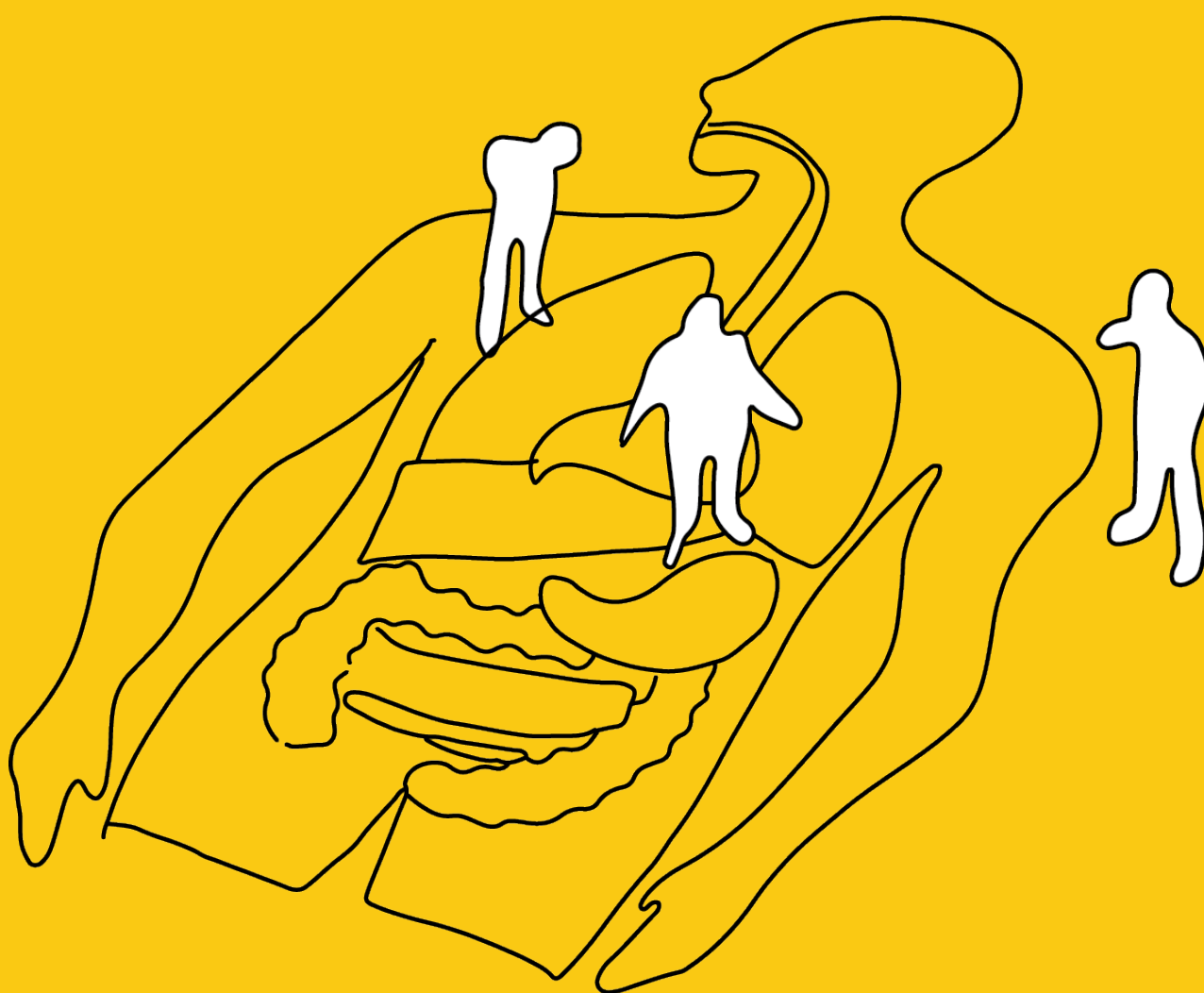


Towards shoppable health

for people with pre-diabetes



Appendices: Towards shoppable health

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STUDENT JUMBO CONTEXT ANALYSIS

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| Appendix B

Company analysis

Jumbo

This section describes the characteristics of the Jumbo supermarkets, including their brand, formula and past and future actions. This analysis provides an impression of the internal playing field. The information in this section is primarily derived from the Jumbo website (Jumbo, n.d.), except when otherwise noted.

INTRODUCTION

Jumbo is a Dutch supermarket that exists since 1979. Jumbo is the second largest retailer in The Netherlands. Jumbo has 677 stores, 787 million Euros revenue and approximately 20 percent market share in 2018. Since 2019 Jumbo also became active in the Belgian market. Jumbo has its headquarters in Veghel and is owned by the van Eerd family. Jumbo sells as combination of food, branded and own label (> 7000 products), and non-food. Additionally, Jumbo locally differentiates by sales of regional products. These local differences may be emphasized through franchised shops. Therefore, Jumbo may be seen as a scaled and centralized retailer, yet authentic and local. Increasingly, Jumbo is broadening their scope to prepared food (acquisition restaurant chain La Place), non-food (acquisition department store Hema) and sports and health (innovation Foodcoach).

