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FACTORS' EXPLORATION OF THE INNOVATIVE DELIVERY FORMATS' DEVELOPMENT IN E-GROCERY

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Purpose: The main purpose of this research is to investigate acceptability of different delivery methods in e-grocery and to show the direction of e-grocery development desired by consumers.
Design/methodology/approach: For the purposes of the article, qualitative research (FGI) was carried out, the research sample consisted of 36 participants differing in terms of age and purchasing routines. The research was conducted on Polish citizens, and due to the prevailing pandemic, the interviews were conducted online. In addition, the authors analyzed the literature on the subject, which helped to distinguish and describe the methods of delivery.
Findings: The conducted qualitative research proves that the most friendly and known form of delivery is door-to-door delivery. High hopes are placed in the development of stationary parcel machines (with different cooling zones) for perishable products. Drones have been recognized as a solution for the future that is currently not adapted to the needs of the present and is not covered by legal standards. Similar concerns were highlighted in the case of an unmanned mobile refrigerator. Receiving online purchases in a stationary store is a kind of a compromise between online shopping with delivery and traditional grocery shopping carried out entirely in the store. Moreover, older groups of interviewees emphasized the issue of online shopping safety during the Covid-19 pandemic. The youngest group of interviewees emphasized ecological factors such as reducing the carbon footprint as an important issue of e-grocery purchases, and perceived the use of too large packaging (too much plastic) as a minus.
Originality/value: The expectations of the demand side as to the method of delivering e-grocery purchases were examined. The advantages and disadvantages of individual solutions for the delivery of perishable products purchased online were indicated, according to the assessment of representatives of different age groups with different purchasing routines (division into stationary and non-stationary shoppers).

Keywords: e-grocery, delivery methods, pandemic Covid-19.

Paper type: Research paper.

1. Introduction

The coronavirus pandemic has a crucial influence on every human being in many areas of life such as education, professional work, and health as well as food consumption and dietary habits of people. The United Nations' Food and Agriculture Organisation (FAO) has discussed various effects of global consumption during the Covid-19 pandemic, including limited access to the food markets. In many countries, restaurants and eating places are closed. Moreover, there are restrictions to grocery shopping like the limited number of people in buildings or even the entire closure of particular types of shops (Eftimov et al., 2020).

In the face of the threat and growing uncertainty, population was accumulating stocks and buying products with a long shelf life which resulted in an increase in the sales volume. The change of the existing traditional model of trade into e-commerce was stimulated by intense development of modern technologies and the general access to the Internet (Gemius, 2020). This article focuses on the development of the e-grocery market. Special attention was paid to modern methods of delivering non-durable products. The aim of the paper is to explore factors of the innovative delivery formats' development in the e-grocery. For this purpose, qualitative research was carried out on a sample of 36 people diversified in terms of age and the way of shopping for food.

2. Theoretical background

There is no doubt that the current pandemic negatively affected many traditional enterprises (Wang et al., 2020; Oktavia et al., 2021). The new situation has created an opportunity for the development of e-commerce enterprises (Surjandy et al., 2021). The e-grocery business model has become widespread especially during the pandemic (Kim, 2020). Fear of being around potential infected people in generally accessible places contributed to a change in the purchasing behavior for many consumers (Guberina, Wang, 2021). The feeling of insecurity caused by the current pandemic leads to many ill-considered behaviors (such as buying in panic) and duplicate patterns found in other countries, which is very simple in the era of social media. ABC News indicated that anxiety about the virus spreads fast in age of social media and resulting in anxiety among people (Ahmad, Murad, 2020). As a result, consumers try to maintain control over the changing environment (Kozłowska, Abramowska et al., 2020). Very few empirical studies were carried out to investigate the consumer online shopping behavior of grocery products. In a theory explaining online food shopping behaviors, five important characteristics are (Alaimo et al., 2020):

1. influence of relatives or friends on shopping choices, also known as social norms,
2. degree of difficulty in reference to information acquisition and use of technology to complete transactions,
3. compatibility of online grocery shopping with personal values and lifestyle,
4. advantages perceived by consumers in offers presented by online shops in comparison to traditional purchase channels and
5. perceived risks connected to the online purchasing process like problems with payment or quality.

