How the Covid-19 pandemic has transformed consumer behaviour towards online food shopping

Investigating the effect on online food shopping behaviour initiated by the pandemic amongst the Amsterdam population and identifying the features for food e-commerce to succeed in the future

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Preface & Acknowledgements

My name is Clio Cudoni and I am a fourth year International Food Business student, at Aeres University of Applied Sciences (in the Netherlands) and Dalhousie University (in Canada). I am approaching the end of my academic journey and will conclude with a final thesis report.

The last year, has been different from others in too many ways to list. After four years studying International Food Business, I have grown accustom to stay up to date with all things food related. I have also extended an interest in consumer behaviour and how the population reacts to innovations and trends around them. Therefore, I decided to gain inspiration from the historical moment we are living and combine it with my curiosity in consumer behaviour. I was overwhelmed with the options and possibilities I could have researched, but finally, I landed upon online food shopping. Online food shopping has become a new custom in many households across Europe, so I decided it would be interesting to investigate how big has the influence of the lockdown on this industry been, as well as researching how to maintain and influence the growth of online grocery supermarkets.

I would like to thank my coach Elsbeth Kauffmann, for her guidance and kindness. I am very pleased with how we have worked and brainstormed together during this research. Further, I can't go without thanking Martijn for being an important source of support and guidance throughout this journey. Along with him, of course my family and friends.

My enthusiasm towards the topic of research has been exponentially growing since I started this research. It has been a fun and insightful process. I hope it will be the same for those who read it.

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Summary

Online food shopping has been a business model on the rise for some time. However, significant increased growth in consumers using e-commerce to purchase food has never been so high as that recorded in 2020. During this year, the world was hit by the pandemic. Governments from countries around the world – advised or/and forced people to self-isolate and social distance as much as possible. Given such drastic measures, people had to re-think the way they acquire food. Therefore, there is a strong possibility that the success of online grocery procurement may be linked to Covid-19 restrictions.

This research focused on investigating changes in consumer behaviour regarding online grocery shopping, in the city of Amsterdam alone. Further it attempted to capture the influence Coronavirus may, or may not, have had on consumers motivation to initiate online food purchasing. The findings of this research may be of interest to local Amsterdam based businesses but also to organizations operating within similar European capitals and cities.

Since researches on the effect of the virus upon consumer behaviour exist in relevance to other regions or countries of the world, this research focuses on capturing such potential effect on an urban environment by answering the following main question "*What is the effect on online food shopping behaviour initiated by the pandemic amongst the Amsterdam population and what are the features for food e-commerce to succeed in the future?*"
In order to support businesses in understanding the durability of the online food shopping trend in Amsterdam, the following sub-questions were established:

1. *What are the most important factors valued by Amsterdammers during the experience of online grocery shopping?*
2. *What factors will encourage/remain relevant for Amsterdammers to continue using e-commerce for groceries, past the pandemic?*
3. *What is the self-reported frequency of using online grocery stores in Amsterdam?*

An online survey was created on Google Forms and spread via means of shares across a series of social media platforms. A little over a week, 147 valid surveys were collected. The results were analysed by means of quantifying data and conducting Pearson's Chi-square tests were required.

The results of this study showed that the Coronavirus only partially influenced the minority (online shoppers) to start purchasing food online. Further, very few of these participants actually value 'social distancing/avoiding crowds' as part of the online grocery shopping experience. Current online consumers have intention of continuing to online food shop past the pandemic. Additionally, offline consumers showed willingness to try online food shopping and provided personal insight as of why they have not so far.

Based on this conclusion, the following recommendations were made:

- Invest in and promote online food shopping, to safeguard its success after the pandemic
- Use insight obtained from offline consumers to fill gap in the market and improve food web-shops experience to please a wider/niche audience.

1. Introduction

Since early March of 2020, the world has been forced to face and overcome new challenges due to the pandemic. The Covid-19 virus quickly impacted lives across the globe. Lockdowns, social distancing and partially closed borders obliged many industries to adapt, shift and transform to survive. The challenge did not exclude the food sector. The food and beverage industry had to address issues across all departments. Initially, one of the priorities was to determine how to continue delivering primary necessities across a globalized supply chain (Macdonald, 2020). Not only is food a staple component of life, but it is also a major contributor to the economy. Sourcing shortages and regulations shutting down manufacturing premises are only some of the circumstances that threatened the global food industry. Some sectors of the field have been cornered and not granted to operate, due to severe restrictions. For instance, the HORECA industry has been often unable to deliver their products and services to the public (Newton, 2021). Constantly changing government restrictions have led many in the catering world to conduct business performing in a go-stop-go fashion.

But whilst businesses have to face the challenges of the outdoor world in the midst of a health crisis, inside the homes of consumers, everyday life will also drastically transform. Routines and lifestyles are put under pressure to change and adapt to new restrictions. From country to country, regulations differed but overall, the trend focuses on encouraging social distancing, staying at home as much as possible and avoiding crowded locations (Hale et al., 2021). For many, this meant working from home, spending more time indoors and adjusting to new routines. Including food. Amongst an overall atmosphere of uncertainty, limited freedom and fear, consumers have been obliged to re-think the way they will get food goods to their doorstep.

Up until March 2020, the majority of people were likely to go about their day including activities and duties to execute outside of the house. These circumstances offered the opportunity to choose from: bringing food from home or purchasing food on-the-go. However, the pre-Covid world already provided options to acquire food products comfortably from home. Web-shops ran by small and medium enterprises, retailers providing groceries and take-away ready food were all one-click away. Nonetheless increasingly popular were these purchasing alternatives, with the arrival of the virus, these options might have become the “new normal”. For those promoting online grocery shopping experiences, Covid-19 has given a major boost in users and purchasers (Muckersie, 2021).

Since the advent of Covid-19 worldwide, the population has been encouraged to avoid crowds and remain at home. As a resort, given the opportunity (on a local scale), a portion of the global population has become an accustom user of online food shopping. Whilst consumers acquire foodstuff via clicks, businesses fear that this might be only a temporary trend and that the rise in online users may decrease past the pandemic (Günday et al., 2020). Hence, it is important for food web-shops owners and developers to understand what factors satisfy online food shoppers in order to maintain a steady growth. Online food shopping has a lot more advantages to offer in comparison to the in-store experience. To mention some of the benefits, factors like time, flexibility and convenience are all increased for the buyer. Additionally, it is in the interest of food web-shop providers to maintain and grow the scale of their business to their advantage. Running an online grocery store requires a different set and approach to logistics, however it has a very different set of costs. Further

it reduces costs of manual labour in comparison to traditional stores. Automation can be increased and reduce costs in the long run, improving efficiency. Further, food web-shops increase the chances of profits due to different elements: the supermarket is open 24/7 and accessible from any device with an internet connection. Moreover, online food shopping is supposedly a more environmentally friendly method of food acquisition (last mile emissions). Home delivery reduces trips to the store and is often taking place via means of electrical vehicles. With this short introduction, it is safe to admit that online grocery stores offer more positive outcomes to both, the providers and the end users.
At present, the Dutch population is exposed to an immense variety of services. Services of different sorts are continuously improved to ameliorate the experience of the user and fulfil as many needs as possible from the comfort of their homes. This is the case for online grocery shopping. Unlike other goods acquisitions like clothing, tech and other miscellaneous items –food e-commerce has had a much slower growth pace (Warschun, 2021). Amsterdam, is an international hub that can provide interesting and cross-functional understanding of online food shopping users and their respective needs and wishes. Therefore, the research will be conducted within this geographic area.
To influence the future and attempt to safeguard the growth rate of online food shopping users, it is important to identify how and why users encouraged by the circumstance will confirm their behaviour conversion, past the pandemic. To do so, recognizing the point of view of the consumers is of prime significance. Ultimately grasping the elements and factors valued by users, will provide insight into behavioural and satisfaction overview. Further, such comprehension provides food web-shops to implement these factors into the user experience to improve the experience and avoid users returning to the traditional supermarket.

1.1 The Rise of Online Food Shopping

Online food shopping is the acquisition of foodstuffs via a web-based marketplace. Hence, online grocery procurement is just one of many examples of e-commerce and mobile commerce applications web-shop models.
Online food shopping originated in USA in the 1990s (Saunders, 2019). At this point in time, pioneers investing in tech, figured that retailing groceries online would be a ground-breaking success. However, it quickly turned out to be a sad outcome and companies soon filed for bankruptcy. Although consumers were becoming more accustomed to shopping goods online – e-commerce for foodstuffs was not ready for any kind of audience. During this period there was a reason to believe online food shopping could be a good idea. However, the limitations outweighed the potential: internet access was sparse, and the households in possession of a computer were also narrow. One of the main reasons for the failure of these pioneering online grocers, was also the lack of existing infrastructure. In fact, these start-ups launched themselves into the food retail competition without previous logistics or retailing experience. Consumers either not in possession of the tools to access the web market or simply not habitual or familiar using a web platform, appear to have remained loyal to brick-and-mortar supermarkets (Navis et al., 2012).
Nowadays, the organizations behind online grocery providers are mostly established grocery chains that have extended their business models to a digital market. In the USA, today, mega stores like Walmart and Target have developed successful online food shops business models. Another major player in the American market, is Amazon – the online retailer has

taken over Whole Foods and is additionally providing food goods on top of books, home items and tech devices.
The mentioned players are significantly more successful than their 1990s initiators. Nevertheless, they have winning cards up their sleeve: extensive infrastructural experience as well as increased appeal for 21st century consumers – who are savvy tech users (Kempiak and Fix, 2008).
To be profitable, an online grocer must be capable of delivering numerous items across entire neighbourhoods – and these customers must frequently be returning. In technologically developed countries, online grocers are more inclined to succeed. However, this is not enough. The geographic and demographic factors, play a major role. For instance, in the USA, there are many logistical challenges. But a country like the Netherlands, which has a small dimension, is abundantly inhabited and has an advanced infrastructure – the feasibility rate to invest into an e-commerce venture is increased.
In the USA, it appears that the most successful online food web-shops were provided by corporations that designed hybrid business models, meaning they provide an in-store and an online experience (Saunders, 2019).
With the spread of internet connection and the increase in tech device (smartphones and computers) users, nowadays, the online food shopping sector is a booming business. Anyone can shop anything, from anywhere. Food retailers of different scale (local, regional and national) are investing in online grocery businesses. E-commerce is the fastest growing channel for global foodstuff sales. According to Euromonitor International – a market research group - between 2014 and 2019 a 21% growth was registered for grocery e-commerce (Gonzalez, 2020). In 2019, the online food business was still considered to be in its nascent phase.