MISSION AND BRAND

Jumbo's mission is to exceed expectations and continue where others stop. They want to be 'successful in every market that they participate in'. This shows that Jumbo is open-minded to non food-related markets.

Jumbo also mentions how these expectations will be exceeded, namely: 'Every day, everywhere and for every customer. [...] The best service, the biggest and best quality assortment and the lowest price. We want to offer our customers the best in all possible ways. [...]. This approach transforms Jumbo customers into real Jumbo fans'.

'Jumbo works on being prepared for the future'. Jumbo can be described as being entrepreneurial, daring to take unconventional steps, reliable and involved. Jumbo has a winners mentality and places their customers central.

Jumbo has been famous for their television advertisements, featuring Frank Lammers. Their atmosphere-based advertisements focus on families and joy from social events. Jumbo shows interest for the younger generation and even has their own children council.

Moreover, a brand-association with sports is established via sponsoring of talented people and teams in sports, such as racing legend Max Verstappen, Jumbo Visma's cycling and ice-skating groups. Also the development of the Foodcoach application to support athletes, such as PSV, in healthy eating, shows that Jumbo is taking social responsibility, especially in relation to healthy living.

FORMULA

Three concepts fundamental to Jumbo's business are assortment, price and value. These are translated into the formula: best service + biggest assortment x lowest price.

CHARACTERISTICS

Jumbo aims to place their customers central. Through the use of seven guarantees, Jumbo aims to reduce and limit possible discomfort and dissatisfaction in their clients. By being loyal to their customers, they expect loyalty in return. The seven guarantees are: 1) Euro's cheaper 2) Service with a smile 3) For all groceries 4) Fresh is really fresh 5) smooth shopping 6) Not satisfied? Refund and 7) customers wishes are central.

Compared to other supermarkets, Jumbo creates a personal touch, by facilitating personalized cakes with edible photos and giving discount on cakes at people's birthday. Additionally, Jumbo collaborates with other parties to provide additional services in their shops. For example, in some shops people can collect their medicines or use post service.

Jumbo's pricing strategy differentiates from other supermarkets in two ways.

- Jumbo uses different pricing strategies, based on the location of the shop and presence of competition. Simultaneously they promise to offer products for the lowest price, special actions and discounts excluded.
- Jumbo offers products that are discounted for a year, or season-bound discounts for each month.
- For promotion Jumbo offers actions to save for free, or in price reduced, products – such as cooking gear – and activities, such as formula 1 racing.
- In 2020, Jumbo launched the savings program JumboExtras's. Customers collect saving points by buying selected products. With the points, customers can save for free and discounted products and events.

JUMBO'S LONG-TERM STRATEGY 2018-2022

The long-term strategy aims to achieve 1) enhancing differentiation through Jumbo formula, 2) being always available through a multi-channel approach, 3) personalizing service both digital and in-person and 4) being an entrepreneurial business. Furthermore, sustainability-related goals are mentioned, for example lower environmental-impact and living healthier.

JUMBO STORE FORMATS

Jumbo Group Holding owns besides the Jumbo supermarkets the self-service restaurant La Place and a dedicated shop for Golf.

The Jumbo supermarkets can be further classified in the ordinary supermarket format, a Foodmarkt format and the Jumbo-city concept. From 2014, Customers were able to order food online and pick-it-up at dedicated pick-up points. Jumbo started home delivery in 2016, and provides home delivery at almost every location in The Netherlands.

In 2013, the Foodmarkt format was introduced. Currently eight of Foodmarkt shops introduce customers to a big assortment of products and unique shopping experience. This experience is created through a special shop layout with kitchens, tastings, a café, activities and workshops. In 2017, Jumbo opened a first station-based shop. Jumbo aims to grow their number of smaller city shops, in which people can find a combination of normal assortment and prepared meals. Jumbo has the ambition to roll out more Foodmarkt and City formats.

La place is further classified in LaPlace restaurants, LaPlace express for take-away meals (e.g. breads, snacks, juices and fruit, and LaPlace catering. The aim is to provide good food fast. La place express are found in NS stations, squares, Schiphol and shopping centres. Last, LaPlace event catering provides catering, both stationary (e.g. in RAI) and flexible (in festivals).