The changes in retail purchasing behavior during the Covid-19 pandemic were visible (Table 1.). In the context of growing consumer concerns about loss of health during COVID-19 pandemic many grocery stores have chosen to launch home in-house deliveries or mobile applications (for example via the Glovo mobile app). More and more Poles use online shopping and use various payment and delivery methods (Grygierek, 2020, p. 13), including the largest Polish networks as Biedronka, Lidl, or Żabka. It is worth mentioning that previously selected grocery chains offered such a service before the pandemic, but its real boom occurred during the time of lock-down. Consumers who were concerned about issues including health are more likely to spend more money on home deliveries (Unnikrishnan, Figliozzi, 2020). Consumers worried about the prices of products in stationery stores are less likely to use house deliveries.

Table 1.
The retail trend in Poland and COVID-19

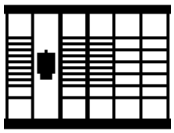
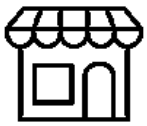
Turnover (constant prices)		**March 2020 as % of March 2019**	**April 2020 as % of April 2019**	**May 2020 as % of May 2019**	**June 2020 as % of June 2019**	**July 2020 as % of July 2019**
Retail sale of food, beverages and tobacco	Poland	102%	89%	93%	93%	97%
	Central and Eastern Europe GDP weighted average	106%	94%	97%	97%	99%
Retail sale in non-specialised stories with a prevalence of food, beverages or tobacco	Poland	102%	90%	93%	93%	98%
	Central and Eastern Europe GDP weighted average	106%	94%	97%	96%	99%
Retail sale in specialized stories with a prevalence of food, beverages or tobacco	Poland	100%	89%	90%	94%	95%
	Central and Eastern Europe GDP weighted average	99%	86%	92%	97%	97%

Source: own elaboration based on European Institute of Innovation (2020).

By conducting a focus group interview, the authors would like to determine the range of changes that have occurred in the purchasing behavior of fast-moving consumer goods (FMCG), including the preferences for food (e-grocery) delivery formats.

In the article, e-grocery is defined as on-line grocery being an intensely competitive, low margin and high volume industry that has evolved rapidly from a simple form of local operation to an industry that is dominated by global companies making the best of advanced technologies and complex operations that are often offered to the retailers as ”standard application models by external consultants and advisers” (De Kervenoael et al., 2006). Several forms of deliveries could be defined for e-grocery such as door-to-door delivery, click and collect – lockers, Click and collect – Pick Up from the store or some future formats as drone delivery or Impersonal mobile locker (table 2.)

Table 2.
E-grocery delivery type description

Delivery type		Description
	Door to door delivery	We include door to door shopping to the attended home e-grocery delivery. This is food delivery restricting travel to the store. Online purchases are delivered to the consumer's door via courier.
	Click and collect – Lockers	E-grocery delivery to a dedicated and properly adapted locker installed at the customer’s yard. The order is processed without the presence of the consumer. The collection of the order is possible thanks to the generated access code.
	Click and collect – Pick Up from the store	The click-and-collect option allows for ordering online and picking the order from the store or a locker placed next to the store.
	Drone delivery	The customers are able to order goods as food through their phone and have them drone delivered at their house.
	Impersonal mobile locker	An unmanned vehicle with cabinets properly prepared for transporting food. Delivers the e-grocery order to the previously designated pickup location.

Source: own elaboration based on Miliotti et all., (2020).

Before Covid-19 pandemic, the most preferred delivery format in e-grocery was door-to-door delivery. However, pandemic changed preferences (Milioti et al., 2020), and new formats of food delivery have begun to gain popularity. Main purpose of the study presented in the paper is to determine the factors influencing this change.