1.2 The In-store Experience versus the Convenience of the Digital Experience.

The success and rising popularity of online food acquisition amongst the global population is justified by many features the service has to offer. People's lifestyles and consumption habits are transforming and as a consequence, so are the individual perceptions of in-store shopping and online purchasing benefits and disadvantages (Oliveira, 2020). Online food shopping is a less demanding and a more customizable experience. Going grocery shopping the "old-fashioned way" requires more input on behalf of the consumer: the shopper has to physically move to the store and do so within a set hour range of the day. This is more time consuming and involves more limitations to be aware of. Additionally, worst case scenarios could furtherly complicate the experience. For instance, the possibility of products not in-stock may or may not lead to purchasing a substitute or going further out of one's way to acquire the goods elsewhere. Factors such as time, money and flexibility are all affected. However, many consumers value the in-store experience, since it is contestably a more well-rounded and stimulating experience in comparison to placing an online order (Southey, 2021). There is something exciting about going to the store and using all five senses to make purchasing decisions. Nonetheless, a lot of people find the brick-and-mortar experience stressful, time consuming and unpleasant.
Online grocery shopping has seemingly eliminated the potential downfalls of the traditional supermarket (Singh et al., 2020). Trips to the shop are removed, opening hours are no longer relevant, the product range is wider and the chance of a product being out-of-stock is decreased. On top of that, there are additional advantages such as home delivery, and

arguably transforming grocery shopping into a more sustainable process, since travelling is reduced (and often powered by electric vehicles).
Given that there is a valuable overview of PROs and CONs, preferences are subject to individual needs, desires and circumstance. Online shopping is prone to succeed expansively since the limitations of this market are decreasing. Phone or computer ownership is increasingly spreading, as well as internet connection. Further, people value convenience. Generations that are not habitual using digital technology are also gradually decreasing, which causes the automatic and natural rise of the tech-users population.
Shortly after the rise of the Coronavirus in China, Gao et al. published a research about the impact of covid-19 on the short-term adoption of food e-commerce services (Gao et al., 2020). From this study, a link was found between the number of confirmed infected people and the use of online grocery stores. Additionally, the rise in the adoption of online food shopping resulted more common amongst younger consumers who typically have more trust in purchasing goods online. This conclusion provides further confidence in the trust level linked to generation related habits. Consumers more accustomed to buying things on the internet – typical of people using tech devices and apps on a daily basis - find it easier to switch the location of their supermarket (from offline to online, and vice versa).
From a business perspective, managing a warehouse in comparison to a supermarket, comes with numerous advantages. First and foremost, costs are likely to be reduced. In fact, besides having to invest in technology, costs related to welcoming and satisfying the in-store experience for the consumer all disappear. Lights, air conditioning, rent for spread and central locations, marketing material and manual labour are all eliminated, or at least reduced costs. Warehouse buildings are generally much bigger than retail facilities and therefore can content a much larger number of consumers. Additionally, features like traceability and transaction security are improved due to the lack of human interaction (Muhammad et al., 2016). Although not a major issue in the food retail world, also the chance of theft and incidents can be reduced. Some of these newly found benefits, are positive features from the consumer and business perspective.

1.3 Online Grocery Shopping in the Netherlands

The Netherlands is known around the world to be a technologically advanced country, leading trends that value sustainability. It is not a surprise to see that the Netherlands has been one of the first countries in Europe to purchase groceries online. According to Eurostat, since 2013, the Dutch have increasingly been fond of food e-shopping (Statistics Netherlands, 2018). The same research found, that in 2019, up to 29% of the Dutch population was purchasing food items from the online retailers – making the Netherlands the EU leader in online food shopping.

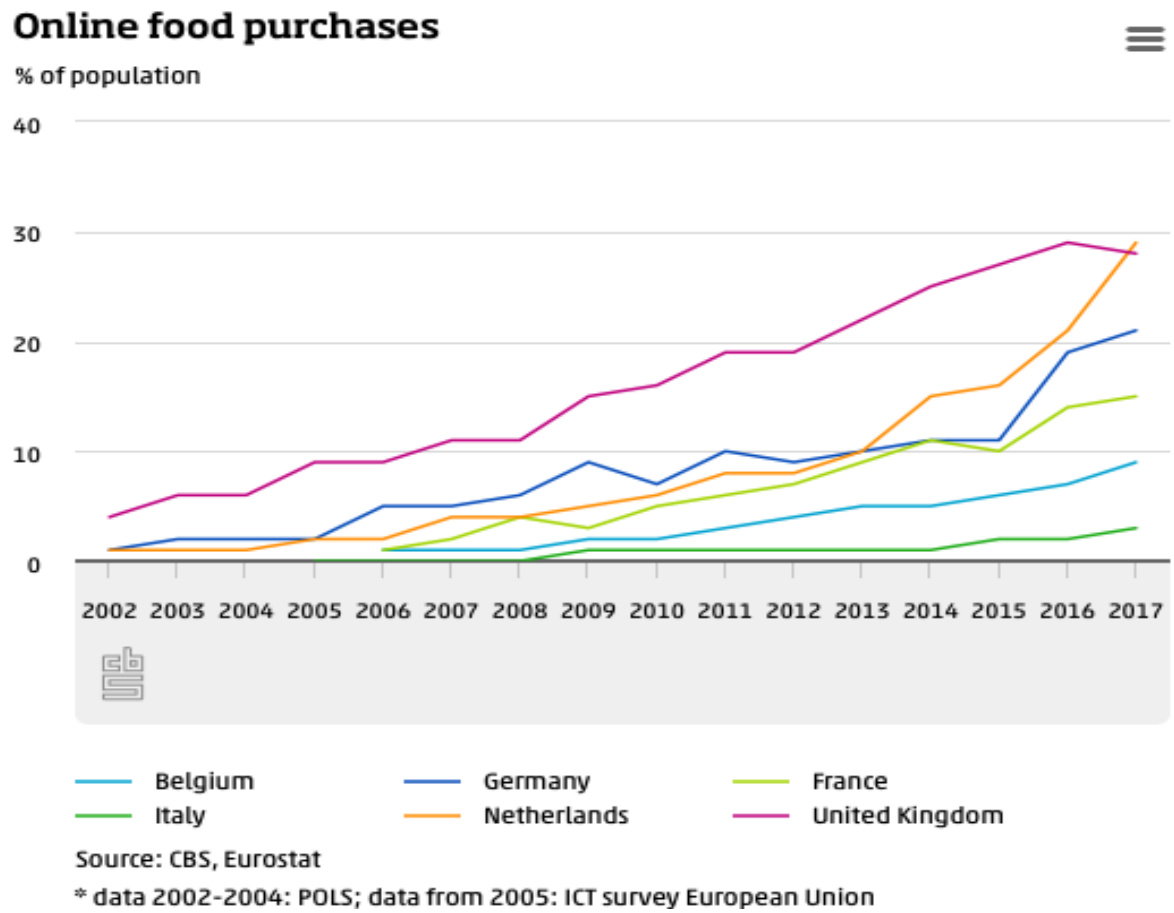

Figure 1 Online Food Purchase in EU countries

The USDA Foreign Agricultural Services released The Dutch Food Retail Report 2019, which states that online food shopping had boosted across the country (Pinckaers, 2019). In 2019, it accounted for only 4% of the total food market, but yet steadily growing. The food e-shopping market appears to be dominated by three main e-retailers: Albert Heijn, Jumbo and Picnic (Statista, 2020).
However, at this point in time more than half of Dutch consumers stated that they never purchased food online. And the main reason is because the supermarkets are close enough to home.