STRATEGIC ACQUISITIONS

Jumbo made several acquisitions. Jumbo took over several supermarkets, such as C1000 (in 2012) and EM-TE (2018). The self-service restaurant La Place was acquired in 2015. In 2018, Jumbo expanded its recipe collection and platform by acquiring Smulweb. In 2019, Jumbo announced collaboration with Hema. Jumbo products will be available in the Hema shops, which are often conveniently located in city centres. In return, Hema products will be available in Jumbo stores.

Strategic collaborations

Jumbo has several strategic collaborations, ranging from foundations such as Krajijc, to research institutes, like TNO and Wageningen University, to government and public organizations, such as Voedingscentrum. Jumbo also has their own council of children.

DILEMMAS

Jumbo questions themselves: how far does our responsibility reach, for example regarding the sales of unhealthy products. As health is increasingly seen as a shared responsibility; what role do we take?

Jumbo decided not to exclude unhealthy products, as they want to be the supermarkets with the biggest assortment for all needs. Jumbo aims to respect the desires from the client, as they also have freedom of choice. Instead, Jumbo provides support to promote healthy behaviour.

A second challenge is how to use available data to provide value to customers and their business, yet in adherence to law, regulations and expectations.

LOOKING FORWARD

Similar to other supermarkets, Jumbo pursues ambidexterity. This implies that Jumbo balances their day-to-day activities (exploitation) with exploration of future opportunities to remain relevant (O'Reilly & Tushman, 2004). The ambidexterity also explains that Jumbo pursues quality and value improvements while simultaneously tries to optimize costs.

Future developments include the public version of the Foodcoach application that will be rolled out in 2020. Initially, this application will focus on amateur endurance athletes and will be expanded to more sports and general lifestyle. This innovation is driven by a separate team, with full commitment from top management. The innovations follow an iterative approach build, measure, learn approach through the use of pilots. Additionally, these pilots provide the opportunity to build outside-in, instead of inside-out, enhancing the fit to context and desirability of customers.

| Appendix C

Context analysis

Supermarkets are part of the sector food. Respectively, all care products and services offered by public and private organizations are part of the care-market umbrella. It can be observed that non-care related businesses are increasingly exploiting the business potential of the care market, by integrating health services in their value proposition. Examples in retail are that supermarket chain Wallmart opened a first health centre and that some Jumbo supermarkets have medicine pick-up desks. Examples from other domains are amongst others that post service PostNL started delivering medication and that Volvo equips some of their cars with AED systems.

This section starts with nine trends that influence both the retail and care industry. Afterwards, market specific numbers and trends are presented.

TRENDS SHARED BY CARE AND RETAIL

The conscious consumer – modern day consumers of the care and retail industry are increasingly concerned about their health, the capacity of the world and the impact of our behaviour on developing countries (Hanus, 2018; Waterlander et al., 2018). Transparent information and responsibility is requested.

On-demand - People want to be in full control of their needs, how these will be fulfilled and when. People want to have 24/7 access to shopping and consultations with medical specialists. People desire a seamless experience and do not want to spend time travelling and waiting (Royal HaskoningDHV, 2018). More care services are instantly provided on the point-of-care or via e-health services.

Servitization - People demand service that support them to achieve their goals in the best possible way. Supermarkets notice an increased interest in convenience foods, and simplification of choices Vandervelde, 2017). Therefore, they provide prepared meals and food boxes and smoothen the overall customer journey. For example, Albert Heijn is piloting automated payment using video-based observation of products that are purchased combined with face recognition. Also in the care market, more services are provided to improve the experience (HaskoningsDHV, 2018).

Personalisation – Services are sought to be tailored and personalized through the use of data. Wearables provide data to personalize care activities, supporting the trend towards precision medicine (Royal HaskoningDHV, 2018). For retail, purchase behaviour will be used to optimize the shopping experience and tailor purchases (Lindner, 2016).

Experience-focused - In both markets, consumer experience plays a central role. Besides the increased use and presence of technology, people seek a human, trustable experience (Royal HaskoningDHV, 2018). In retail, consumers also seek new sensory experiences (Hanus, 2018). These experiences may be provided in brick-and-mortar stores, or in virtual environments. In food, people celebrate the diversity in sensory experiences of dishes around the world (Vandervelde, 2017).

Decentralization – More care and diagnostic activities are provided at people's homes (Walg, 2014, Royal HaskoningDHV, 2018). Also, online grocery shopping and home delivery is expected to keep growing (Rabobank, 2019).

Networked – As a response to customers' high expectations of having optimized and integrated services, supermarkets and care organizations need to start collaborating with partners outside their organization (Royal HaskoningDHV, 2018). This also implies introduction of new players from other sectors in the retail and care landscape (Vandervelde, 2017)

Tech-driven – Technical innovations and robotisation will contribute to future developments in the food and care domain (Lindner, 2016). For example. 3D printing is explored to print human tissue and to print food with certain characteristics in looks and nutrition.

