Digital Social Innovation and Sustainability: An Analysis of the Large-Scale Retailing Sector during the Covid-19 Pandemic

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Abstract

The following paper analyzes the Digital Social Innovation (DSI) phenomenon and focuses on why new technological trends are essential both for the country's growth and for Sustainable Development. The study conducted focused on the consequences of Covid-19 on society and sectors in Italy, analyzing how a digital response was able to positively affect the growth of the Large-Scale Retailing (LSR) sector.

The ultimate goal is to understand the extent to which digitization affects economic, social, and environmental sustainability, and how this can have a positive impact on a country's long-term growth. All this is related to the case of the large-scale retail sector, examined as one of the few to have responded better, through processes of digital evolution, to the Covid-19 Pandemic.

Keywords: Digital Social Innovation, Covid-19, Large-scale Retailing, Sustainability.

1. INTRODUCTION

Technology and Social Innovation, two themes that are as relevant as they are often distant from each other. In the common vision, digital and technological development are rarely considered as prerogatives of Social Innovation. Instead, these two concepts are strongly connected, and new technologies can be fundamental for social issues.With the increasing complexity of products and technologies, the rising costs of innovation coupled with shorter development lead times, organizations today are forced to open their innovation activities and to enter into new forms (Durst & Ståhle, 2013).

The impact of digitization has, therefore, led to the development of emerging technologies, defined as technical innovations that represent progressive innovations within a field for competitive advantage (International Congress Innovation and Technology XXI, 1997). Resorting

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to new technologies allows us to significantly modify our individual and collective behaviors, thanks to a multitude of information that can produce new types of collective services, changing the power dynamics that local governments, citizens, and private companies have in governing these phenomena (Tricarico, 2019).

The Large-Scale retailing sector has always been one of the least digitized due to the consumption habits of customers, who prefer to touch products, be the ones to choose those with the earliest expiration date, or have staff available for any questions. However, in recent years this sector has also begun a process of digitization and technological development. The advent of the Internet, mobile devices, and the new generations have pushed the sector to technological development and the use of smart systems. Precisely in the period analyzed, the digitization of the sector, although not adequate, has facilitated the response to the health crisis, as it was the Pandemic itself that made the LSR aware of the enormous opportunities that online channels and technological innovation can provide. The lockdown period certainly served to raise awareness of this aspect, even considering the numbers that were recorded in 2020 regarding online sales.

The 2020 year marked the beginning of the Covid-19 Pandemic and brought great changes to the entire global economic landscape. Most of the working sectors have been affected but, at the same time, there have been others that have managed to adapt to the situation, even managing to benefit from the containment measures. One of these is the Large-Scale Retailing (LSR) sector which, thanks to the type of services offered and the use of innovative sales systems, is reporting unprecedented growth.

Therefore, the remainder of the paper is organized as follows: Section 2 provides a brief literature review on Social Innovation (SI) and Digital Social Innovation (DSI); Section 3 explains the choice of sample, the process of data collection, and the methodological approach used; Section 4 provides findings, later discussed within Section 5. In the end, Section 6 concludes.

2. THEORETICAL BACKGROUND

2.1 Social Innovation

In the literature, there are numerous definitions of Social Innovation (SI), more generically identified in all those initiatives oriented to "the creation and implementation of new solutions to social problems, with the benefits of these solutions shared beyond the boundaries of the innovators" (Tracey &Stott, 2017). Proceeding to a comparative analysis of the current definitions of Social Innovation we notice how each of them focuses on a specific aspect of the concept, inviting a reflection on the intrinsic characteristics of Social Innovation that impacts the actors, the diffusion processes, and the results. According to a pragmatic approach, “Social innovation refers to innovative activities and services that are motivated by the goal of satisfying a social need and that are predominantly disseminated through organizations whose primary purposes are social” (Mulgan, 2006). According to the author, the starting point for innovation is an idea of a need that is not being met, along with an idea of how it could be met. In contrast, according to a managerial approach, IS is “a new solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created goes primarily to society as a whole rather than to private individuals” (Phillis *et al.*, 2008). The following definition, compared to the previous one, takes into account two criteria explained by the authors: “novelty”, in that innovations must be new to the user, context or application, and “improvement” in terms of effectiveness and efficiency compared to a previous solution, to which is added the concept of “sustainable” which means solutions that are environmentally and organizationally sustainable - those that can continue to function for a long period. Moulaert (2009) develops a more critical definition of IS by defining it as “the satisfaction of alienated human needs through the transformation of social relationships”. In “The Open Book of Social Innovation” (Murray *et al.*, 2010) the authors provide a simplified version of IS “new ideas - products, services, and models - that satisfy social needs - more effectively than existing alternatives - while creating new relationships and new collaborations”. From a system approach, we derive that “Social Innovation is a complex process of introducing new products, processes, or programs that profoundly change the basic routines, flows of resources and authority, or beliefs of the social system in which the innovation occurs. Such successful social innovations have durability and broad impact" (Westley & Antadze, 2010). According to the comparative analysis of Bassi (2011) in which the author compares the above definition of IS with those of Mulgan (2006) and Phillis, Deiglmeier, Miller (Phillis *et al.,* 2008) previously illustrated, only that of Westley and Antadze (Westley & Antadze, 2010) would be complete and exhaustive defining too tautological the first and from the setting too rigid the second (Busacca, 2013). Finally, according to the European Commission, "Social innovation can be defined as the development and implementation of new ideas (products, services, and models) to meet social needs and create new social relationships or collaborations. It represents new responses to pressing social demands, influencing the process of social interactions. It aims to improve human well-being. Social innovations are innovations that are social in both their ends and their means. They are innovations that are not only good for society but also improve the ability of individuals to act" (European Commission, 2013a). From the definitional variety it emerges how, to date, Social Innovation has been approached according to a broad definition, which brings out its polysemic value (Montanari*et al.,* 2017) but which, at the same time, respects several characteristics, such as the response to a social need, the realization of change through the creation of social and collaborative relationships and the focus on the collective value generated. It seems evident, therefore, how the strong social dimension represents the distinctive determinant trait of social innovation such as to also influence the processes underlying social innovation initiatives (Montanari*et al.,* 2017).