1.4 Online Shopping Markets affected by the Lockdown

During the year 2020, a research was conducted to better understand "How the Covid-19 Pandemic is Changing Online Food Human Behaviour in Italy" (Alaimo et al., 2020). Mainly, the focus was aimed at grasping user's level of satisfaction from online food shopping experiences. The outcome deciphered the level of satisfaction is affected by the user's perception of ease towards utilising e-commerce and its respective usefulness. The digital world recorded an increase in users, due to its ability to connect people – minus the physical means. Findings figured that for e- and m-commerce to prosper past the health crisis, it is crucial to understand what are the factors that satisfy consumers during the web-shopping experience. To do so, the following research adopted popular theoretical tools like TAM (Technology Acceptance Model) and ECM (Expectation Confirmation Model) approaches. Due to the current health situation, the researchers perceived feelings of social distrust on

behalf of participants. This limited and made the exploration more difficult. Hence, this is something to keep in mind whilst conducting the research amongst Amsterdam consumers.
Zooming into the beginning of the Covid-19 emergency, Italy was one of the first countries worldwide to be significantly affected by the pandemic. The national government implemented a total lockdown that lasted over a month. In the Netherlands, however, the situation was not as severe. Although the population was subject to "maatregelen", the lockdown was not as restrictive as the one in Italy. This in an important difference to annotate because consumers faced the health crisis with different circumstances. As a consequence, consumer behaviour might have not been subject to the psychological intentions and insecurities. Poelman et al., found that the Dutch showed to have made less differences in their lifestyle and habits (Poelman et al., 2021). While other countries like Canada and Poland for example, witnessed increased eating patterns across the studied populations. According to this research, it was found that nationwide – the Dutch had increased the frequency of online grocery shopping by 7%. It is believed that the increased use is accredited to the measures installed by the National government, which advised to remain at home as much as possible. Further, a psychological element of fear may have also played an important role. In fact, consumers are likely to have associated a trip to the supermarket as an increased risk of getting sick.
The outcome from the Poelman et al research, suggests that different lockdown strategies implemented across the globe, respectively had different influences on consumption and purchasing behaviour (Poelman et al., 2021). Further, it was concluded that across the Dutch population – the restrictions valid during the first five weeks of "intelligent lockdown", did not lead to significant changes in consumer behaviour in regard to food. However, after additional time spent in the pandemic and increased lockdown measures, it is possible to the outcome of the research may now be different.
Similarly to the Netherlands, the country of Taiwan in 2020, had not imposed major restrictions on the mobility of its citizens. Nevertheless, the research conducted by Chang and Meyerhoefer, displayed a significant increase in Taiwanese online food shopping numbers during the first year of Covid-19 (Chang and Meyerhoefer, 2020). Further, this research attempted to decipher how this pandemic related increase in food e-shopping would become a permanent consumer transition past the health crisis. The conclusion drawn, stated that for consumers to continue to buy food online will depend on the enjoyment rate of the online experience in comparison to the brick-and-mortar supermarket trip. Essentially, how superior do consumers perceive the online experience to in-store shopping. Chang and Meyerhoefer are confident, that many users will continue to use food e-commerce platforms even if less frequently. Another notation derived from the Taiwan based research was how greater product variety can eventually affect market prices and maintain returning consumer records. Consumers who can find a vast assortment of products (niche, local, or other) are more likely to purchase at one retailer only. This is an important advantage for e-commerce providers to account of.
Moving onto another part of the world, Hassen et al. conducted a study to scrutinize the effect of the Coronavirus on Russian food purchasing behaviour (Hassen et al., 2021). In comparison to the similar researches mentioned above, although demand for online food shopping has grown during the pandemic – in Russia, demand for food e-commerce appears to have improved only in the country's major cities. And yet, not has significantly has other countries. From the Hassen et al. survey, 57.67% of entrants stated to have never purchased groceries online. This big percentage was followed up by 17.73% whom stated to shop

groceries online at the same rate as prior to the Covid-19 era. The reason for Russians non-acceptance of food e-commerce is linked to their preference to personally inspect food for quality and freshness.
After considering and exploring a series of different consumer scenarios around the world, it is important to not exclude how businesses have or have not been able to satisfy the sudden growth in demand for online food shopping. The coronavirus and its respective effect on consumer behaviour, was an unforeseen event. In fact, the covid-19 crisis not only impacted the global health scene, but also the economic environment. The results discussed in the "Digital Transition by COVID-19 Pandemic? The German Food Online Retail" report show that sudden transforming consumer behaviour forced businesses to focus on how to satisfy demand rather than invest on how to gradually increase the market size (Danneberg et al., 2020). Businesses that witnessed a sudden surge of online orders were forced to rapidly adapt supply, production and distribution chains. These characteristics may have greatly limited the diffusion of online food shopping services. Essentially, this is a good example of high demand and few resources. Increased digitalisation is only a small portion of business model. Therefore, it is not enough to sustain demand. Further, the covid-19 linked growth of online food shoppers is not yet a clear indicator of a long-term shift. It is normal for businesses to feel hesitant to make long-term investments. Danneberg et al. conclude their research by stating that covid-19 has provided many new business opportunities. Yet, many of these may be very temporary and have a close expiration date.

1.5 Defining the Research Aim

As of yet, it is unknown how the lockdown and other pandemic related factors have affected Amsterdam consumers in regard to online grocery shopping. The aim is to grasp which factors have promoted the growth of online food shopping behaviour and the features that will encourage Amsterdam consumers to continue adopting food e-commerce, also past the health crisis.
Exploring what aspects motivate and encourage people to food shop online could assist professionals in the industry. Moreover, the knowledge that will derive from the results will benefit local and international entrepreneurs by providing insight on market size and prosperity. E-commerce developers, marketers and supermarket organizations can all benefit from this research. The insight of the consumers opinion will allow them to fulfil the needs and desires of the target group. Further, existing businesses can use the information to better their services by adding elements and options valued by the end users. The research will focus on portraying the current online food shopping scenario to understand how this can evolve in the future. Portraying forecasts and possible outcomes of the future, guarantees no certainty to the market. Rather, comprehending what factors will increase the success rate past the pandemic will give more power and control to food e-commerce developers to maintain the growth rate and the current user base. The conclusion from the research should provide readers with tools and knowledge to beneficially influence the market to their advantage, as well as that one of consumers.
The following research will remain committed to analyse consumer behaviour within the city of Amsterdam, the Netherlands. Given that the Dutch capital has such a suggestive population, it would be interesting to see how this vibrant city is perceiving online food shopping and how it's adoption could be increased via means of further influence.
The main question of this research is:

What is the effect on online food shopping behaviour initiated by the pandemic amongst the Amsterdam population and what are the features for food e-commerce to succeed in the future?

In order to answer the main question, the following three sub-questions have been developed to gain an elaborate insight.

1) *What are the most important factors valued by Amsterdammers during the experience of online grocery shopping?*
2) *What factors will encourage/remain relevant for Amsterdammers to continue using e-commerce for groceries, past the pandemic?*
3) *What is the self-reported frequency of using online grocery stores in Amsterdam?*

The general research objective of this study is to understand how the lockdown has affected Amsterdam consumers acceptance and willingness to use food e-commerce services. Further, the objective is to explore how the lockdown has initiated consumer changes in the long run.
Understanding today's consumer exigencies, could lead to discovering a gap in the market or confirm the relevance of existing business models.
Finally, from the buyer point of view, it could be interesting to understand how their own behaviour has mutated over time. The research can be food for thought for shoppers, after a year of big changes. Moreover, if findings from the research were to show that some positive features of online food shopping are not perceived by consumers, this is an opportunity to strengthen communication between the web-shop and its visitors and customers.

2. Methodology

In this chapter, the materials and methods used to carry out this research, will be presented and described.

2.1 Material & Method

The aim of this study is to identify how the lockdown has initiated changes in Amsterdammers to purchase food online. To conduct the research, answers were collected from the target group. To be eligible for participation, there was only one main criteria: participants must be currently living in Amsterdam. It was expected that the majority of respondents would be young professionals and perhaps family households.

The research was designed to be conducted as a survey. A survey, with a built-in questionnaire would permit the collection of quantifiable data. To do so, the questionnaire was built in different parts – each of which is outlined with a series of questions aimed at discovering the answer to each individual sub-question.

The survey was web-based and developed in Google Forms, since it is a free online service and it does not impose limitations like Survey Monkey. A survey is an effective method, because capable of quantifying personal habits, beliefs and opinions in a quantitative fashion. Online surveys can also provide a pleasant experience for the participant since there is no time pressure, no interaction with the survey "host" and there are no wrong answers. Conducting online surveys, however, can have some downsides. For instance, if a participant were to feel uncertain about the meaning of a given question, they could possibly skip the question or respond incorrectly. This will lead to less reliable and truthful results.

The questionnaire was distributed online, by sharing and promoting participation via popular social network platforms like Facebook, LinkedIn and Instagram. As mentioned before, the target group is composed of people living in Amsterdam. With the use of relevant hashtags, frequent shares and personal connections, it was possible to collect a satisfying number of complete surveys. Additionally, to ensure the survey reached out a broad spectrum of people – the questionnaire was shared on different online groups in the hope to diversify the participant profile and make more reality-like conclusions when examining the results. The post with the link to the survey, also included a polite request to share the link to increase reachability to further participants.

To conduct a satisfactory investigation, a sample size of participants was calculated. Since the target group of the research are the citizens of Amsterdam – the number of inhabitants was taken into account, as well as specific age groups. As of 2018, the total Amsterdam population was 862,965 (Urbistat, 2018). Since children and teenagers are not typically responsible for household food procurement, the age groups from 0 to 17 were excluded from the sample population. Further, seniors over 75 years old (41,987 in 2018) have also been excluded from the study since they are less likely to be tech users. With this specification, the research focused on the remaining 672,919 inhabitants – of which, the age class between 25 and 34 accounts for 21.6% of the capital's population. Given this number, a starting point for the calculation was identified. Below, in Equation 1- the formula used to calculate the sample size is portrayed. The variables of this calculation are: Z= z score, p= is the standard deviation, e= is the margin of error and N= is the population size. the sample calculation will be made with 95% confidence level – which indicates the Z-score is 1.96. The margin of error in this scenario is 8% - which is based upon the assumption that this portion of the participants will fail to respond or respond truthfully in the survey. For further

reliability, the sum was made with an automatic calculator provided by SurveyMonkey (SurveyMonkey, 2021).

$$\text{Sample size} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Figure 2 Sample Size Formula

Finally, the sample size for this research was a minimum of 151 participants.