From profit to value – Supermarkets and care organization will no longer be driven by the quantity of sales or actions, but will be rewarded for the value that they provide. Supermarkets are challenged with the dual aim of making profit and responding to customer needs and values (VanderVelde, 2017). The care industry will become value-based, meaning that they will be rewarded for the value that they provide to the patients instead of the quantity of treatments (Tersago & Visnjic, 2011).

FOOD RETAIL INDUSTRY

Introduction to Food sector

In 2018, there were 6000 supermarkets in The Netherlands (CBS, 2018), run by around 30 different supermarket brands (Rabobank, 2019). This implies that on average 2900 inhabitants share one supermarket. Following on the latter, many people, especially in urban areas, have access to multiple supermarkets in their neighbourhood; they can choose at which supermarket brand they want to do their shopping. This shows that the food industry has high levels of saturation and competition.

Sector numbers of the Rabobank (2019) show that supermarkets have approximately 50 percent revenue share in the food sector. Nearly 75 percent of society's consumption is bought in a supermarket (Rabobank, 2019); purchases at bakeries, grocers and butchers are decreasingly visited. In 2018 the revenue of Dutch supermarkets amounted to nearly 39 milliard euro, which is a 3.5 percent annual growth. Online purchases currently represent 4 percent of market share and are expected to increase to 15 percent by 2030. Also the revenue from discounted products increased, amounting to 23,3 per cent of the total revenue (NOS, 2018).

Trends and transformations in supermarkets

The grocery retail landscape is changing rapidly as a response to changing consumer demands, technical advancements and high competition due to market saturation. Groceries need to deal with tighter regulation regarding health and sustainability. Besides making profit, supermarkets are increasingly expected to take social responsibility: customers demand transparency and responsibility in animal welfare, packaging material, Food miles, nutritional information and food waste (Rabobank, 2019). As a response, for example, supermarket chain Lidl stopped the sales of cigarettes.

Channel-specific approach- Increased number of purchases are performed online (Rabobank, 2019). Brick-and-mortar stores are visited for small purchases of immediate necessity. It can be observed that these brick-and-mortar stores are either small and located conveniently in city centres, the so-called 'to-go shops', or big and offering a full sensory experience with cooking demonstrations, wide assortment and interactive technology, such as the 'hyper stores'.

Information supply- In 2015, supermarket branch Coop created 'The supermarket of the Future' in Milano (Garfield, 2017). With an technology-driven approach, Coop aims to facilitate customers to make informed choices about what they eat. Consumers interact with huge displays to explore nutritional facts, origin, potential cross-contamination of allergens and the use of pesticides and fertilizers and other details of specific products. Prices are dynamic and influenced by supply and demand. Screens also show daily top-sellers and recipe inspiration.

Automatisation - Coop also launched a chatbot for assisting customers in their shopping (Accenture, n.d.). The chatbot, called ShoppY, is able to make purchase list, notify about discounts and provide product recommendations and recipes. In 2017, Albert Heijn launched a smart shopping list for online shopping. The list is pre-filled with an estimation of the person's needs, based on prior purchases. People can adjust this list to match their specific needs.

Shopping and (personalized) health - Chloé Rutzerveld, food futurist and designer, also expects brick-and-mortar stores to be integrated with pharmacies and health labs (Pol, 2019). She envisions that customers receive personalized advice based on stool samples that they deliver. Stuart Farrimond, writer about food science, expects to have scientifically-proven, personalized diet based on your genetic profile by 2028 (Farrimond, 2019). He also expects food to be modified to be more nutritious, healthy and sensory engaging. Rabobank research mentions that personalized nutrition will be a game-changer in the food industry (van den Berg, 2019).

Form and experience - On a food level, Chloé Rutzerveld envisions that people will daily consume supplement in the form of powder (Pol, 2019). Optionally, this powder can be integrated in a 3D printed snack, or the eating experience can be enhanced through a Virtual Reality.

Current interventions and impression supermarket

This section provides an impression of interventions currently deployed by supermarkets to promote healthy shopping behaviour. For this analysis the 4P's, presentation, price, promotion and product assortment, were explored. First generic interventions are shown, followed by supermarket-specific efforts.

Generic interventions

- Presentation: Maximize customer exposure to healthy foods e.g. by presenting vegetables at entrance and placing healthy products at eye height, make vegetables look visually attractive using lighting and green decorations. Foodboxes contain all the necessary products, also specific meal ingredients are assembled together. For example, the Dutch meal 'Hutspot', carrots, potatoes and a sausage are combined in the fridge, sometimes even accompanied with the recipe.
- Price: Products may be discounted (planned and also when the product almost expires), free food and samples are provided, customers can save for rewards and supermarkets may deploy the notification 'good deal' to inform the customer.
- Promotion & education: supermarkets provide recipes, online and in magazines, specific actions and use influential people to promote products.
- Product assortment: supermarkets offer a wide assortment of healthy foods, mention the amount of vegetables on the package.