3. Research method

In the outlined situation of the SARS-CoV-2 pandemic, the main research aim has been posed. We want to discover why in the pandemic people changed their purchasing behavior or why they did not. Focus groups interviews (FGIs) were chosen as a method of collecting data for this purpose, because it enables to discover the way how and why customers think and decide (Olejnik, Reshetkova, 2021). Basic research questions were asked about the new purchasing e-grocery model in the Polish market. Moreover, respondents were asked about using e-grocery pick-up points (lockers) as an alternative to stationary but also door-to-door shopping models. It was asumpted, that age demographic variable and attitude towards buying food (traditional and on-line) as behavioural variable are important control variables in the research. Followed by Thiruvenkadam and Panchanatham (2016) demographic factors such as gender, age, education, family type and income have a crucial influence on the behaviour of grocery shoppers. The distinction between online and traditional shoppers was based on a need to differentiate research criteria.

FGIs were carried out in 3 different age groups with people who use the e-grocery model and in other 3 different age groups with people who are not familiar with this shopping model and stay in traditional shopping models. In that case, two different scenarios had to be created. In order to properly define the sample, it was necessary to use a survey (in this case it was an online questionnaire) – *the full recruitment questionnaire is attached,* to help select participants before the actual test (focus group). The authors of the recruitment questionnaire envisage 3 following paths:

1. catching people responsible for grocery shopping in their household and using only stationary stores during a pandemic,
2. catchich people responsible for grocery shopping in their household and using online and brick-and-mortar shopping, or only online, during a pandemic and
3. eliminating people who are not responsible for providing their family with groceries.

It is worth emphasizing that the research was successfully approved by the Research Ethics Committee (no. 31a/2021) of the Poznań University of Economics. Main research assumes a deliberate selection of respondents based on a pre-survey online questionnaire (table 3.).

Table 3.
The FGIs samples for food buyers in Poland (November 2021)

Age of participants	E-grocery buyers	Traditional model buyers
18 - 29 years	3 women + 3 men	3 women + 3 men
30 - 49 years	3 women + 3 men	3 women + 3 men
50+ years	3 women + 3 men	3 women + 3 men

Source: own elaboration.

The whole sample consisted of 36 people. The division into age groups is based on deduction (Table 3). The first group are representatives of the generation of young people, who are most often still learning (students or interns) and do not have a large financial base. These are people who have always used modern technology and feel connected with the Internet space. The next age group is the people who have a larger budget. People who already know their life path and are developing professionally. This group works with modern technology on a daily basis and appreciates its added value and usefulness. The last group consists of people over 40 years of age. The oldest representatives had to get used to technological novelties, depending on their attitude, they willingly use new solutions or do not want to give up their old good habits. Representatives of this group are already settled and often take into account the needs of their families in their purchasing decisions. The study was planned based on the literature of the subject (Kaczmarek et al., 2013) and similar already completed and described FGI's. (Van Droogenbroeck, Van Hove, 2019; Kawa et al., 2019). In order to keep the interview participants interested, various methods were used, including projection methods such as juxtapositions of pictures and graphics. The questions were structured in such a way as to obtain answers to the issues raised, but also, when required, to stimulate the imagination of the participants.

4. Results

During FGIs every group was asked to define advantages and disadvantages for every of five define food delivery formats: door-to-door delivery, click and collect – lockers, click and collect – pick up from the store or some future formats as drone delivery or impersonal mobile locker (tables 4-6).

Table 4.
Advantages and disadvantages for door-to-door delivery in Polish food buyers opinion (November 2021)

		
	+	-
Stationary group (18-29)	"food delivered home on any day" "bringing heavy grocery shopping straight home" "great convenience"	"sometimes a very long waiting time for delivery (e.g. 2 weeks)" "the courier can come just when I am not at home"

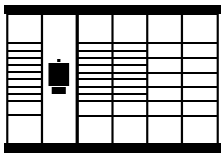
Cont. table 4.