2.2 Survey Design

As mentioned before, the method chosen to collect quantitative data was by means of an online survey. The survey was made of 6 sections total. All questions were closed, with the exception of one (as seen in Appendix I, section 4, question 4). Participants complete different sections depending on their burning answers given in section 1 and 2. The questions in the survey vary in style. The participants experienced one choice answers, multiple choice and Likert Scale (1 to 5) ratings answers. The survey was divided into the following sections:

- Section 1 – had an introductory purpose. It briefly provided some explanation for the participant and ask the question 1. "*Are you currently living in Amsterdam?".* Respondents who confirmed '*Yes*' were granted to participate further into the survey. Participants who claimed to not live in Amsterdam were automatically denied to further participate and the answer to question one was submitted.
- Section 3 – This section focused on understanding how the participant perceives and utilises online food shopping services. Frequency, personal perception and experience rating were investigated. This section, together with the subsequent Section 4, are the core part of the survey.
- Section 4 – This section was reserved for entrants who claimed to have never bought food online. The aim of this section was to find out the willingness to try online shopping and why it had not happened so far.
- Section 5 - In this part of the survey, the participant was inquired about his/hers/their perception of corona's impact on their personal behaviour towards online food shopping. Further, the questions in this section attempted to grasp the future intentions of these participants: are they going to online food shop past the pandemic?
- Section 6 – General demographic data about the participant was collected. These questions focused on characteristics like age, gender, annual income, household size and level of education. This data helped divide the group of participants into further

sub-groups. This categorization potentially helped identify correlations between results and specific groups.

The questions were studied to be in a certain manner, so that their answers could help support the three research sub-questions.
The first sub-question "*What are the most important factors valued by Amsterdammers during the experience of online grocery shopping?",* was answered mostly by question 5 and 6, in section 3 of the survey. These questions had multiple choice answers which listed a series of characteristics that online grocery shopping service provide. When the participant selects them they confirm that the respective features add value for the consumer, and they are being communicated effectively.
The second, "*What factors will encourage/remain relevant for Amsterdammers to continue using e-commerce for groceries, past the pandemic?*" is an important question because it provides a long-term depict of consumer's needs. If corona is the main motivation beyond online grocery shopping, how can this be influenced and changed so that the online grocery businesses are strengthened and grow after the lockdowns and health emergency. There is a possibility that the outcome will remain unknown if Amsterdammers are still not certain of how they will behave in the future. If the second question were to be not answered in a satisfactory manner with the data collected from the survey, a further investigation will be conducted. In such case, the methodology will extend from quantitative to mixed, since part of the findings could be drawn from qualitative data. Some Amsterdammers will be interviewed to gather more in-depth information about their behaviour and perception. In this case, it is expected that 5 to 10 people will be interviewed, until a pattern in perception and opinions is found.
The third question "*What is the self-reported frequency of using online grocery stores in Amsterdam*?" is contestably simpler than the previous sub-questions. Nonetheless, it is a strong question because it collects stats-friendly data. By the participant self-reporting his/hers/their online grocery shopping frequency, the research can collect and analyse important data. An overview of the sample group could supply more accurate estimates of market size. Most of the questions in Section 2, will provide insight to the numbers of enthusiastic and returning online grocery shoppers.

2.3 Data Analysis

The data collected from the participants was imported into Google Sheets to calculate whether a correlation between variables exists or not. In order to do so, the data was initially displayed and sorted in pivot tables as to obtain a neat overview of the survey responses. The questionnaire gathered results from multiple choice questions, including answer choices displayed on a Likert Scale of 5. The answers from the Likert Scale resulted in participants providing a minimum answer of 1 ('Totally Disagree'), and a maximum option of 5 ('Totally Agree').
To conduct a calculation to prove the existence of a relationship between online and offline shoppers, a Chi2 statistical test was performed. A critical value for the Chi2-test needs to be defined in order to judge the coming results and effectively confirm the existence of valuable relation, or not. Further, the outcomes of the survey were be divided and categorized into nominal and ordinal variables.

The aim of the research is to identify the current perception and frequency usage of online food shopping service. Further, expected future consumer behaviour is also investigated. However, it is not certain this aspect of the research will be found since there is no literature about the future and only the survey participants can provide such answers. Therefore, part of the research is limited and dependent upon the data collected from the Amsterdammers.

2.4 Considerations

The sample population is located in Amsterdam, capital of the Netherlands. With '*Amsterdammers'* it is intended the group of people who currently live in the city. Therefore, origin and cultural background are not requirements for participating in the survey. It is expected that the majority of participants will be young adults since the researcher has mostly connections with this part of the population. Further, this group is active online and is likely to come across the survey. Young adults and family households are a suitable research population since typically in possess of a medium/high disposable income, stable careers and are likely to be most engaged and aware of the services around them. Further, this group is within reach. This age group is known to avidly engage on social networks and other online services on a daily basis, which simplifies the process of finding channels to collect data. Additionally, the selected target group is the ideal candidate food e-shopper. This is important to fulfil the scheme of the methodology established to conduct the research in a satisfying fashion.

The choice to investigate online food shoppers in Amsterdam is justified by a series of considerations. Amsterdam is the capital of the Netherlands as well as an important European city. The Dutch capital is an International hub, hosting headquarters of large-scale companies, organizations and start-ups. Given the economic profile of the city, the demographic data also portrays Amsterdam as a home to people from all over the world. This international depiction makes a research in Amsterdam comparable and to some extent relevant and veracious to other cities with similar dynamics. Moreover, the Netherlands is a prosperous country with high regards towards sustainability and technology. This aspect plays a part in consumer perception and behaviour. Therefore, it would be interesting to see how, in these regards, online food shopping is perceived by Amsterdam users. Finally, the overall food scene in Amsterdam is very vibrant. Given that there are so many food delivery services, this increases the likelihood of the population actually using and benefiting from them – once again, making Amsterdammers the ideal candidate for this research.

Further, it is important to annotate the limitations of this research. The following will not be investigated with depth or focus:

- There will be no focus on analysing what food groups and categories of are being purchased via online food shopping
- Specification or distinction into different service providers will not be made with intention (i.e., online supermarket like AH.nl, Jumbo, Picnic or meal-kit providers like HelloFresh, etc)
- Take-away and delivery services of ready-to-eat meals will not be taken into account (for instance ubereats, thuisbezorgd or deliveroo)
- No insight will be researched for B2B online food shopping acquisitions

- No specific meal kits services will be analysed (like those provided by Hellofresh and restaurants)
- The effect of online food shopping on users diet will also not be investigated

3. Results

In order to gather satisfying data to respond to the research question, an online survey was distributed. The questionnaire collected answers from participants that were reached via various online channels: Facebook groups, LinkedIn and Instagram. Since the objective of the research is to investigate the Amsterdam population, only people living in Amsterdam were allowed to complete the survey. Little over a week, 152 responses were collected. In this chapter the results gathered from the survey participants are presented. In sub-chapter 3.1, general findings about the sample population are given. Sub-chapter 3.2 instead, focuses on summarizing the data necessary to answer the three research sub-questions.

3.1 Overview of General Findings

In Methodology, chapter 2.0, the sample size calculation indicated that 151 respondents are necessary to collect enough reliable data. The survey was completed by 152 respondents. However, five of these are unusable by default. Five participants stated to not live in Amsterdam and as a result, were immediately denied access to the remainder of the questionnaire. This action took place because the survey was designed to collect information exclusively on behalf of the target group: Amsterdammers, as people living in Amsterdam.

The remainder 147 respondents declared to live in Amsterdam and were furtherly split into two groups: Amsterdammers who have online food shopped before and those who have not.

Figure 3 Consumers who have purchased food online and not

The pie-chart above illustrates the population of the whole 147 Amsterdam based respondents. The participants are split in two main groups – based on the answer to question 2 “Have you ever purchased groceries online?”. Up to 40.1% of participants stated “Yes” to having purchased food online before. The remaining 59,9% declared “No”. The pie chart shows that the population is not evenly divided between online and offline food shoppers. However, it indicates that there is a significant portion of the population who has online food shopped at some point.

For the sake of analysing results in an organized conduct, the participants of food shoppers who declared to have not online food shopped before, are nominated “*offline shoppers*”. In

the contrary, those entrants who stated to have purchased food online before will be referred to as "*online shoppers*".
Question 2 of the research survey is fundamental to portrait what the size of the Amsterdam population actively online food shopping is. Additionally, this question serves the purpose of leading the survey entrants to different sections of the questionnaire to ultimately help respond to the sub-questions. The group of *online shoppers* are fundamental to this research because they will help depict a portrait of the present e-consumer. On the other hand, *offline shoppers* will provide insight about the factors that could potentially encourage the offline group to commence purchasing food goods via the web.

Further into the questionnaire, both online and offline shoppers had to answer the questions in section 6 "General Information". From this section the following results emerged.

Table 1 Profile of the Average Survey Entrant - Results from the survey

Category	**Profile of the average survey entrants**
Age	25-34
Gender	Female
Occupation	Employeed Professional
Yearly Income	€30'000 - €40'000
Education Level	Bachelor Degree
Household type	Single/Couple
Most common modality of travel to physical supermarket	Cycling/Skating

In table 1 is a depiction of what the average survey entrant looked like. From the 147 respondents, up to 56 of them declared to be between 25 and 34 years old. The second most popular group of entrants claimed to be between 35 and 44 years old.
Female participants accounted for most of the survey entrants, recording a 53.1% participation rate.
In terms of occupation, the responses were more evenly distributed. The three major groups accounted for respondents who declared to be (in the respective order): 25.5% employed professionals, 22.2% employees and 19.6% students.
The results to the following question, reflect the yearly income declared from survey participants: 21.9% declared to earn between €30'000 and €40'000, subsequently 20.5% stated their yearly income is between €10'000 and €20'000 and another 20.5% expressed to earn less than €10'000 a year. These percentages match the average earning yield of the respective occupations reported in the results to the previous question.
Question 6 of section 6 asked participants to select the level of education they personally have obtained. The results show that 49.7% has completed a Bachelor study. Further, 34.7% of people choose 'high school degree' as level of education. Only 13.6% expressed to have achieved a Master level education.
Amongst the participants, the most popular household option was a 'Single/Couple' household, in which 54 people stated too currently live. 35 people said to live in a 'Family household' and 29 in a 'Shared housing' accommodation for workers and professionals.