At Jumbo

- Promotion& education – Jumbo established the 'Duurzame boodschappenroute', which is a route in the shop that makes it easier to find sustainable or healthy products (e.g. products with a special quality mark). Jumbo also sponsors a breakfast day for children in primary education. In 'De reis van 5' vegetables are placed in the spotlight, stimulating children in a playful way to create design compositions on their plate using healthy products.

Other supermarkets

- Promotion & education – AlbertHeijn provides personalised discounts based on prior purchase behaviour. Also, they provide the service 'Mijn voedingswaarde'.
- Personal ease – Predictive shopping lists are pre-composed and can be instructed by voice. AlbertHeijn pilots with automated payment, for example through face recognition.
- Product assortment –Supermarket Lidl excluded several unhealthy products from their assortment, such as cigarettes and energy drinks.

CARE INDUSTRY

Care market numbers

At the moment of writing, Dutch care costs amount to more than 97 milliard euro, and this number is increasing every year (Rabobank, n.d.). The costs are expected to rise nearly 3 percent each year, reaching 174 milliard euro in 2040 (Rijksinstituut voor Volksgezondheid en Milieu, 2018). Technology accounts for two third of these costs. Although, until now, technology has increased healthcare costs, it is also considered as a promising way to reduce costs. A new phenomena is that a special budget is allocated for prevention of diseases and promotion of healthy lifestyles.

Trends and transformations in the care market

The current Dutch health care system is disease-driven and unsustainable (Walg, 2014). Due to the ageing society, risk to unhealthy lifestyle and enhanced medical treatment the prevalence of multimorbidity increased (Rijksinstituut voor Volksgezondheid en Milieu, 2018). This puts pressure on the current care system, both the financial and human resources. The aim is to achieve optimal cost-quality (Tersago & Visnjic, 2011).

As a response, the healthcare landscape is transforming on several fronts (Walg, 2014). During the recent years, the definition of health changed from the absence of disease (World health Organisation, 2006), to the more holistic view of positive Health, which focuses on how people respond to physical, emotional and social challenges (Huber et al., 2011). This implies that healthcare is no longer restricted to diseased people. Health should be the combined responsibility of individuals and the collective. Individuals take responsibility for their health, and that of others, reducing the pressure on care (Spanakis et al., 2016). Self- management and pro-active participation should play a central role in all life stages. Like shown in Philips Health continuum, the aim is to streamline people's complete health journey through connected care and health information, which ideally prevents diseases from developing (Philips, 2018). Also the government sees value in a Preventive approach, and developed a national prevention program (Ministerie van VWS, 2018). The ambition is to integrate health in all policies (HiAP) and across all sectors to improve population health (Organization, 2014).

The increased focus on prevention, also impacts the way healthcare is structured, provided and received. Care provision will increasingly shift from the hospital to people's homes (Walg, 2014), including diagnostics with the emergence of self-tests (Royal HaskoningDHV, 2018). Only complex therapies will require hospitalization. The continuum of care is facilitated by access to data from the Personal Health Record, and the accessibility to health trackers and apps (Bonander & Gates, 2010). Additionally, this data is used to personalize and tailor the care provision to individual needs). The broadened insights about one's health stimulates personalization of care. This also implies that more collaboration between care providers is required to provide personalized, holistic care (Royal HaskoningDHV, 2018).

Royal HaskoningDHV (2018) describes a three-step process to care transformations. First, knowledge should be made transparent and shared. The accessibility and transparency in health data provides the opportunity to assess the value that the care provision creates. The second step is to transform care to be value-based, implying that care activities are financially rewarded for the value it provides instead of rewarding the quantity of delivered care. Value-based healthcare improves the quality of the care. Care activities that are tailored to the person will subsequently provide more value. In step three, the care receiver should have a fully central place in the care system.

| Appendix D

Competition and influential work

This section explores the current competition that Jumbo as super-market faces. From this it can be derived how Jumbo differentiates themselves. Additionally, it described several influential projects in the domain of nutrition and health. These projects may eventually grow into potential partners or competitors.

COMPETITIVE LANDSCAPE

Competition is analysed by distinguishing four lenses, being the product form, product category, generic and budget.

Product form

This competition contains supermarkets that provide the same products and services, to the same customer and in the same format. In The Netherlands, approximately 30 supermarket brands exist. Supermarket Albert Heijn holds, with 971 shops, nearly 35 per cent of the market share in 2018 (Rabobank, 2019). Over the past years, this shows a decrease. Albert Heijn seems to differentiate themselves through integrating the latest technologies, such as face recognition and speech control.