E-grocery group (18-29)	"possibility to choose the delivery date" "comes and pick, simplicity and comfort" "shopping at the door" "ease and speed of receipt,, "you don't have to carry heavy things"	"destruction of roads and surfaces, ecological problem" "delivery costs" "human failure as a driver" "specific pickup time" "no option to choose without nets: ecology"
Stationary group (30-49)	"food delivery to the door" "heavier shopping does not have to be lifted" "they bring us home without leaving"	"hard to set the time, you have to adjust to the courier" "non-compliance of the delivery with the order" "lack of physical movement, laziness"
E-grocery group (30-49)	"visible expiry dates of the products, I know what I am ordering,, "convenient and easy to order at any time,, "the best form of delivery for people who do not have time for stationary shopping"	"frozen fruit and vegetables" "only for big cities, small range" "we must be home" "intervals of several hours, it would be better to have a more precise delivery date, e.g. 1-1.5 hours"
Stationary group (50+)	"possibility to come to a given address" " no need to lift shopping"	"have to be at home to wait for a delivery" "doubt about payment on delivery: can I pay while picking up my shopping?"
E-grocery group (50+)	"no need to carry heavy shopping from the shop" "some products are not available in the shop, possibility to order other types of products"	"the fear of having to be at home at that time"

Source: own elaboration based on FGI.

Table 5.

Advantages and disadvantages for click and collect – lockers in Polish food buyers opinion (November 2021)

		
	+	-
Stationary group (18-29)	"possibility to buy food from different temperatures,, "possibility of the contactless collection,, "any pick-up time, whenever it fits within 24h" "a good solution for products that are hard to get in your neighborhood"	"what if there is a power failure?" "What about goods and money if I don't have time to pick up the goods?" "What if you buy more items that need to be stored at different temperatures?" "it is not known what happened with the products before they were put into the parcel locker,, "if damage occurs, who is blamed?" "doubt how to file a complaint, if something will be broken"
E-grocery group (18-29)	„lockers located in the near area - a reason to go for a walk" "pick up no matter when picking up, easy and flexible" "no need to contact with other people"	"Power outages can waste goods,, "occupying urban space" "the need for personal collection" "What if we don't pick up the food?" "expiry date, products with the longest date are not always delivered" "fruit and vegetables may be stale"

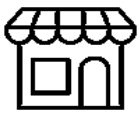
Cont. table 5.

Stationary group (30-49)	„you can pick up your groceries anytime”	"no control" "interruption of the cooling sequence" "there aren't too many points like this" "can food products be kept fresh?" "There are no refrigerators in small towns" "It is faster to buy stationary instead of going to the refrigerator if it is further away than the store" "doubt in what conditions my package is waiting for collection"
E-grocery group (30-49)	"limited contact" "shopping intimacy" "convenient selection date"	"limited number of places" "overflow" "you have to go further, it may not be close to home"
Stationary group (50+)	“possibility to pick up when individual wants”	“fear of power cut off” “doubt about sterilization and decontamination of the lockers”
E-grocery group (50+)	“security – closed boxes, strangers do not have access to products (e.g. in a stationary shop they take out frozen food)“ “convenience of pick-up time”	“unreliability of machine” “technical problems with pick up”

Source: own elaboration based on FGI.

Table 6.

Advantages and disadvantages for drone delivery, click and collect – pick up from the store and impersonal mobile locker in Polish food buyers opinion (November 2021)

						
	+	-	+	-	+	-
Stationary group (18-29)	"order for any hour and ad hoc for now” ”no interaction with other people”	"the danger that someone may illegally take over the drone or the drone will make a mistake” „low lifting capacity” „problem with temperature maintenance”	"future, good ecological solution” „no interaction with supplier”	"pick-up time cannot be determined" "few refrigerators – high cost"	"good alternative between traditional shopping and online„ "the possibility of exchanging bad products"	"need to leave home" "transport groceries"

Cont. table 6.