Finally, question 8 of section 6 investigated how Amsterdammers are reaching offline food shopping locations. The results well reflect the cycling capital of the world: 36.1% stated to travel to buy food via biking or skating, and 31.3% said they walk. Public transport was the least selected option, with only 3 votes. And 5 participants declared to 'never physically go to the supermarket'.

3.2 Results per Sub-question

Sub-question 1 - *What are the most important factors valued by Amsterdammers during the experience of online grocery shopping?*

Figure 4 Factors valued from online food shoppers during shopping experience - Result from the survey participants

Figure 4 illustrated above, is a graphic representation of the results gathered from question 6 of section 3. The list of factors may or may not be the characteristics survey entrants' value from the online food shopping experience. Respondents could select multiple characteristics from those suggested. It is estimated that on average, respondents choose between 2 to 3 options each survey. This question is fundamental to answer sub-question 1, because it collects data about the present users' consumer behaviour and experience perception.
From the 59 participants who claim to be online food shoppers, 'Quality' was selected 32 times. Short of a few less votes are also 'Price', 'Delivery speed' and 'Reliability' which collected 28, 26 and 25 votes respectively. Further on are also visible 19 picks for 'Convenience'. In between appear 'Familiarity', 'Brand' and 'Customer service' which obtained between 13 and 9 clicks. 'Perceived level of sustainability' was chosen by only 3 participants. The least important factor amongst the samplers was 'Delivery Hours'.

To compare online and offline shoppers' preferences, the results from question 6 of section 3 and 4, were taken into consideration to conduct a Chi2 test. The statistical test was able to assess whether a significant relationship between the two variables exist or not. The

observed factors are ‘Price’, ‘Quality’ and ‘Convenience’ which amongst the most popular factors for both groups – online and offline shoppers.
The critical value for the Chi-square test is 5.036, based on the 2 degrees of freedom.
The critical value for this Chi2-test is 5.991, based on the 2 degrees of freedom. Additionally, in order to admit the existence of a significant relation, the P-value must be 5% or lower. If the test statistic were to exceed the critical value – the hypothesis that there is a significant relationship between variables will be rejected.

Table 2 Pearson's Chi2 Test

OBSERVED DATA			Chi-2 Value derived from statistic test	P- Value
	Offline (88)	Online (59)	5.036	8.06%
Price	41	28		
Quality	59	32		
Convenience	14	19		

Table 2 above shows the results gathered from both online and offline Amsterdammers. In the column ‘offline’ it can be seen that the factor ‘Quality’ was selected 59 times. In the ‘online’ column, ‘Quality’ was also the most voted value factor. The two groups had different numbers of participants. This did not influence any differences in the way factors ranking turned out.

Table 2 shows that the value derived from the statistic test is 5.036. Since this value is smaller than the established critical value – the hypothesis that there is no significant relationship is accepted. This means, no differences in responses between the two groups can be observed. Based on the p-value – it can be said that the null hypothesis is accepted with 91.94% certainty.

Sub-question 2 - *What factors will encourage/remain relevant for Amsterdammers to continue using e-commerce for groceries, past the pandemic*?

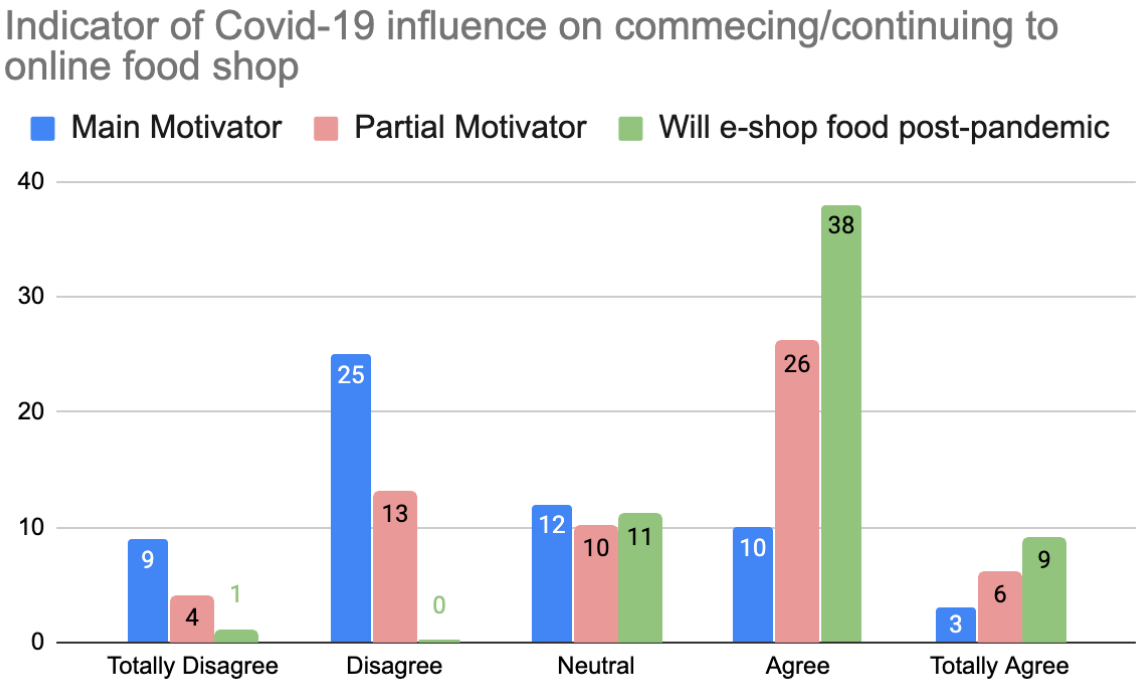

Figure 5 Coronavirus links to consumers motives to e-shop food - Result from the survey participants

Figure 5 illustrated above, depicts the results from three statements displayed in section 5 'Covid-19 Relevance'. Voting from a scale of "Totally Disagree" to "Totally Agree", the participants indicated their personal level of agreement or disagreement in regard to the following statements:

- The Coronavirus was the main motivator to initiate purchasing groceries online.
- The Coronavirus was partially a motivator to initiate purchasing groceries online.
- After the pandemic, you will continue to purchase groceries online.

As seen in the histogram – the blue and pink lines show whether the Coronavirus was a main or partial motivator for Amsterdam consumers to start grocery shopping online. According to the respondents, up to 25 of them claimed to disagree that the Coronavirus was a main motivator. Respectively, 12, 11 and 9 of them felt 'Neutral', 'Agree' and 'Totally disagree' with the first statement. Only 3 respondents felt to 'Totally Agree' that the Coronavirus was the main influence to start online shopping.

Concerning the virus as a partial motivation to online food shop, results were distributed almost oppositely - in comparison to corona as the main motivator, the pink lines show that results for corona as a partial motivator leaned more towards "Agreeing". 26 of the online shoppers recognized that the pandemic partially influenced them to adopt grocery e-commerce services. While 13 entrants 'Disagree', 10 felt 'Neutral' about the statement. Finally, 4 and 6 either 'Totally Disagree' and 'Totally Agree'.

Participants were asked to indicate their intentions of continuing to use web food providers, once the pandemic is no longer an everyday threat. To this statement, well over half of the

online shoppers (64.4%) 'Agreed' they will still use online food services and 16% 'Totally Agree' they still buy groceries from the web. 11 online shoppers felt 'Neutral'. Only 1 respondent declared they will no longer online food shop, by selecting 'Totally Disagree'.

Figure 2 Group of consumers willing to consider trying online food shopping - Result from the survey participant

In the pie-chart above it can be seen how many people, from the people who currently do not online food shop (88), would consider trying online grocery shopping.
In this question, participants had to choose their answer between 'yes' and 'no'. 67 respondents stated that they would consider trying online food shopping. This accounts for more than half of the people who answered this question. This is a very positive number. The remaining 21 participants selected they would not consider trying online grocery shopping.

4. What is your reasoning for not shopping food online?
88 responses

The question above, was the only open question throughout the entire survey. 88 short sentences were collected from the participants who as of the time of conducting the research, claimed to not buy food online. The written list of answers is allocated in Appendix II. From reading through the consumers explanations, some patterns of thought were identified and grouped in one of the following seven pattern categories:

- Consumers loyal to the in-store experience and/or fond of personally inspecting the condition of products
- Vicinity to a variety of offline purchasing locations
- Perception that the e-service is not affordable/convenient
- Would consider food e-shopping for bulk shopping non-perishables with good deals
- Lack of personal planning
- Sustainability concern (i.e. local sourcing and packaging)
- Not responsible for the household food procurement

From the list above, the most popular reason for not purchasing online was consumer preference to shop groceries in the supermarket. Many in fact, expressed interest and

enjoyment derived from purchasing food in traditional offline settings. 33 of the 88 answers were allocated into this category.
The second most popular category was made of statements that indicated poor personal planning. These survey entrants claimed that their shopping springs are spontaneous and disorganized. As of now, most online food markets require ordering with some time in advance.

Many of the students and participants that live alone ended up in the 'Perception that the e-service is not affordable/convenient' category. These entrants repeatedly stated that they have the impression that online food shopping is more expensive than the traditional food shopping or that minimum order quantities/fees are stopping them from shifting to online food shopping.