2.2 Digital Social Innovation

Caroli identifies the following as key elements for Social Innovation: better satisfaction of a collective need, innovation in the relationships between economic and social actors, better use of available goods and resources, structural impact, economic strength, and new technologies. These elements are interdependent and evolve (Caroli, 2015). Technology represents an important component for the realization of the IS because it makes new ways of interaction between people and organizations possible and therefore a factor of competitive advantage is detected for those who use it. The spread of digital technologies in the global socio-economic fabric is leading many scholars to argue that there is a need for new theories in this age of Digital Innovation (Hinings *et al.,* 2018). For Nambisan et al. Digital Innovation is the use of digital technology during the process of innovating (Nambisan *et al.,* 2017). Digital Innovation is not only about putting new products and services into action but also about creating novel value creation and value appropriation pathways that enable the involvement of dynamic groups of actors with different goals and capabilities (Hinings *et al.,* 2018). This transition from Social Innovation to Digital Innovation can be defined more properly by the term of Digital Social Innovation (DSI).

Because DSI is a broad and ever-evolving field, it is difficult to find an all-encompassing definition that perfectly fits all the different nuances this term can take on. One of the most comprehensive definitions is that given by Bria *et al.* (2015), according to whom Digital Social Innovation is "a type of social and collaborative innovation in which innovators, users, and communities work together using digital technologies to co-create knowledge and solutions for a wide range of social needs and with a scope and speed unimaginable before the advent of the Internet" (Bria *et al.,* 2015). Technology emerges as a tool capable of exponentially multiplying the benefits of Social Innovation, leveraging tools such as social media, the internet of things, open data, and many others. According to Milwood and Roehl DSI emerged as a sort of Social Innovation that would rely on new technologies to solve a wide range of social problems (Milwood & Roehl, 2019). The ability of the professionals involved to engage users, citizens, and communities in their projects is fundamental. Only by breaking free of old patterns of isolation, paternalism, and antagonism and striving to understand, embrace and exploit intersectoral dynamics can new ways of creating social value be found (Phills *et al.,* 2008). Rigorous mathematical studies show that the value of any network, including social networks, grows exponentially with the number of users N, in fact, with N people can, in theory, form 2N - N - 1 group (Luvison, 1999; 2013). In this

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direction, enterprises are becoming more agile, adaptive, and ambidextrous to boost innovation in the current digital transformation era (Giudice *et al.,* 2020).

3. RESEARCHMETHODOLOGY

3.1 Data Collection and Measurement Development

Covid-19 has had a direct influence on various sectors and the large-scale retail trade has been one of the most affected by these changes. This has led to major changes not only within the sector itself but above all in people's consumption habits, which have suddenly found themselves in a situation impossible to predict. The biggest change has been in the role of digitization, with online taking over from physical channels in numerous situations. Restrictive measures together with the fear of contagion have meant that for many people the way they do their shopping has changed. All this has led to the LSR players having to adapt their sales channels to the new requirements.

The change in consumption habits, oriented towards the use of innovative sales methods such as food e-commerce and home delivery, has also had an impact at the level of sustainability, in all three of its variants: economic, environmental, and social.

To describe this change, a survey method was used to collect data in this study. The survey research process is described as a process of collecting data from respondents through questionnaires (Lubis*et al.,* 2019).The survey was conducted in the period from May 14, 2021, to May 19, 2021, administered, through the help of social media such as Facebook and LinkedIn and messaging platforms such as WhatsApp and Telegram, to the market segment represented by all Italians aged 18 and over who had the opportunity to go shopping in the last year.

The questionnaire consisted of four sections:

1. Sociodemographic characteristics;
2. Consumption habits before Covid-19;
3. Consumption habits during Covid-19 period;
4. Variables that might have influenced the change in consumption habits.

The various sections consisted of multiple-choice questions (in which only one option could be selected) and checkboxes (in which multiple alternatives could be selected).

The goal of the research was to understand the extent to which Covid-19 has impacted consumption habits about mass retail, the role of technology in this, and the effects on sustainability. Therefore, questions were asked to investigate how the use of online sales channels and those habits that can be easily traced to a more sustainable consumption style has changed from the pre-Covid period to today.

The first section was dedicated to the segmentation of the interviewees and to the collection of socio-demographic data useful to filter the results according to characteristics such as age or region of origin. Five modules were included for this analysis, three of which related to demographic characteristics (gender, age, region of residence) and two necessaries to have information useful for a social breakdown (highest level of education attained, employment status).

Section 2 and 3 were directly linked to each other, to investigate whether and to what extent consumption habits were in the period before the pandemic crisis and how these had changed with the onset of the Covid-19 crisis. In this module, the same questions were asked as in Section 2, changing the time frame from the “pre-Covid period” to the “Covid period”. This made it possible to measure how respondents' answers and consequently their habits changed.

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The last section was useful to understand how much certain factors had influenced the buying habits of the target respondents. In this module, only two questions were included with a checkbox that would allow more options to be selected, to understand which of the different variables considered had the greatest impact on the changes in the large-scale retail sector.

These questions were used to investigate what factors have most impacted digital industry awareness and sustainable spending.

Table 1 summarizes the questions on which the survey was structured.

TABLE 1: Questionnaire Structure.