Additionally, Albert Heijn take a more active role in the health of their customers by informing them about the nutritional health of their purchases via the application 'Mijnvoedingswaarden' and helping them to find fitting recipes using FoodFirst network (see next section on influential work).

Albert Heijn is followed by the increasing market share of Jumbo. In 2018, Jumbo has 626 shops and 19 per cent market share. Jumbo did several take-overs and created new strategic alliances, broadening their market presence and assortment. With the introduction of the savings program JumboExtra's, Jumbo is able to collect similar data to the bonuscard of Albert Heijn.

Discounter Lidl comes at the third place with 11 per cent market share. In total, discount supermarkets have a market share of approximately 20 percent. Therefore, discounters become an important competitor for Albert Heijn and Jumbo.

Product Category

This competition comes from non-supermarkets that offer similar products and services, yet in different ways. Increasingly, non-supermarkets are selling food. Examples are department store Hema, which even offers fresh food , and shops like Kruidvat, Ethos and Action, which are selling primarily snacks and niche products for specific diets. Another competitor in this field in online supermarket Picnic.

Generic

This competition comes from differently-formatted services that provide the same value to customers. Webshops like Bol.com and Amazon may pose competition when they expand their assortment to food. Their strength is logistics. At the moment Bol.com offers alcoholic beverages already.

Budget

Budget competitors provide other food services that compete with the same dollar that a customer can spend. The increase in eating out, home-delivered meals and food boxes reduces the need for people to visit supermarkets for their purchases. As a response, supermarkets also offer food boxes.

INFLUENTIAL WORK

A market analysis on influential projects shows what has already been done in the field to explore trends. The projects listed here are a selection of the projects with the best fit to the project. A distinction is made in work related to the provision of nutritional information, health checks, personalized nutrition and interventions related to blood sugar control.

Nutritional information

Mijn voedingswaarden – insight in nutritional values of purchases at Albert Heijn

From 2018, Albert Heijn enables customers with a bonus card to view their purchases, and explore the healthiness and possible improvements. The application shows the quantity of sugar, fiber, salt, protein, saturated, calories and carbs that were purchased. For specific unhealthy items, the app proposes a healthier alternative from the same segment.

Nutriscore – Comparison of similar products regarding nutritional values

In 2019, The Netherlands introduced the Nutriscore. Each product is labelled with a traffic light, which shows whether the product is relatively (un)healthy compared to products from the same segment. It takes into account both positive and negative attributes of the product. This approach gained critique, as a product with a green light can be the least unhealthy choice, which cannot be compared to a real healthy choice. Additionally, the score shows the nutritional value per 100 grams, while the size of consumptions should be leading in making decision.

Applications like Eetmeter and Foodschiffer – insight in nutrients in products and consumed

Scanning products to see the nutritional values, including micronutrients, and track consumption. The Foodschiffer application provides the opportunity to create an individual profile to search fitting products. The profile takes into account allergens, intolerances, specific nutrients and preferences.

Health checks

Self-tests and point-of-care tests

(online) stores offer self-tests for amongst others cholesterol, to measure ketosis and glucose levels.

DA health-check – in-store health check

(<https://www.da.nl/informatie-over/gezondheidscheck>)

Pharmacy DA provides five health checks in their shops. The tests are: cholesterol, blood pressure, skin quality, stress and body composition. For the cholesterol test, an employee performs a small finger prick. The tests cost three to five euro and results are communicated immediately. If possible, product recommendations are provided. If results fall outside the reference value, the person is advised to see the general practitioner.

Nationale Nederlanden health check – health check provided by insurance company (<https://www.nn.nl/Particulier/Zorgverzekering/Services/Gezondheidscheck.htm>)

Insurance company Nationale Nederlanden (NN) provides customers with a FIT-subscription a free health check to assess general health via a questionnaire and self-tests for cholesterol and blood sugar. People receive the health outcomes and are proposed lifestyle advices and programs.

Precision nutrition

Work in the field of precision nutrition has been clustered in work done abroad, and players in the Netherlands.

Abroad

Baze – personalized supplement pills

(<https://www.baze.com/>)

Baze offers clients personalized supplements (trial phase). With a self-test kit, users draw a blood sample and send it to a laboratory to assess their nutrients. Based on the outcomes, clients receive tailored supplements for daily intake via a monthly subscription. In this service the following nutrients are tested: Choline, Chromium, Copper, Magnesium, Omega-3, Selenium, Vitamin B12, Vitamin D, Vitamin E and Zinc. The supplement may for example contain turmeric and elderberry. Baze advises their clients to do a new test every three months to adjust the supplement composition to the client's latest needs. Via a platform, clients can track their health outcomes. Baze charges 100 \$ for a nutrient test, and 15\$ monthly for supplements.