Up to 10 people arose with arguments to not shop food online due to personal sustainability concerns. In fact, they are unfamiliar with e-commerce providers who are stocking local or package-free products. If these were available, it is more likely that these Amsterdammers would be purchasing food online. Similarly, 9 respondents expressed their interest in buying food from close-by markets and/or different stores. They like to make use of the offline services in their nearby surroundings since Amsterdam has a lot to offer.

Finally, the most unpopular category was 'Not responsible for the household food procurement'. Only 3 people claimed to not be in charge of their everyday grocery shopping procurement.

Sub-question 3 - *What is the self-reported frequency of using online grocery stores in Amsterdam?*

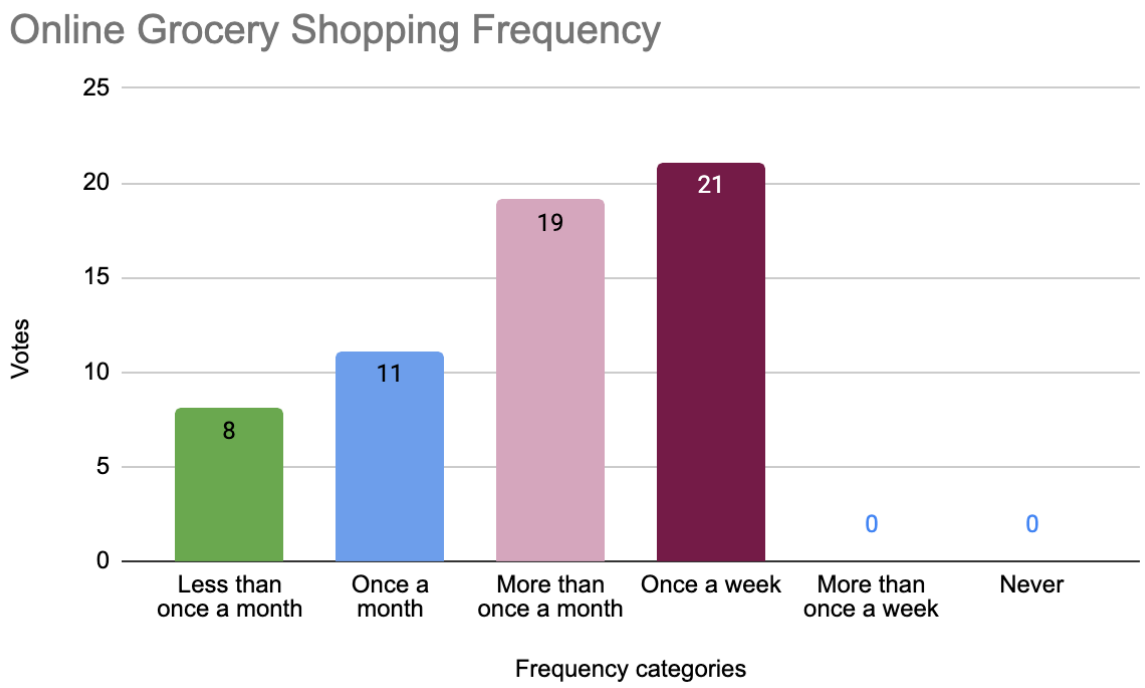

Figure 3 Self-reported online grocery shopping frequency from survey participants

In figure 7, the self-reported frequency of online grocery shopping services is given. This is based exclusively on the answers of the participants who claimed to have e-purchased food before. The 59 online shoppers individually indicated what is their personal online food shopping usage frequency.

In the figure above it can be seen that most online shoppers (35.6%) buy groceries online 'once a week'. 19 of them (32.2%) claim to use online shopping services 'more than once a month'. 11 participants selected 'once a month' as their personal e-shopping frequency. The remaining eight claimed to use online supermarket 'less than once a month'. There were no clicks recorded for the categories 'more than once a week' and 'never'.

4. Discussion of Results

In this chapter, the results will be analysed thoroughly in order to give a more elaborate interpretation to the survey results. The research objectives are re-stated to provide the discussion with a clear background of context and perspective.
In the initiatory phase of this research, the following goals were established:

- Determine if the Coronavirus has been a main motivation factor for Amsterdammers to start online food shopping.
    - This was explored by identifying to what extent has the Coronavirus motivated Amsterdammers to buy groceries online. "Extent" is defined by the virus being the main or partial factor influencing, or not, consumers to shop food online.
- If possible - determine the factors that will maintain or encourage growth of online food shopping, past the pandemic.
    - This investigation was made by asking consumers different questions, based on their current relationship with online food shopping. Further, their shopping intentions, after the health crisis, were also explored.

4.1 Discussion per Sub-question

Following below, is a discussion per sub-question. The goal is to give an attainable interpretation to answer each sub-question. This is done by analysing the relevant results, by including a comparison with literature reviewed in Chapter 1 and 2.

Sub-question 1 - *What are the most important factors valued by Amsterdammers during the experience of online grocery shopping?*

Whilst setting up the framework for this research, based on the circumstances derived from the Coronavirus, it was assumed that the factor 'Social distancing/Avoiding crowds' was going to be amongst the most popular reasons to commence and use online food shopping services. Looking at the results obtained from the survey – it appears that amongst the Amsterdammers sample population, Covid-19 played only a partial role in influencing consumer behaviour. After considering the Poelman et al. research presented in chapter 1.4, this outcome is not too surprising. Although the Netherlands was obliged to face the challenges of the pandemic, and its respective preventive measures, the Dutch did not feel significantly discouraged from going to physical grocery stores.
Rather so, the outcome from these questions demonstrates that for Amsterdammers grocery e-shopping was initiated by a combination of motives.
For those samplers who have tried online food purchasing, the factors that pushed them to start purchasing food online were not so much social distancing and avoiding crowds but rather 'Convenience', 'Saving time' and 'Planning'. Based on the nature of these results, it seems that Amsterdammers did not meaningfully identify 'social distancing/avoiding crowds' as a valuable influencer to modify their behaviour to a significant extent.

Speaking of the factors Amsterdammers value during their food e-shopping experience, it was fascinating to find out that online shoppers in the Dutch capital value 'Quality' over 'Price'. It would be interesting to consider what consumers intend as 'Quality' to further elaborate on this. In regards, to the factor 'price' it is likely that this element does not differ much from the brick-and-mortar experience. If anything – it assumed average shopping price might be higher since the service provided is more well-rounded.

From the chi-square test conducted, no significant relationship was detected between the online and offline shoppers and their respective factor preferences regarding the online experience. This implies that no there is no distinction between the preferences of online and offline shoppers.

Sub-question 2 - *What factors will encourage/remain relevant for Amsterdammers to initiate/continue using e-commerce for groceries, past the pandemic?*

While gathering and analyzing the results to answer sub-question 2, some challenges were encountered. Section 5 of the online survey, entitled 'Corona Relevance', investigated the extent to which the virus had influenced online shoppers to commence purchasing food online. However, it failed to nominally collect the hypothetical factors that will encourage consumers to continue using e-supermarkets after the health crisis. To answer sub-question 2 in a more satisfactory manner, some additional questions should have been included in the survey. Although the sub-question could have been approached with a different modality in the survey – valuable information was still successfully gathered.
After some considerations, it was decided that due to the results obtained to answer this sub-question it was appropriate to make some small changes to the structure of sub-question 2. Therefore replace "*What factors will encourage/remain relevant for Amsterdammers to initiate/continue using e-commerce for groceries, past the pandemic?*" with "*What factors will encourage/remain relevant for Amsterdammers to initiate/continue using e-commerce for groceries, past the pandemic?*". This change was made because the data collected resulted in providing supplementary valuable information. Therefore, the scope of the inquiry was extended to understand what factors will encourage offfline shoppers to start purchasing food online in the future.

The survey results were able to capture to which extent coronavirus had or had not stimulated Amsterdammers to start online food shopping. Further, the outcomes derived from the statement "After the pandemic, you will continue to purchase groceries online" showed that current online shoppers in Amsterdam have intention to keep ordering their groceries from the web after the pandemic has passed. This attitude confirms two facts:

- The Coronavirus was not a main motivator to encourage Amsterdammers to online food shop.
- Amsterdammers grocery e-shopping are satisfied with the service and are willing to continue using it because they value other factors beyond 'social distancing and avoiding crowds'.

One of the main objectives of this research was to help aid business developers and marketeers improve online grocery stores and acquire additional users. To do so, it is important to identify and comprehend why offline food buyers have not yet made use of e-commerce to procure food stuffs. Through the open question included in section 4, "Online Food Shopping in the Future?" this was possible. A lot of future oriented insight was accumulated from the 88 offline survey takers who provided their personal reasons for not e-shopping. Amongst the incisive findings from the offline shoppers, some of the most valuable information shows that consumers are avoiding online shopping because not sustainability and local produce oriented. With this information, there is room for developing an e-business model capable of satisfying a more conscious online audience.

Additionally, many of the offline participants claimed that planning ahead is challenging. As a result, they have failed to try using online supermarkets because of the order in advance setting, typical of many food e-commerce providers. Some offline shoppers, also hinted at considering online food shopping in the case of acquiring non-perishables in bulk.

The Taiwan based research conducted by Chang and Meyerhoefer, concluded that for consumers to continue using online supermarkets past the pandemic, the satisfaction rate plays a crucial role (Chang & Meyerhoefer, 2020). Consumers must value and prefer purchasing food from the web to make sure this trend remains relevant after the Covid-19 era. On behalf of the Amsterdam audience, it appears like the majority of the consumers who have tried online food shopping have intention to continue doing so - as seen in chapter 5. Given the opportunity to further explore Amsterdammers aim to online food shop, a study in regard to their satisfaction level would be useful. The result would support the apprehension of what can aspects from the experience can be improved to increase the user satisfaction rate.