E-grocery group (18-29)	"delivery to the indicated address" "good for homes outside the city"	"technology could be unreliable: failures, poor targeting" "low lifting capacity" "violation of the airspace" "legal regulations"	"a solution to the future, it reduces the carbon footprint"	"you still have to bring your purchases upstairs"	"You can drive up yourself on the way home and pick up without queues"	"need to leave home"
Stationary group (30-49)	"24 / h purchase available" "avoiding traffic jams"	"where will it land?" "low capacity" "there must be a short distance to the store" "not very practical form of delivery to apartment blocks"	"stability" "shopping privacy"	"you have to be in a specific place at a given time to pick up"	"convenient, I can pick up my groceries on my way home"	"I don't know if I will be able to replace the wrong product, you have to trust a stranger"
E-grocery group (30-49)	"good for hard-to-reach areas"	"the weather is an obstacle" "out of town" "Aviation permits and regulations - legal problems" "they make noise" "bad for city estates" "low load capacity"	"good solution for big cities"	"must meet the relevant regulations" "all other vehicles would have to be autonomous"	"during a pandemic, a very good form of shopping, I do not wait for delivery and avoid queues"	"you still have to go to the store"
Stationary group (50+)	“opportunity to purchase hard to find products” “fast delivery” “delivery directly to home”	“problem in particular seasons, how about srain or now?”	“a great solution in places where there are no shops, such as small villages”	“everyone must gather the same time, problem with coordination”	“I can’t wait in lines”	“need to pick it up, maybe it’s better to do shopping this time”
E-grocery group (50+)	“time-saving”	“interference, e.g. noise” “very limited privacy” “drones over the heads of pedestrians” “low payload capacity”		“it’s solution for the future”	“good hybrid model between stationary and online shopping”	“delivery inconvinience, I have to pick up my shopping”

Source: own elaboration based on FGI.

All meetings took place successfully without technical problems. The length of the meetings was 60-80 minutes depending on the group. The tables below show the results for each group divided into participants who do online shopping and people who purchase food products the traditional way.

4.1. General conclusion based on group traditional buyers 18-29 years old

A general conclusion drawn from the interviews conducted with the youngest group of people who do stationery shopping is that they cannot fully trust modern solutions. They are concerned about the unreliability of the technology as for example of drones which could be overtaken by hackers or have a wrongly programmed route. The most significant inhibitor is the fear of spoilage of products sent to fridges or their questionable freshness in any form of delivery. Respondents particularly value the possibility to choose products themselves, comparing expiry dates or choosing fruit and vegetables. Some of the participants are not keen on online shopping because they fear higher prices of food products. They are aware of the rapid development of modern forms of shopping, however, of the dense network of stationery shops, they remain with the traditional form of shopping. They treat shopping as a form of leaving home, a chance to talk and learn about new products. The pandemic has not significantly changed their shopping routines, most of them pay more attention to longer expiry dates, but do not want to give up the privilege of buying fresh bread or fruit and vegetables. The youngest group speculates that in the distant future, the need to go to the shop will be greatly reduced, interview participants pointed to solutions such as food teleportation, robots designed to purchase products and delivery, self-refilling fridges, or 3D printing of food in a printer.

4.2. General conclusion based on group e-grocery buyers 18-29 years old

When it comes to a group of people doing e-grocery in age 18-29, they are familiar with modern technology, willing to use the benefits of shopping online shopping. They see many more advantages of such shopping. The interviewees claim that it saves time and they emphasize that it is the best solution in terms of economics due to many reasons. Firstly, saving money because it does not yield to merchandising, lures in the form of impulse products, and encourages to plan shopping to buy only the products are needed. Secondly, there is full access to market information so individuals can choose the best offer. An important aspect related to the pandemic is reducing the need to leave home due to safety aspects but also convenience. The surveyed group is willing to use new delivery solutions. Most often they decide to use door-to-door delivery. They are aware of consumers and perceive some risks associated with new forms of delivery, especially the problem of wasting food due to technological defects – fridges, legal loopholes, low lifting capacity, and wrong delivery address in the case of drones. The other cons are the possibility of receiving a stale product or waiting for the courier, however, despite these possible complications, they opt for modern