Section	Questions
1. Sociodemographic characteristics	*- gender* *- age* *- region* *- education* *- job position*
2. Consumption habits before Covid-19	*- in the pre-Covid period, how often did you shop for groceries?* *- in the pre-Covid period, how much did you spend on average each month on shopping?* *- in the pre-Covid period, where did you usually go shopping?* *- in the pre-Covid period, how often did you shop online?* *- in the pre-Covid period, how far did you go from your home on averageto do your shopping?* *- if home delivery means delivery directly to your home, and click&collect means buying online and picking up at a drop-off point (the supermarket itself or a local grocery store), which of these services did you use pre-Covid to do your shopping?* *- in the pre-Covid period, when shopping, how much importance did you give to the sustainability of the products purchased (origin, packaging, production method, etc.)?*
3. Consumption habits during Covid-19 period	*- from the Covid-19 period, how often do you shop for groceries?* *- from the Covid-19 period, how much do you spend on average each month on shopping?* *- from the Covid-19 period, where do you usually go shopping?* *- from the Covid-19 period, how often do you shop online?* *- from the Covid-19 period, how far do you go from your home on averageto do your shopping?* *- if home delivery means delivery directly to your home, and click&collect means buying online and picking up at a drop-off point (the supermarket itself or a local grocery store), which of these services do you use from the Covid-19 period to do your shopping?* *- from the Covid-19 period, when shopping, how much importance do you give to the sustainability of the products purchased (origin, packaging, production method, etc.)?*
4. Variables that might have influenced the change in consumption habits	*- why, since the start of Covid, has the frequency with which you shop online increased?* *- why, since the start of Covid, has your awareness of sustainable shopping issues increased?*

SOURCE: Authors' Elaboration.

3. 2 Sample Characteristics

The random sampling method was used in this research, conducted in an Italian population. A total of 186 people responded to the market survey and all responses were used for data analysis purposes. Values are represented as percentage data.

According to the socio-demographic data of the sample analyzed, 60.8% of the responses came from women while the remainder came from men (39.2%). Most responses came from the 18-25 age group (37.6%) and the 26-35 age group (25.8%), indicating that it is easier to reach a younger target through online channels. 26.9% belong to the 36-55 age group, 9.1% are represented by people aged between 56 and 65, while only 0.5% responded that they were over 65. The territorial distribution of respondents is over the entire peninsula, with a bias towards the regions of the Center (47.8%). The North and South represent 26.3% and 19.9%, respectively. Finally, 5.9% reside on the Major Islands. Out of the entire sample, only 5.4% of the people have not obtained at least a high school diploma, highlighting how there is a high level of education among those interviewed, with several graduates equal to 50% of the total. Finally, concerning the work situation, it emerges that out of all the people who participated in the survey, 36% belong to the category of students, 55.9% have a job (also considering those who define themselves as "housewives"), while 8.1% are unemployed.

TABLE 2: Socio Demographic Characteristics.

Items	Classification	Percentage (%)
Gender	Male	39.2%
	Female	60.8%
Age	18-25	37.6%
	26-35	25.8%
	36-55	26.9%
	56-65	9.1%
	Over 65	0.5%
Region	North	26.3%
	Center	47.8%
	South	19.9%
	Major Island	5.9%
Education	Primary education	5.4%
	Secondary education	6.7%
	High School education	49.1%
	Bachelor/MSc' degree	35.6%
	PhD	3.2%
Job position	Student	36%
	Employee	55.9%
	Unemployed	8.1%

SOURCE: Adapted from Yue Et Al. (2020).

4. DATA ANALYSIS AND RESULTS

For the identification of the results,Sections 2 and 3 are the fulcrum of the survey form, since, as already explained, they contain the same questions but related first to the pre-Covid period and then to the beginning of the pandemic crisis. Through a direct comparison of the answers in the two sections, it is possible to understand what has changed in the period analyzed, and above all to what extent. By crossing the data of sections 2 and 3 with those of the first section, it is also possible to make considerations based on social and demographic characteristics. Comparing the answers of the two sections on shopping habits, we can first analyze whether there has been a change in the frequency with which people do their shopping. The possible answers were:

- 1 or 2 times a month;
- once a week;
- several times a week.

From the survey between the pre-Covid period and today, there have been no significant variations, especially with those who do their shopping 1 or 2 times a month the drop is only a few percentage points (from 18.8% to 17.7%). The greatest variation was among those who did their shopping several times a week and once a week. The data shows how the percentage of people who shop once a week has increased at the expense of those who used to shop several times a week. In essence, from the pre-lockdown period to today people are shopping less frequently every week.

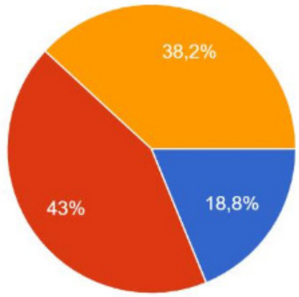

FIGURE 1: In the pre-Covid period how often did you shop for groceries?
SOURCE: Author's elaboration.

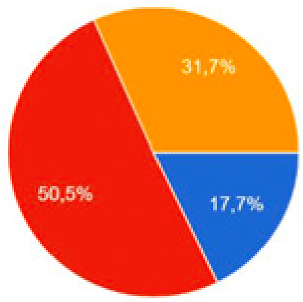

FIGURE 2: Since starting Covid how often do you shop?
SOURCE: Authors' elaboration.

Interesting data is related to the budget devoted each month to food purchases. Given the severe economic crisis to which Covid-19 has led, one would expect a drop in monthly purchases. Instead, the data shows that consumers continued to spend the same amount on groceries. Most respondents spent between €100 and €200 (38.7%) and between €200 and €500 (41.9%) in the pre-Covid period, and this average has remained virtually unchanged to date.