Sub-question 3 - ***What is the self-reported frequency of using online grocery stores in Amsterdam?***

The sample population showed that the most common self-reported frequency for online food shopping in Amsterdam is 'Once a week'. This likely indicates that the Amsterdammers online food shopping at the time of the survey, were loyaly and frequently using e-services and may have entirely replaced offline shopping with e-commerce food services.
However, it is important to acknowledge that self-reporting tools have a limited validity (Subar et al, 2015). This is due to individual's likelihood to over or under report behaviour based on the participants ideas. Nonetheless, self-reporting tools are strong instruments to identify patterns in consumer behaviour although the limited extent of reliability. Therefore, should not be omitted from this discussion or future researches.

In the literature discussed in the introduction chapters, more specifically from the Poelman et al. research, it was found that across the Netherlands – consumers had not self-reported any significant eating or food purchasing changes during the lockdown. Nevertheless, an increase of 7% was registered in regard to purchasing food online more frequently than before (Poelman et al, 2021). In the discussion of the mentioned research, an assumption was made: the increase in grocery e-shopping frequency might have been caused by the government advice to stay at home as much as possible. Interestingly, the results reported from this research, displayed in chapter 3, show that the coronavirus was not the main reason for encouraging Amsterdammers to begin online food shopping.
This survey was able to investigate (to a certain degree) to what extent has the coronavirus been a motivator for people to start online food shopping in Amsterdam – following up on a gap from the Poelman et al. research. The Poelman et al. research covers information for the whole of the Netherlands. On the Amsterdam scale neverthless, from this research it appears that for the majority, the coronavirus was not a main motivator. However, it can be said that for most of the online shoppers (32 of 59 entrants) identified in the research, the coronavirus did partially influence Amsterdammers to commence online food shopping.

4.2 The Research Process

Whilst designing how the research was going to be conducted, it was decided that Amsterdam was to be the target group and data to be collected via an online survey. This resulted in a bigger challenge than forecasted. During past experiences related to other researches, online surveys confirmed to be a successful way of gathering data. However, the time to collect data for this research was limited and the online reachability was overestimated. For future reference, it is important for the researcher to realistically evaluate the network reachability.
While analysing the results, it was found
Further, the 'General Information' section in the survey might have been too crowded with questions and options. The intention was to provide as many possibilities as possible to increase the chances of deducting links and correlations between groups. Whilst analysing the data however, there was more of less – making any possible statement weaker, since less distributed across the sample population.

4.3 Limitations

As mentioned in the discussion of sub-question 2 – the survey failed to nominally retrieve the factors that will guarantee online shoppers to continue using e-commerce for household food procurement. Additionally, the level of satisfaction on behalf of current users was not explored. Therefore, the forecast for the post-pandemic consumer is limited to the data collected and the hypothesis derived from the discussion.

It is important to acknowledge that although this research was intended to explore the consumer behaviour of Amsterdammers, the survey had a limited reachability. Those who participated were mostly people within the network of the researcher. This implements that the result might not entirely reflect the reality of Amsterdammers current consumer behaviour.

5. Conclusions and Recommendations

The objective of the research was to determine to what extent was Coronavirus a motivator for Amsterdammers to start purchasing food online. Further, the research set out to understand what factors will encourage consumers to purchase food online after the global health crisis. As a result, this is the following main research question "*What is the effect on online food shopping behaviour initiated by the pandemic amongst the Amsterdam population and what are the features for food e-commerce to succeed in the future?*"

5.1 Conclusions

In order to wholesomely construct an answer to the research main question, three sub-questions were also established. The three sub-questions play the role of supporting and breaking down the scope of the main question.

Sub-question 1 of this research, showed that the factors Amsterdammers value above all during their online shopping experience are: 'Quality', 'Price', 'Delivery Speed' and 'Reliability'. Additionally, no significance was found between the factors valued by online and offline consumers.

Sub-question 2 provided a lot of insight about online and offline consumers. The two groups proved that the influence of the coronavirus influence on consumers was very partial. Moreover, during the actual experience – users don't significantly value factors like 'social distancing/avoiding crowds'. Rather so, factors like 'convenience', 'price' and 'reliability' will remain more relevant to define the users experience. Online shoppers claimed to intend to continue shopping food online also after the pandemic. Offline shoppers showed that they are willing to try online food shopping in the future and supplied a series of motivations why they had not done so, until now. These are useful to build recommendations.

Sub-question 3 found that most of the current online Amsterdam shoppers are shopping as frequently as 'once a week'. This is possibly an indication that these consumers have totally switched to purchasing groceries from a web-shop and benefiting from the advantages the services.

The main research question was "*What is the effect on online food shopping behaviour initiated by the pandemic amongst the Amsterdam population and what are the features for food e-commerce to succeed in the future?*".
After reviewing existing literature and examining the results from this research, it was discovered that amongst the Amsterdam population, the Coronavirus had only a partial influence on changing consumer behaviour. Few people that shifted to online food shopping were encouraged do to so due to the pandemic. Additionally, a very small portion of online shoppers value the virus-related incentives – like social distancing and avoiding crowds - obtained through the experience of purchasing groceries online.
The second part of the main question was answered by data collected from offline and online shoppers. Online supermarket users showed to have intention to continue shopping groceries online, past the pandemic. And those consumers who have still not become online shoppers, are willing do so. Further, they have successfully provided motivations why they have not done so until now. These reasons provided insight to develop strong

recommendations for professionals working in the sector. These will be presented in the sub-chapter 5.2, below.

5.2 Recommendations

Based on the in-depth analysis performed on the results of this research, some recommendations are formulated.

Recommendations for the research target group.

The recommendations were built keeping in mind the target group established in chapter 1: e-commerce developers, marketers, supermarket organizations and business owners.

Since the coronavirus has been a partial influencer in online consumer behaviour, investments towards improving and promoting the online food shopping experience should be made to increase the customer base in the long run.

For business developers and marketers, there is an opportunity to strengthen the presence of the online food industry. The coronavirus has appeared to not significantly impact the consumer behaviour and purchasing decisions of Amsterdammers, if not only partially influence them to begin purchasing online. This factor also decreases the speculations that online food shopping is a temporary trend linked to the virus spread prevention measures like social distancing.

Offline consumers, expressed their willingness to try online food shopping. Additionally, they supplied insight about why they have not done so, so far. Plenty of material was collected to find patterns and identify gaps in the food web-shop market.

For instance, many concerns were expressed about packaging and purchasing local products through online supermarkets. These characteristics have a strong grip on environmental concerns. Consumers who are conscious are typical to examine their decisions, so that these match their values. Given the rise of conscious consumerism and widely spread awareness, implementing and communicating more information about the business practises in regard to these areas could be positive to bring more consumers on board. Further, these characteristics can be transformed into the USPs (=unique selling points) of a food e-business model.

Another portion of offline consumer suggested that if online food shopping were more bulk oriented then they would become more likely to purchase from the online supermarket. Bulk buying however, is a matter that arose in link with promotion and discounts. Entrants indicated they would consider online food shopping if they could buy non-perishables in bulk and with a discount on the whole amount, with the intent of stocking up long-term. This is an interesting combination nonetheless it must be kept in mind that – those who purchase in bulk will only do so ever so frequently.

Last but not least, another concern that arose from the research is the impression that a portion of survey entrants (those living alone, on a budget or students) think of online food shopping as not accessible. A portion of the sample population claimed that frequently high minimum order fees make online food shopping an expensive and inconvenient service for them to practice.

Recommendations for further studies.

As mentioned previously, it could be beneficial to explore the satisfaction rate of online grocery shoppers to explore to a further extent their commitment to online food shop in the future. Additionally, it would be interesting to explore which features online shoppers would additionally like to implement into their online experience.

For further research, it is recommended to increase the sample size of the Amsterdammers to have more truthful and realistic results. In the case of this research, only 147 surveys were analysed and these were derived from the limited network of the researcher.

<u>Overview</u>

Include and implement efforts to work sustainably towards The Triple Bottom Line: people, planet and profit. It is important to communicate this (marketing).

Reduce minimum order size = increase accessibility for student, single/small households and people to purchase “on a budget”. Increase marketing communication towards these groups.

Explore a profitable business model to provide items in bulk with promotional deals.

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Appendix I: Survey (English only)

What could be the difference in Amsterdammers online food shopping behaviour initiated by the lockdown?

Hello, thank you for helping me with the research for my Bachelor Thesis. By filling out this 5-10 minute survey, you will help me obtain the very best results.
Please only participate in this survey if you are currently living in Amsterdam.
Please answer all questions till you reach the end page and then click the "Submit" Button.
All information will remain anonymous.

If you wish to give me any feedback on this survey, feel free to reach out to me by e-mail. Send to 3026415@aeres.nl, with the subject 'Thesis Survey Feedback'.

Thanks for your participation.

Have a great day,
Clio Cudoni

Section 1

1) Are you currently living in Amsterdam?
   a) Yes (This answer will lead the participant to continue the survey)
   b) No (If the participant tick this answer it will lead to an automatic submission of the survey)

Section 2

Online Food Shopping

This section identifies which participants have an existing relationship with online food shopping, or not. Based upon the answer given by the participant, he/she/they will be led to their respective next section.

2) Have you ever purchased groceries online?
   a) Yes (Go to Section 3)
   b) No (Go to Section 4)

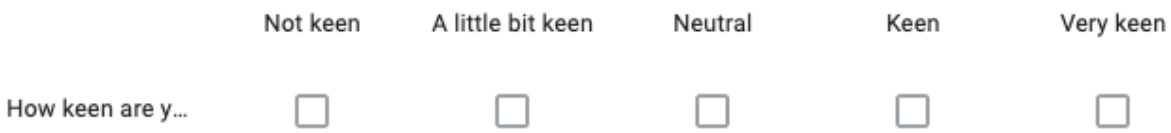
Section 3

Current Online Food Shopping Behaviour

If you have responded 'yes' to the previous question, you are in the right place. In this section, the aim is to explore the frequency and motives for online food shopping.