forms of delivery, the value of such an opportunity. They are promoters of online shopping. Most of them are open to trying out fridge vending machines as well as other forms of technology. Participants asked about alternatives to the presented delivery types indicated online shopping with the possibility of picking up the complete order in the shop without waiting in line and walking around a shop with the basket. They think that it is a good intermediate between traditional shopping and remote shopping. As a disadvantage, they perceive the way to the store, which simply means the necessity to leave the house and to bring the shopping up to the upper floors by themselves. The interviewees attach great importance to ecology and caring for the environment. They saw the need of the carbon footprint reduction as well as minimization of the plastic packaging use. According to the respondents, the future belongs to technology and its development in the case of drones, mobile fridges, and even the creation of a new profession of "shopper". Also, in respondents' opinion in the future will be universal access to food 3D printers, teleport shopping as well as the creation of a suburban food transport network that delivers shopping directly to the indicated address.

4.3. General conclusion based on group traditional buyers 30-49 years old

Those taking part in the research pointed out that at the beginning of the pandemic they were less likely to shop for groceries because of the queues and chose instead to stock up for the whole family. For stationary shoppers, this saves time as it is easier for them to decide what and how much to buy. In addition, they can pay attention to choosing products with longer shelf life. Another benefit is the availability of products and not having to wait for delivery. Being in a shop, it is easier to be aware of one's needs and to see the products carefully. An important aspect highlighted by several participants is the possibility to go out for mental health and stress relief, especially appreciated when working remotely. According to those taking part in the survey, stationery shopping is particularly done by older people, people who want to meet in person, people who have difficulty with technology, heavy drinkers, and those who are in control of their shopping. When considering modern delivery methods in the future, people specifically mentioned the ability to pick up a pre-prepared parcel in-store, food printing, pipelines over the city, and a divided fridge lift system. Participants stated that food will be able to be printed, people will consume products in very small sizes, a virtual shop will be available for food and pick up and will materialize the product when the image or box diet is lifted.

4.4. General conclusion based on group e-grocery buyers 30-49 years old

Among online shoppers, in age 30-49 the structure of shopping changed during the pandemic. Their attention was paid to not wasting food and starting to make food at home. There were queues in shops, which further strengthened the desire to use online delivery. The emerging problems were the lack of free delivery times, for example, one participant was waiting 3-4 weeks for delivery, and for another in the area of living there was not food possible

to be delivered. In the case of in-store shopping, people pointed out the importance of shopping strategically according to a more precise list in order to limit exposure to the virus. The main benefits of online shopping identified by the supporters of online shopping were: ease of choice, no queues, time to refuel, no impulsivity, intimacy in shopping, saving time and fuel, and the possibility of repeating a fixed list (you don't have to choose from scratch, but the online shop remembers your previous choices and preferences). Taking the idea of modern delivery methods into the future: fridges built into blocks of flats already by developers for every flat. Another idea is a cooperation between Allegro/InPost/Amazon with developers and posts boxes with fridge option, assigned to each flat. The innovative idea was an intelligent control: when you see that you are running out of flour, it appears, a smart fridge that orders itself. Other ideas were discussed to pick-up of ordered groceries in a nearby shop, and also to the door but with an external delivery company, for example delivery by uber or taxi.

4.5. General conclusion based on group traditional buyers 50+ years old

Stationary buyers over the age of 50 pointed out that due to the pandemic they started to buy healthier products and do it less frequently which resulted from queues. In addition, they choose to visit shops during the day when there are fewer people because of shorter waiting times and safety. Participants also drew attention to the essence of the habit of systematically doing their shopping in a fixed favorite place and the related major inconvenience of stationary shopping, the rearrangement of products in many categories. According to the research for participants, it is definitely easier to go to a shop than to start a computer and shop online. It was the main conclusion that traditional shopping simply is easier and saves time. Their aversion to technology, makes them decide to buy food products by delivery. The ability to pay on delivery would be a key issue for them. Additionally, they appreciated the solution of a mobile shop that could reach a place where there are no shops at all. In the contrast to participants in the other groups, they indicated that local shops with a shopper could return in 30 years, concerning a question about future grocery solutions. The detachment from technology and the emphasis on the aspect of the relationship with another person were different from the views presented in other groups associated with far-reaching technological solutions. In addition, it was recognized that in the future we would be taking tablets to protect our energy needs. Another idea concerned intelligent fridges.