The use of sales channels has also varied over the period considered. The third question in sections 2 and 3 was aimed at analyzing which large-scale retail players were the most widely used and what role e were- commerce played in the pre-Covid period.

Respondents were asked via a form that allowed them to select multiple options, where they used to shop before and what channels are used now. Possible responses were:

- small grocery stores;
- Supermarkets and Hypermarkets;
- Discount stores;
- Online.

In the period before the crisis, it was found that supermarkets and hypermarkets were the most popular with 90.3% of people have selected this option. In the second place, we find Discount stores with 35.5% of responses, while only 19.4% of respondents used small food stores. As was natural to expect, at the bottom of the ranking were online channels (4.3%), synonymous with the low level of digitization in the industry before the Covid-19 outbreak.

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The situation with the advent of the crisis has changed. The most important figure is relating to the use of e-commerce to buy groceries there has been an 8.1% increase in responses, going from 4.3% use in the pre-Covid period to 12.4% since the lockdown began.

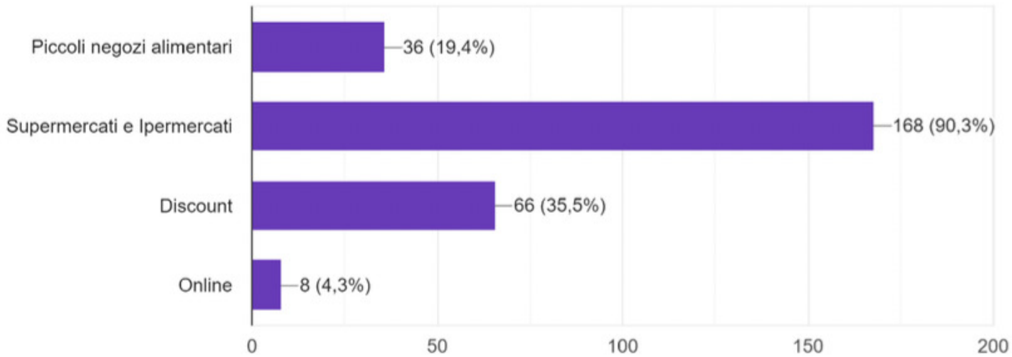

FIGURE 3: In the pre-Covid period, where did you used to shop?
SOURCE: Authors' elaboration.

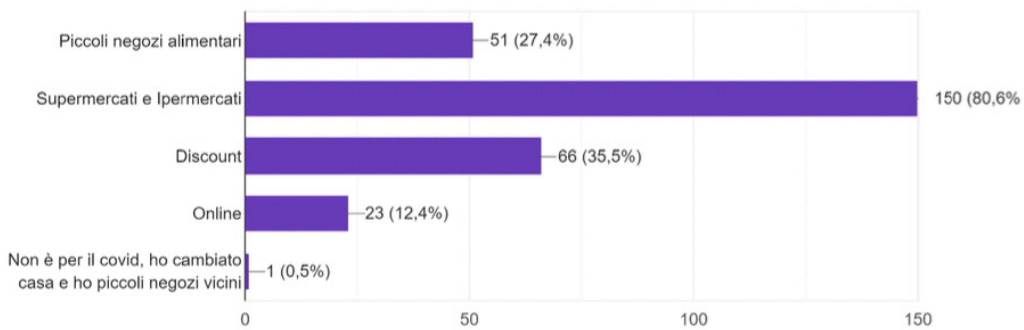

FIGURE 4: Since the beginning of Covid, where do you usually shop?
SOURCE: Authors' elaboration.

This trend also emerged when comparing how many people used online shopping in the two periods under review. In the pre-Covid period, 77.4% of people surveyed had never purchased groceries through Internet sites. This percentage drops when analyzing the period from the first lockdown to the present, where the percentage drops to 65.6%, with an 11.8% increase in the number of people who used online channels with the advent of the Pandemic.

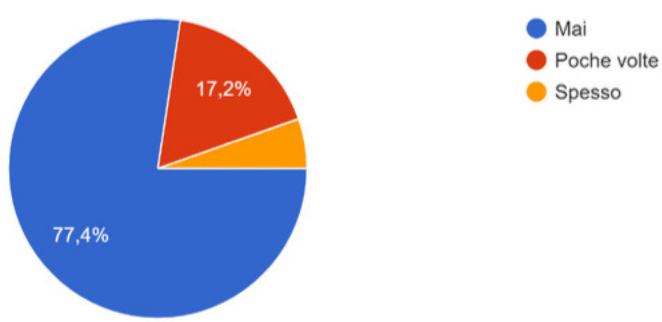

FIGURE 5: In the pre-Covid period, how many times did you shop online.
SOURCE: Authors' elaboration.

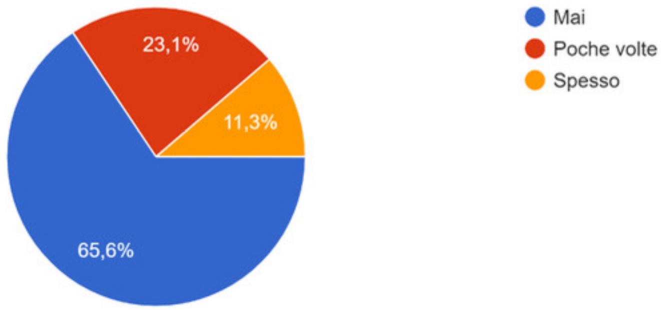

FIGURE 6: Since starting Covid, how many times have you shopped online?
SOURCE: Authors' elaboration.

Also of note, only 51.3% of consumers who shopped online "A few times" in the pre-Covid period maintained their frequency of use of these shopping channels. 12.5% of them started using e-commerce "Often" in the Pandemic period.