3) How frequently do you shop groceries online?
   a) Less than once a month
   b) Once a month
   c) More than once a month
   d) Once a week
   e) More than once a week
   f) Never

4) How keen are you to do online grocery shopping? Using a scale of 1to 5, please rate your keenness to buy groceries online.



5) What factors encouraged you to try online grocery shopping?

a) Price
b) Convenience
c) Saving time
d) Flexibility
e) Avoiding time spent on travel to and from the supermarket
f) Planning
g) Social distancing/avoid crowds
h) Perceived level of sustainability
i) Familiarity
j) Quality
k) Other…

6) When you buy groceries online, what service/experience characteristics do you take into considerations?

a) Price
b) Quality
c) Convenience
d) Brand
e) Familiarity
f) Perceived level of sustainability
g) Customer service
h) Delivery speed
i) Reliability
j) Other…

Section 4

Online Food Shopping in the Future?

This section is reserved for participants who claimed to have never purchased food online.

3) Would you consider trying online grocery shopping?

a) Yes
b) No

4) What is your reasoning for not shopping food online?
(Paragraph)……

5) What factors would encourage you to try online grocery shopping?

a) Price
b) Convenience
c) Saving time
d) Flexibility
e) Avoiding time spent on travel to and from the supermarket
f) Planning
g) Social distancing/avoid crowds
h) Perceived level of sustainability
i) Familiarity
j) Quality
k) Other…

6) If you were to buy groceries online, what service/experience characteristics would you take into considerations?

a) Price
b) Quality
c) Convenience
d) Brand
e) Familiarity
f) Perceived level of sustainability
g) Other…

Section 5

Covid-19 Relevance

In this section, the effect of Corona on your consumer behaviour will be explored. Further, the factors and motivations that will encourage you to purchase groceries from web-shops after the pandemic crisis has been eliminated, will be collected. (Relevant only to participants coming from Section 3, since they are active online food shoppers)

7) The Coronavirus was the main motivator to initiate purchasing groceries online.
How strongly do you agree with the following statements?

	Totally Disagree	Disagree	Neutral	Agree	Totally agree
Do you agree?	☐	☐	☐	☐	☐

8) The Coronavirus was partially a motivator to initiate purchasing groceries online.
How strongly do you agree with the following statements?

	Totally Disagree	Disagree	Neutral	Agree	Totally agree
Do you agree?	☐	☐	☐	☐	☐

9) Given the choice, would you rather...?
   a) Shop groceries in-store
   b) Shop groceries online

10) After the pandemic, you will continue to purchase groceries online.
How strongly do you agree with the following statements?

	Totally Disagree	Disagree	Neutral	Agree	Totally agree
Do you agree?	☐	☐	☐	☐	☐

Section 6

General Information

This section aims to collect general information about the participant. (Intended for online and non-online shoppers to participate)

2) How old are you?
   a) 18-24
   b) 25-34
   c) 35-44
   d) 45-54
   e) 55-64
   f) 65-75
   g) Rather not say
   h) Other…

3) What is your gender?
   a) Male
   b) Female
   c) Neutral
   d) Rather not say
   e) Other…

4) Who are you? (Multiple choice)
   a) Student
   b) Parent
   c) Working parent
   d) Employee
   e) Employed professional (you have a qualification for the job)
   f) Entrepreneur/Free Lancer
   g) Unemployed
   h) Rather not say
   i) Other…

5) What is your yearly income?
   a) Less than €10.000
   b) €10.000 to €20.000
   c) €20.000 to €30.000

d) €30.000 to €40.000
e) €40.000 to €50.000
f) €50.000 to €100.000
g) more than €100.000
h) Rather not say
i) Other…

6) What level of education have you completed?
   a) High School Degree
   b) College Degree
   c) Bachelor's Degree
   d) Master's Degree
   e) PhD/Doctor
   f) None
   g) Prefer to not say
   h) Other…

7) What kind of household do you currently live in?
   a) Shared housing (students)
   b) Shared housing (workers and professionals)
   c) Single/Couple
   d) Family household
   e) Other
   f) Rather not say
   g) Other…

8) Do you work?
   a) Yes, full-time
   b) Yes, part-time
   c) No
   d) Other…

9) How do you usually travel to the brick-and-mortar supermarket?
   a) Walking
   b) Cycling/Skating
   c) Small vehicles (scooter, microcars, cars, other)
   d) Car
   e) Small electric vehicles (bicycle, scooters, mopeds, microcars, other)
   f) Electric car
   g) Public transport (Bus, Metro, Train, Other)
   h) I never physically go to the supermarket
   i) Other…

Appendix II: Answers from the survey (question 4; section 4)

Answers from the survey (question 4; section 4)

All answers were gathered anonymously. Displayed below are the 88 answers collected from the online survey.

Based on the content of the answer, 7 categories were built to distinguish patterns in reasons why Amsterdam consumers have not yet online food shopped.
Hereby, the following answers:

<u>Consumers loyal to the in-store experience + inspecting personally condition of products</u>

1. I like walking
2. I like to see in what state the food products are
3. I prefer traditional shopping
4. I enjoy going to a supermarket because of the experience
5. I like manually selecting what I am going to buy
6. I like the in-store experience at the supermarket.
7. I like filling my basket with products I have personally inspected
8. Going to the supermarket is so habitual for me. I simply never think of shopping food online
9. I don't feel like the benefits of online food shopping are my necessity. I like going to the supermarket to buy food
10. I am so used to going to the supermarket. Also I enjoy going most times
11. I like going to the supermarket because I get to check out products and compare them better than online
12. I live alone and going to the supermarket is something I do nearly every day
13. I enjoy going to the supermarket/market too much so I would not substitute it
14. I enjoy going to the supermarket and choosing the shopping.
15. I like many aspects of in-store shopping
16. I have never had the necessity to try or use it
17. I am happy to go to the store
18. I have never considered seriously trying it
19. I like to go food shopping in different places all the time
20. Price doesn't seem better than the in-store alternative
21. I like shopping in the store, nearly every day
22. Going to the supermarket is so habitual for me. I never think about shopping online.
23. I am very habitual about food shopping (same place, same time, same shopping list)
24. I usually compare product characteristics in store, to make my decision
25. With covid, going to the supermarket was the only option to "go out"
26. I am just so used to goign to the supermarket from habit
27. I find the supermarket/market an exciting thing to do
28. I look forward to going to the supermarket
29. I like to choose the fruit and vegetables
30. Enjoy going spontaneously shopping food
31. I enjoy going to the supermarket.
32. I like to go to the supermarket
33. I like the supermarket a lot

Vicinity to a variety of offline purchasing options

1. Live close to supermarket.
2. Store is 1 min walk
3. I live across from the Albert Heijn and the Jumbo which are open until 10 pm.
4. Living in the city, I have so many options to shop in different stores or markets. So I will continue to do so
5. I don't feel the necessity to stop online shopping. In Amsterdam there are so many options to buy food
6. I live very close to the supermarket
7. I am surrounded by supermarkets in my neighborhood
8. I go to the supermarket out of habit, it is very close to house
9. I live close to the supermarket and I also weekly go the local farmer's market

Perception that the e-service is not affordable/convenient

1. As a student, it doesn't seem like a feasible option for me
2. I am a student and it's out of budget and inconvenient for me
3. I live alone and I don't eat so much. I like to buy fresh produce which is something that doesn't last so long... not convenient for me
4. I am a student and online shopping seems like an expensive option
5. I think it's more costly (student on a budget)
6. It doesn't seem accessible or suitable for me
7. Minimum order price is often very high... not great for someone living on their own
8. I am a student. Online food shopping seems like an "established adult" hobby
9. I live alone so I don't need to buy a lot. I am afraid products would expire
10. i don't live in the center of Amsterdam, some places don't deliver so far
11. I am a student and online shopping seems like an expensive option
12. There is often a high minimum order price
13. I live alone and don't need so much food

Would consider for bulk shopping non-perishables with good deals

1. I never think of online shopping, except for maybe buying non-perishables in bulk. But the price, would have to be worth it
2. To buy good deals in bulk and planning my meals better
3. A bulk oriented business would be cool to buy stuff to stock up on. I don't think I would like to online shop veg and fruits because I enjoy the local market most days of the week
4. I think it would be more suitable for bulk shopping which I don't do too often

Lack of personal planning

1. I prefer to online food shop more spontaneously
2. I prefer to online food shop more spontaneously
3. I don't ever think of planning ahead my food shopping springs, so I don't think I'm suitable for online food shopping
4. I am not good at planning ahead
5. It's a hassle to plan ahead
6. I don't like to plan what I am going to eat for many days ahead
7. I am not so organized

8. I never think ahead of time about online shopping... so then it's too late and I go to the supermarket
9. I am concerned about planning. I am afraid I will still go to the supermarket
10. There is often a high minimum order price

Sustainability concern (i.e. local sourcing and packaging)

1. I live close to the supermarket and I also weekly go the the local farmer's market
2. I select many of the food items I buy based on the packaging. When I purchase online I am not in control of this aspect
3. I want to shop local and possibly package free. If there was something like this, maybe I would online shop
4. I like to go to food markets as much as possible
5. If I could source my food locally
6. I don't like single use packaging - typical of supermarkets

Not responsible for the household food procurement

1. I live at home with my parent and I don't buy the food for the family
2. I am not responsible for the household groceries
3. I don't shop for the people who live in my house. Someone always cooks and handles the shopping