4.6. General conclusion based on group e-grocery buyers 50+ years old

Most of the participants among 50+ buyers initially do shopping traditionally and switched to online shopping due to the pandemic situation. This was determined for a number of reasons, including reluctance to go out due to the epidemic threat, daunting queues in stationery shops but also an expansion of the offer in online shops. Individuals indicated that they had previously felt aversion to online solutions, but the epidemic situation made them try. Additionally, it was pointed out that the world is constantly changing and technology is present as evidenced by the

removal of cash registers in shops and the replacement with self-service checkouts. An additional advantage of online shopping is undoubtedly the convenience, time-saving, no need to carry heavy things, quick and easy access, the possibility to compare offers between shops and extend the range of products. In online shops it is possible to get to know and buy new brands, due to the growing competition there is a widening of the offer and following social trends related to ecology and bio eco. A preparation service and the possibility to pick up the goods on their own. Also, the introduction of robots that will deliver food to people's homes was identified as a desirable solution for the future. In the future, in 20-30 years' time, participants expect personalized drones, as well as shops, to accurately recognize our habits and self-order products according to our needs.

5. Limitations and future research

The qualitative research brought several main conclusions. All surveyed groups showed the greatest interest in the door-to-door delivery. As an alternative to traditional shopping, they see picking up online purchases in-store. For most respondents, parcel lockers are the future of e-grocery delivery. The other two formats (drones and unmanned mobile coolers), according to the respondents, are not adapted to the current road conditions and do not meet the necessary legislative conditions. The most interesting conclusion from the research was the orientation of the youngest group of respondents to environmental issues. Participants from both groups (18-29) often drew attention to the issue of a large amount of plastic, excessive large packaging, or increasing the carbon footprint by each trip to the store. People preferring in-store buying emphasized the fear of the quality of the products, what is more, they perceived shopping in the store as a form of physical activity and as a way of satisfying social needs (contact with other people). The average age group (30-49) is the group that most frequently uses e-grocery and various forms of delivery. People who have not previously shopped online for groceries were interested in new forms of delivery and did not rule out a change in the form of purchase. The oldest surveyed group (50+) emphasized the convenience of home delivery, higher variety of products and the ease of comparing the offer, and in times of a pandemic, they appreciate safety. People who are in favor of stationary shopping emphasized the fear of receiving low quality products. They treat going to a store as an opportunity to learn about market novelties and as an opportunity to save money. They consider e-grocery shopping to be expensive and they want to do their own shopping in stationery stores at all costs.

Main purpose of the paper was to explore factors of the innovative delivery formats' development in the e-grocery. As mentioned in research section, age and attitude towards new technologies is important in choosing innovative format in e-grocery. Moreover, according to the conducted research, safety (perceived risk), opportunity of meeting other people (social

influence), threat of buying low-quality food (performance expectancy and service quality) could play a significant role in choosing new formats while buying food. These variables are considered as crucial in UTAUT 2 model (van Droogenbroeck, van Hove, 2021).

Taking into account the results from the qualitative research, quantitative research with a focus on delivery formats is strongly recommended for the future. Due to the limited number of people surveyed, the authors plan to continue their ongoing research related to e-grocery changes during the pandemic in quantitative terms. This will make it possible to analyze a global view of particularly interesting topics concerning the choice of delivery formats on a representative sample of participants. The issue of acceptance of new technologies by the user, in particular, the use of mobile devices for shopping purposes is illustrated by the UTAUT 2 model. The authors intend to use this model to check what factors determine the willingness to make e-grocery purchases. The dynamically growing value of the worldwide mobile shopping market as well as the increase in the number of scientific articles and commercial reports on this area show the growing popularity of online shopping, also in the food sector.

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