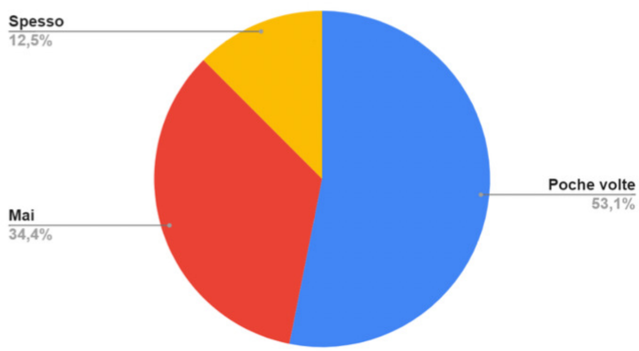

FIGURE 7: Since starting Covid, how many times have you shopped online?
SOURCE: Authors' elaboration.

About the two different services offered with online purchases, namely home delivery, and click&collect, we find a predisposition of consumers towards home delivery both in the pre-Covid period (69.7%) and since the beginning of the crisis (79%). Click&collect went from being used at 18.2% to 9.7%. Finally, individuals who were using and continue to use both services dropped from 12.1% to 11.3%.

This data demonstrates both that customers prefer the convenience of home delivery over having to leave their homes to pick up what they have purchased, and that with the onset of Covid-19, nearly 10% of click-and-collect users preferred to switch to home delivery. This may be due above all to the fear of contagion brought by the virus.

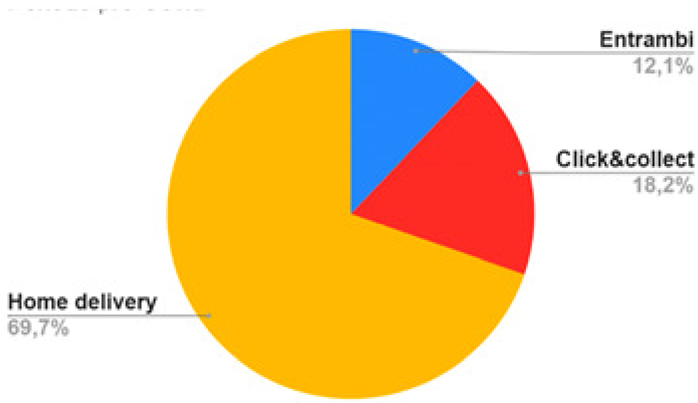

FIGURE 8: Pre-Covidperiod
SOURCE: Authors' elaboration.

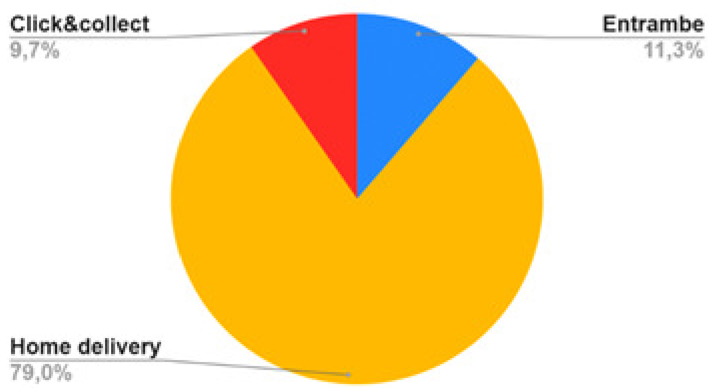

FIGURE 9: Covid-19 period
SOURCE: Authors' elaboration.

Looking at the reasons expressed by respondents as to why there was an increase in the use of online channels for shopping during the period of Covid-19, it emerges that the most frequent reasons are those related to the convenience of the service (15.1%), fear of contagion (16.7%) and saving time (9.1%).

Of note, some respondents confirmed that they had not used e-commerce before the lockdown due to the lack of supermarkets that performed this service (7%) and the lack of information regarding the possibility of online shopping (4.8%).

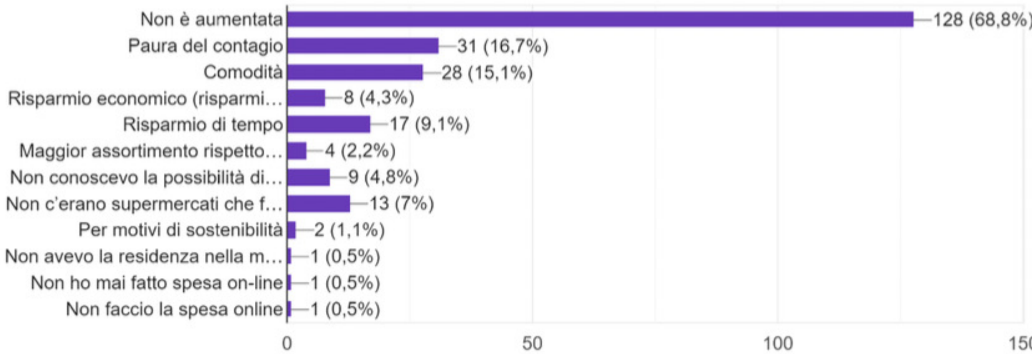

FIGURE 9: Motivations that have pushed to the use of the channels online for the expense.
SOURCE: Authors' elaboration.

In conclusion, it can be said that from the pre-Covid period to today there has been an effective change in consumer habits. The survey confirms that Pandemic has accentuated the use of online channels for shopping. From the consumer's point of view, as confirmed by previous data, this is due to the restrictive measures and the fear of many people towards a possible contagion, the greater ease of access to home delivery and click&collect and other factors that have increased trust and awareness towards these new purchasing methods. These trends have led many players in the retail sector to meet the needs of consumers who are increasingly inclined to use digital technologies, implement online stores if they are not yet present, and improve existing ones if they are not adequate to process the many requests.

