commercial transactions carried out via the Internet⁸. In this transaction the main protagonists are the final customer and the company that represent respectively supply and demand. The substantial difference between e-commerce and traditional commerce is only the presence of the Internet, as a means that replaces physical contact between counterparties. The key feature is to be able to connect two parties that may be resident in different parts of the world. E-commerce can be classified according to the type of end customers and sellers. The main categories are as follows: B2B, B2C, C2C, C2B. There are also three categories: direct (intangible goods and online services are sold without the shipment of products), indirect (goods sold are physically delivered to the buyer) and marketplace (a shared platform is used for the sale of products, which is considered as a real showcase).

⁷ Kosior, K. (2018). Digital transformation in the agri-food sector—opportunities and challenges. *Roczniki (Annals)*, 2018(1230-2019-3703).

⁸ Agus, A. A., Yudoko, G., Mulyono, N., & Imaniya, T. (2021). E-commerce performance, digital marketing capability and supply chain capability within e-commerce platform: Longitudinal study before and after COVID-19. *International Journal of Technology*, 12(2), 360.

As previously outlined, the aim of this thesis is twofold: on the one hand, study the phenomenon of digitalization of sales in the agri-food sector, and on the other, enrich the scarce literature on this subject.

To achieve this objective, the author has chosen to conduct interviews with people working for companies in the agri-food sector. Two are the questions that the author wants to answer: if and to what extent the presence of Covid-19 has contributed to the acceleration of the digitalization of the sector within the sales channel, and whether the use of online sales channels for private consumers is a practice that will continue even after the end of the pandemic or whether it is destined to disappear over time. To answer these two questions, it was decided to follow the qualitative method and conduct semi-structured interviews in such a way as to obtain the necessary information but also leave room for potential discussions and new insights at the same time.

The criterion applied to select the sample concerns two aspects, the quality of the products offered by the selected companies and the presence of an online sales channel. In this regard, it was chosen to select companies with quality certifications and/ or health certifications, and companies that sell their products through online owned channels.

The respondents were contacted well in advance via an email that briefly explained the topic of the thesis and asked if it was possible to schedule an online meeting. Before starting the interview, the author made a brief summary of the thesis, both to explain the main purpose and to contextualize the questions that would be asked.

After the interviews, in the analysis phase, 4 macro categories were identified and the answers were grouped together to meet the research purpose and answer to the research questions: market changes after the Covid-19 outbreak, digital transformation in industry-specific sales channels, pros and cons of e-commerce and online strategies, the online trend.

The division was done based on the main topic of the analyzed responses.

Analyzing the responses in this first category, several changes to which the agri-food sector has gone through in the last two years can be noted.

The most obvious change was the one regarding the target market of companies: in fact, all participants agreed that the pandemic led the market to change its focus, shifting it to the market of private consumers. For this reason, there has been a reworking of the historical business model which has been modified and adapted to meet new market needs.

The other major change that the pandemic has brought, not only in this specific area, but in all economic fields, has been an acceleration of digital evolution.

In particular for agri-food, the greatest digital change has been the digitalization of sales channels. Previously, since the B2B market was the main one, the sale of products was based entirely on the actions of the agents; at the time of the closure of the commercial activities, in order to be able to sell the products on the new market of private consumers, it has had to resort to a rapid implementation of online sales platforms.

The third category analyzed was the one concerning the pros and cons of e-commerce and the related online sales strategies that were applied.

From the analysis carried out and the answers received, it was possible to have an internal view about the advantages and disadvantages that the use of this platform brings.

The last category analyzed was the one concerning the continuation of the trend of online sales that has affected this sector.

Being a recent phenomenon, the literature is still scarce, which is why the author decided to leave this topic for last, both in interviews and in the analysis of answers. This choice has been made to allow to have a general view of the situation of the last two years and the developments that have taken place, and then to analyze what will be a possible future scenario.

Through the analysis and comparison carried out, an answer was given to both the first and the second research questions:

- As regards the extent to which Covid-19 contributed to the acceleration of digitization, the participants agreed that, although the digitization process had already begun, the virus has certainly contributed to intensify the developments in a short time, leading to changes in the business model that in a normal situation would have occurred more in the future.
- For the second question on the continuation of the trend of online sales, the general opinion is that, although it was a practice initiated because of the spread of Covid-19, it will not disappear once the health emergency has been declared finished. This is due to a natural process of evolution and development that has occurred, albeit quickly, and that would be unnatural to undo once back to normal.

In conclusion, through interviews with experts in the field and review of the scarce literature existing at the moment, it has been possible to achieve the dual purpose of this work.

In addition, this work could be the basis for further research that desire to contribute to the enrichment of the literature concerning the digitization of agri-food sales channels.