Habit – personalized nutrition plan

(<https://habit.com/>)

Habit offers clients a personalized nutrition plan, containing food guides and personalized recipes. Clients are asked to answer some questions about their health and self-report laboratory result on cholesterol measurements. Additionally, the application can take into account Fitbit data on lifestyle. Habit integrates Amazon Fresh to facilitate clients in doing easy and healthy groceries. A yearly subscription costs \$49.

OME Health – 12-week nutritional coaching program

(<https://ome.health/>)

OME Health provides precision nutrition for the purposes of weight loss, heart health, be more energetic and to get fit. For each of these purposes, a coaching program offers nutrition support, lifestyle coaching, also regarding sleep and activity, meal plans and health tracking based on specific measurements and personal goals. These measurements may include blood tests (cholesterol, iron, vitamins D, B9, B12), gut microbiome tests, DNA test and blood pressure measurements. These are collected through faecal, saliva and blood samples. The health check ranges has costs over 100 pond. Additionally, participants are charged a monthly subscription of 10 pond.

Nestle – personalized fortified food capsules

(<https://www.nestle.com/>)

Since 2018, Japanese participants in the Nestle Wellness program receive capsules to make teas, smoothies and snacks. These capsules are fortified to match the client's personal nutritional needs using AI. These personal needs are assessed using a blood and DNA test, that is sent to the participant's home and analyzed by diagnostic companies. Based on the outcomes, the participants receive personal advice in diet, lifestyle and supplement intake. Participation costs 600\$ yearly.

Thrive&VitaMojo – personalized meals based on health

(<https://www.vitamajo.com/#/index?order-now>, <https://thriva.co/>, <https://www.dnafit.com/>)

Thrive is a UK-based lab that allows clients to do a finger-prick lab test at their home, send it in, and receive personal diet advice. VitaMojo is offers meal-delivery of meals that can be fully personalized. Clients can choose their ingredients and quantities to create meals that fit their personal needs and ambition. Thrive collaborates with VitaMojo to offer personalized meals based on the nutritional needs of the client. Besides vitamin assessment, VitaMojo also collaborates with DNAfit. DNAfit offers kits to assess topics such as salt sensitivity, lactose tolerance, carbohydrate sensitivity and caffeine response, besides nutrition. DNAfit test range from 149 pond to 200 pond.

DNA nudge- DNA based grocery advice on bracelet

(<https://www.dnanudge.com>)

November 5, 2019 DNA nudge launched a London-Based store to nudge people into healthy eating based on their DNA. Consumers are asked to send some saliva. The firm distracts DNA from this sample using a their patented device. This DNA profile, with information about diseases such as diabetes, is loaded onto a bracelet, which provides tailored advice to the user during groceries. A user can scan a barcode with the bracelet. Via colour feedback, the bracelet shows whether the scanned product is a good fit with their DNA profile. The bracelet also provides general health advices, for example by alerting the user during prolonged sedentary behaviour.

In the Netherlands

Nutriprofiel – nutrition advice for (non-) patients

(<https://nutriprofiel.nl/>)

In collaboration with Wageningen University, a few hospitals in The Netherlands offer patients personalized diet recommendations. The recommendations are based on a laboratory diagnoses of vitamins in their blood and a questionnaire. Additionally, care providers receive insight into the nutritional status and may decide to take actions on this. The test assesses folic acid and vitamin B6, B12 and D. The test and diet advice are also available for non-patients, under the condition that they have to pay and visit a specified laboratory. For non-patients, the test costs 89 euro.

Test-thuis – self-prick send to lab and health advice

(<https://www.test-thuis.nl/>)

In 2019, Test-thuis, a Dutch company, was the first to commercialize a vitamin self-test kits in collaboration with a laboratory Brightlabs in Venlo. They offer three tests to measure vitamin D, total energy and total health. A person draws blood at home via a finger rick, and sends this to the specific laboratory for analysis. The total health kit measures Vitamin D, Magnesium, Iron and Co-Enzyme Q10. The total health kit is expanded with tests on Vitamin A and E, Sodium, Potassium, Calcium, Zinc, Copper and Selenium. The tests cost 39,95 euro, 99,95 euro and 159,00 euro respectively, excluding shipping costs.

4Gold – DNA-test and sport supplements

(<https://www.4gold.be/nl/4gold-dna-analyse/>)

Cyclo-cross athlete Mathieu van der Poel provides with firm '4Gold' DNA-tests for athletes and produces tailored food supplements in the shape of sport drinks based on the DNA-test outcomes. He mentions that DNA holds the key to optimize sport performance (van Lakerveld, 2020). The

DNA test utilizes saliva and may take some week for analysis. Costs range between 220 euro and 300 euro.