4.1 The Effects on Industry Sustainability

With the Pandemic and the consequent digitization, consumer habits have changed and there is a greater predisposition towards sustainability issues. The objective of the survey was to understand to what extent the Pandemic and the digital response of the retail sector have had a positive effect on sustainability, analyzed in its three variants: environmental, economic, and social.

The analysis of the survey revealed two different types of effects that Covid-19 and digitalization have caused on sustainability: direct effects and indirect effects.

The direct effects are linked to the greater awareness that has arisen in recent months, concerning sustainable spending, which has led to greater attention being paid to these issues during the purchasing phase.

Indirect effects, on the other hand, can be related to the change in the habits of clients, which have had an impact on sustainability, but not due to a conscious choice on the part of the consumer.

Certainly, direct effects are the most important, since, deriving from conscious choices made by the subject, they are replicable even if the current context were to be changed again.

To understand if and to what extent from the pre-Covid period to today attention to sustainability issues has increased among large-scale retail consumers, one can compare the question posed in sections 2 and 3 in which respondents were asked, in the two periods examined, "how much importance do you give to the sustainability of the products purchased (origin, packaging, production methods, etc.)?"

There were four possible answers:

- none;
- little;
- enough;
- a lot.

As can be assumed from the period before the lockdown to today, the predisposition towards eco-sustainable product types has increased greatly. Of those interviewed, less than half (47.3%) gave “quite a bit” or “a lot” of importance to these issues when purchasing food products. Of those, 12.9% even gave no importance to the provenance and packaging of what they purchased, and 39.8% gave it little. This has changed greatly with closures resulting from the danger of contagion and the increased use of online channels.

Survey data showed that the percentage of people who began to give “quite a bit” or “a lot” of importance to these issues in the purchasing phase rose from 47.3% to 66.1%, an increase of 18.8 percentage points. The greatest growth occurred on the “enough” option, which went from 39.2% of responses to 50%. On the other hand, clicks on the “a lot” option doubled from 8.1% in the pre-Covid period to 16.1% today. This denotes a change in habits that brings with it a greater awareness of the consumer regarding environmental and sustainable issues. The one just analyzed is a direct effect of the Pandemic, since the sudden change in lifestyle caused by the restrictions, has pushed people to give more importance to what they buy, to safeguard their health and that of the environment.

To confirm this, one can analyze the data relative to the second question in section 4, which served to provide an overview of the variables that influenced purchasing and consumption habits. Respondents were asked why, since the start of Covid-19, sensitivity to sustainable spending issues has increased.

First, it must be said that for 59.7% of them, there was no increase in attention to these issues between the two periods. However, it is encouraging that for 40.3% of people today there is a greater awareness of the importance of sustainable spending, especially if we think that this figure could grow in the future.

From the responses, it emerged that the main reason why attention to sustainable spending has increased between the pre-Covid period and today comes from the greater number of times people have had to eat at home because of the closure of restaurants. 20.4% of respondents said that having to eat at home many more times increased their focus on the sustainability of the products they cooked. The control of food ingested is therefore the most widespread motivation that drives people to buy eco-sustainable products.

Interesting data is related to another of the most widespread motivations among those interviewed and directly linked to the digitalization that has taken place in recent months within the large-scale retail sector. 12.4% of the people who responded to the survey declared that they pay more attention to sustainable purchases because by purchasing online they have more time to inform themselves about the characteristics of the product to be chosen.

Finally, the information disseminated by the media (13.4%) and supermarkets (8.1%) are also two of the causes of this growth in the Covid-19 period.

In addition to the direct effects just analyzed, one can also consider the indirect impact caused by the change in habits, on sustainability to evaluate these indirect consequences, one can analyze previous and current behaviors about:

- to the monthly frequency with which shopping is done;
- the monthly budget dedicated to food purchases;
- the channels used;
- the distance covered to make purchases.

As already mentioned, the data showed a predisposition to make more weekly purchases. This can be seen as an advantage at an environmental level since shopping more times a week avoids the accumulation and waste of products which will be subsequently thrown away because they have expired or to buy fresh products. Making more weekly purchases leads to buying only what is needed by the consumer, in this way also lightening the processes of disposal of food not consumed. The responses also reveal a small difference between customers who have never shopped online since the start of Covid-19 and those who said they do so “often”. Filtering the results reveals a greater predisposition for those who shop via the Internet to purchase products several times a week (38.1%), compared to those who have never purchased food on the web (33.3%). From this data, even if in a small way, we can understand how online can influence environmental sustainability in a certain positive way.

Analyzing the monthly income used to do the shopping, from the answers it might seem that there has been no change in the budget dedicated each month by families to food purchases. The figure takes on different connotations if one examines the data for unemployed persons. In this case, there is a drop of about 7% of people who, before Covid-19 spent between 100 and 500 euros, in favor of spending between 100 and 200 euros. If we consider that if we take the data in an aggregated manner (employed and unemployed), the percentages of monthly spending are almost unchanged between the two periods examined, we can understand how this is even due to an increase in monthly spending by the wealthiest families. Thus, there appears to be a negative impact on social sustainability even more significant than one might think.

In addition, among the unemployed, there is less tendency to use online channels to do their shopping, with 86.7% of respondents without employment having never used the Internet to do their shopping compared to 63.6% of workers. This may stem from both the higher price of online groceries (the price of shipping must also impact) and the difficulty many households have in having high-billed electronic devices, which are very often essential for navigating complex websites.

In essence, it can be said that Covid-19 and the use of technological devices have hurt sustainability at the social level, increasing and creating inequalities based on household income. Still analyzing the responses since the period of Covid-19, trust in small food retailers has increased. The reason for this is certainly the limits imposed on travel, especially during lockdown periods, and the possibility of buying most foods online, so that small grocery stores can be used for those daily purchases that do not require the use of mass retailers, which often require a longer commute. Doing the shopping in the small stores under the house has surely a positive effect also at the environmental level because in this way is avoided the phenomenon, already highlighted above, of the accumulation of large quantities of expenditure, which occur mainly within the supermarkets. Moreover, to make greater use of food stores within the inhabited centers presupposes a lesser use of vehicles, contributing to fighting the environmental pollution deriving from smog. The theme just highlighted is confirmed by the data on marriages for shopping collected through the survey. Respondents were asked how far they traveled, on average, to do their shopping. The possible answers were as follows:

- I almost always do it online;
- a few hundred meters;
- between 1 and 5 kilometers;
- between 6 and 10 kilometers;
- more than 10 kilometers.

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In the pre-Covid period, most people (53.2%) traveled between 1 and 5 kilometers, about 27% made more than 6 kilometers to make purchases, and if we consider that of the latter, 30% responded that they shop several times a week, we can understand what the impact may be at the environmental level. Only 0.5% stated that they made almost all their purchases online, while 19.4% traveled a few hundred meters. Looking at the situation from the first lockdown to now, the data improves slightly. More than half of the respondents (52.7%) continue to make purchases in supermarkets located between 1 and 5 kilometers from home, while people who travel more than 6 kilometers have dropped from 26.9% to 16.1%, then a reduction of more than ten percent points. On the other hand, the consumers who have started to travel fewer kilometers since the beginning of Covid-19 have gone up, with 25.8% stating that they do their shopping a few hundred meters from home (+6.4%), and 5.4% using e-commerce frequently (+4.9%). The use of online channels to make shopping, since the beginning of Covid has had a positive impact on the environmental sustainability of the country, reducing the distance traveled by people to reach the supermarket most suitable to their needs. With the rise of food e-commerce, many people have begun to prefer online shopping for “big” purchases, also beginning to use small grocery stores to make daily purchases (milk, bread, etc.), and this reduces the pollution of means of transport that have a harmful effect because of emissions.

5. DISCUSSION

The Large-Scale Retailing sector has always been one of the least digitized due to the consumption habits of customers, who prefer to touch products, be the ones to choose those with the earliest expiration date or have staff available for any questions. However, in recent years this sector has also begun a process of digitization and technological development.

The advent of the Internet, mobile devices, and the new generations have pushed the industry to an ever-increasing Digital Innovation. In fact, what customers value most these days is time, and digital commerce can offer consumers speed and convenience. The lockdown period has certainly served to bring greater awareness to the topic of Digital Social Innovation, even considering the numbers that were recorded in 2020 regarding online sales.

This awareness emerged especially in the initial phase of the Pandemic when most supermarkets found themselves having to handle more requests for online purchases than they could handle through the technologies and management capacity of that time. While, up to that point, many supermarket sectors did not have an online store or did not do home delivery, within weeks of the onset of the health crisis, they had to implement these services to keep up with their competitors (VTEX, 2021).

In addition, the impact that Covid-19 has had on the digitization of the industry must be evaluated. In the period from March 2020 to February 2021, the turnover on the online channels of the large-scale retail sector was 1.49 billion, which in percentage terms is worth +133% compared to the previous year. February 2021 alone saw a +112%, which makes it clear that online grocery shopping didn't just increase in the 3 months of total lockdown. If in 2020 ago e-commerce in total retail sales was completely marginal standing at 1%, after one year this figure has doubled, and it is estimated that by 2025 it will reach 4%-5% (Repubblica, 2021). So, on the one hand, the opening of the sector to Digital Social Innovation, even if not totally adequate, has facilitated the response to the health crisis, on the other hand, it was Pandemic itself that made the LSR aware of the enormous opportunities that online channels and technological innovation can provide.

6. CONCLUSIONS

Despite the positive impact of Digital Social Innovation on the entire retail sector and on large-scale retailing, it must be said that in this sector the digital component will never completely replace offline. The lockdown period certainly served to raise awareness of these issues:consumption habits have changed and will continue to change in the future, and in a perspective that is increasingly oriented towards improving social needs, the importance of integration between technology and the needs themselves cannot be overlooked. Also, in this case, the Digital Social Innovation becomes fundamental to respond to these needs and innovate the processes that underlie them.

In conclusion, it is important to understand what the strengths and weaknesses of the Retail sector have been during the Covid-19 period so that we can have a more in-depth view of why we have seen growth in this sector while others have experienced a decline resulting from closures and changes in people's habits.In addition, capturing what may be the threats and opportunities of the external environment allows us to speculate on whether this growth can continue in the future or if it was simply a consequence of the period we just went through. To this end, SWOT analysis of the industry was conducted; using this tool, it is possible to identify to what degree strengths and weaknesses can influence changes in the competitive environment (Johnson *et al.,* 2017).

Strengths are what add value and give a competitive advantage to the industry. They are the set of capabilities, competencies, and resources. In this case:

- Multichannel: during the Covid-19 period, many customers had the choice of relying on the usual offline channels or staying at home and ordering directly from their smartphones, minimizing the chances of contagion;

- A wide assortment of food: the possibility to find in a single store everything one needs, has pushed many people to prefer large retailers compared to small local stores, which certainly have an inferior assortment;

- Few big brands: the large-scale retail sector is a sector with a few supermarket chains located throughout the country, which hold most of the market share. For a customer, it becomes easier to always rely on the same 2/3 distributors for whom he has greater trust. This ensures that even in a pandemic period you retain the majority of your customers, even more so if you offer omnichannel services;

- Customer loyalty: the possibility of holding loyalty cards and points cards means that the consumer will always try to buy from the same franchise, so as not to lose the points accumulated and take advantage of the discounts deriving from them;

- Use of online channels: one of the main reasons that made the large-scale retail sector have an unexpected growth compared to other sectors or even compared to small local stores, comes from the use of e-commerce and delivery services for the sale of food. Many people due to the fear of contagion and the impossibility of moving from home have started to buy their groceries online.

The weaknesses are all those features of the industry that are detrimental to growth. They can usually be solved through structural interventions. The weaknesses of the sector Large-Scale Retailing in time of crisis are the following:

- Centralized decision-making processes: most of the Large-Scale Retailing players are part of franchises and therefore depend in many of their choices, especially strategic ones, on central decisions, which can imply a slowdown in innovation and adaptation to customer habits. For example, supermarkets' adoption of online sales channels in the Covid-19 period had barriers stemming from the heavy-handedness of the overly centralized administrative system;

- Inadequate logistics systems: during the lockdown period, demand for groceries increased exponentially, with many of the supermarkets and discounters finding themselves in crisis both in terms of the number of products available, but also, and above all, in guaranteeing customers a rapid and on-time delivery service;

- Lack of attention to workers: one of the most debated points concerns the working conditions in which many retail employees found themselves during the lockdown period.Exhausting shifts without a break in which they had to wear protective gear (mask, gloves, etc.) for several hours in a row, combined with inadequate pay. This has negatively affected the motivation of the workers and brought criticism from the media.

Opportunities represent the external factors that characterize the sector and can have a positive impact on the performance and possibilities of retail players. These to be exploited must fit with the strengths and be financially feasible. They are:

- Diffusion of technology: in recent years we have witnessed a technological evolution. The use of smartphones and PCs by any person exponentially increases the possibility of reaching an increasing number of customers through digital channels, also minimizing costs compared to traditional sales channels;

- Development of logistics processes: as already stated, during the lockdown period many supermarkets found it difficult to process orders due to logistical processes that were not up to scratch. The development of distribution and processing methods based on cutting-edge techniques will lead to clear improvements in all logistics mechanisms;

- Growth of e-commerce: online sales channels have been one of the factors behind the growth of the retail sector during the period of total closure of the country. The use of this channel to carry out shopping continued even after the restrictions were relaxed. Undoubtedly, this trend is set to grow, and e-commerce will play an increasingly prominent role within an industry that must focus on digitization if it is to adapt to customer needs;

- High barriers to entry: in an industry where there are few big brands, it is becoming increasingly difficult to enter. This is due to both the experience gained by these franchises, but also the economies of scale that make it difficult to replicate what current players have built over years of business.

Threats also stem from the relationship with the external environment and are all those factors that could pose a danger to the future strategies of the industry. They are not always negative they can be seen as challenges that, if overcome, lead to improvements. Within the retail sector:

- Continuous changes in consumer preferences: in the last period, the large-scale retail sector has had to adapt to the new needs of consumers, who have begun to prefer online purchases and the use of digital services to carry out their shopping. If, on the one hand, this has been a good thing because it has allowed the entire sector to become more aware of the potential of digital, on the other, it could represent a demanding challenge, since changes in habits are unpredictable and require continuous monitoring to be foreseen and anticipated;

- Continuous technological evolution: technological development runs fast, and this means that innovations in companies are often obsolete after a few years if not months. This implies a continuous updating of both the workforce and the organizational structure, and many times it is also costly;

- Price wars: in a market made up of few companies, there is often the risk of having to compete on price rather than innovation. It's no coincidence that discounts and offers are increasingly being advertised on online and offline channels. This war on price risks compromising the quality of products, trying in every way to reduce production costs to sell at the lowest possible price.

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The world we live in is constantly changing, and so are the technologies used in various historical moments. What we are going through is called the Fourth Industrial Revolution or Industry 4.0, at the basis of which there are cutting-edge digital technologies that can play a fundamental role for both companies and individuals.

In a historical context in which environmental and social issues are increasingly relevant, it becomes essential to be able to integrate technological development with sustainable development.Exploiting the full potential of digital technology to achieve long-term sustainable growth becomes the prerogative of every one of us, starting with states, passing through companies, and ending with ordinary citizens.

Sustainability and digitalization must therefore grow simultaneously, especially in the light of the Next Generation EU funds, which will provide many European countries with the opportunity to improve digitally, but always with an eye to sustainable development. In Italy, the large-scale retail sector has certainly been one of those that have initiated processes aimed at digitalization and sustainability since the beginning of the crisis, and this has had a positive impact on the sector's economic growth in recent months.

Thanks to the use of online sales systems, large-scale retailers have been able to cope with the pandemic crisis and the possible drop in turnover that could have resulted from it. Through a sudden change in the sales methods adopted up to that point, players in the sector have been able to meet the new needs of consumers, leading to improvements for both the company and its customers. All this has had a positive effect on sustainability, both directly and indirectly. It can certainly be said that consumer attention to environmental issues has increased significantly in recent years. This is largely due to the change in habits during the Covid-19 period as emerged from the survey, the possibility of being able to buy groceries online has allowed many people to take extra time to analyze the products purchased. The greater use of digital channels and technologies such as e-commerce and home delivery has also decreased the use of own means of transport to carry out the shopping, indirectly having a positive impact on the pollution that derives from them.

Digitization and innovation are fundamental steps for any industry that wants to keep up with the times. Consumption habits have changed and will continue to change in the future, and in an increasingly customer experience-oriented perspective, the importance of integration between technology and needs cannot be overlooked. Also, in this case, digitization becomes fundamental to respond to these needs and innovate the processes that underlie them. Covid-19 has played a key role in all of this, making the large-scale retail sector a key player in digital change.It is evident how digitization can bring benefits in various areas of interest of a country, and among these, there is certainly sustainable development. The combination of circular economy and Industry 4.0 is essential and only through actions that enhance the development of innovative technological systems within companies and the country can have growth that includes processes of an individual or collective interest such as sustainability.

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