Mijnlabtest – DNA tests and lab tests

(<http://mijnlabtest.nl/>)

MijnLabTest provides three DNA tests to empower people in their health.. The tests are based on self-collection of saliva. After a few weeks the DNA tests outcomes are available. DNA-test suggest to measure 1) how the body responds to food (such as carbohydrates and fats) 2) your individual needs in certain nutrients 3) your eat behaviour (e.g. response to sweets and how quickly do you feel satisfied?) 4) your metabolism (e.g. to alcohol, caffeine and lactose) 5) sports (e.g. response to endurance or high-intensity sports, risk of injuries) 6) lifestyle (sleep quality, risk to addiction to certain food) 7) cardiovascular health (e.g. cholesterol) and 8) skin quality. Based on the outcomes advices are provided in lifestyle and nutrition.

Clear – exploratory program for personal blood glucose response to optimize diet

(<https://www.theclearhealthprogram.com/>)

The Dutch tech start-up 'Clear' provides a program to explore your personal blood glucose responses to food. During a three-week program people experiment with diet and other lifestyle changes while wearing a chip implant that continuously measures blood glucose. This feedback loop empowers people to optimize their meals through small adjustments. After this exploration, clients receive nutritional advice mentioning meals that work well and less well for you. The costs of the program are 200 euro, which are distributed over the sensor (~ 60 euro), algorithm and analysis (~40 euro) and personal support.

IMEC - smart toilet and diet advice

(<https://www.imec-int.com/nl/the-netherlands/smart-toilet>)

IMEC displayed a speculative toilet design for personalized diet advice during festival Lowlands in 2019. While using the toilet, it measures heartbeat, blood pressure and assesses the urine on fluid balance. Subsequently, the user receives a tailored menu. For example, users receive the recommendation to drink more, or to select a dish high in fibers.

DNA-foodbox – Tailored food box based on DNA

(<https://dnafoodbox.com/>)

In collaboration between Bilder & De Clercq, Omnigen en DNAisyou, a food box is announced to be tailored to ones DNA. However, since the announcement in 2018, the food box is still unavailable. The service performs DNA analysis on the saliva that a person submitted. Based on the result, the food box is composed to contain a perfect mix of macronutrients that fit the DNA, and promote health and weight loss. The DNA test costs 100 euro, and the food box costs 100 euro per week.

Chocobombs – a fortified chocolate for pregnant women

(<https://www.chocobombes.nl/>)

In collaboration with Maxima Medisch Centrum, fortified chocolates are developed that support pregnant women in their nutritional needs. For each trimester a fortified chocolate is developed. This is an example of group-based nutrition.

Blood glucose

Two types of interventions for blood glucose control were found. The first type is specifically designed for people with diabetes and aims to improve and reverse their blood sugar levels. The second type focusses on raising awareness in society and individuals and is therefore accessible to people with no diagnosis. The latter group aims to improve and prevent health problems.

For people with diabetes

Keeridabetes2om – lifestyle program to reverse diabetes type 2

[\(https://keeridabetesom.nl/\)](https://keeridabetesom.nl/)

‘Keeridabetes2om’ is a six month group-based intervention program aiming to improve and reverse elevated blood sugar levels in people with diabetes type 2. The program covers nutrition, exercise, sleep and relaxation. Besides five face-to-face sessions, participants are supervised and supported online by (medical) experts. The program costs €3850, and is paid for by insurance.

Changing health – lifestyle intervention program

[\(https://www.changinghealth.com/\)](https://www.changinghealth.com/)

Insurance Menzis adopted the UK-based program Changing Health in 2019. The program combines AI and personal coaches to provide personalized support en masse.

‘Diabetesdoorbreken’ - Patient-to-patient platform

www.jeel leefstijlsmedicijn.nl

Patient-to-patient platform ‘Diabetesdoorbreken’ from ‘jeel leefstijlsmedicijn.nl’ is a lively Facebook groups in which patients and experts exchange advices and thoughts. Participation is free of charge. Insurance companies are considering to pay for each participant who successfully reversed diabetes via this platform.

Sugarvita - serious game based on personal data

<https://www.sugarvita.nl/het-spel-2/>

A serious game developed in collaboration between Eindhoven Technical University and hospital Maxima Medisch Centrum. Based on a simulator of personal blood glucose response, the game creates insight in how choices in nutrition, physical activity and medication influence blood glucose levels. These insights empower both the patient, and their environment.

FoodFirst Network – Recipe and lifestyle platform

[\(https://landing.foodfirstnetwork.nl/\)](https://landing.foodfirstnetwork.nl/)

Albert Heijn bought this platform for lifestyle and nutrition advice and inspiration. For various health issues, such as diabetes, and cardiovascular disease, users receive healthy meal plans.

Applications for self-management

[\(https://www.glucosebuddy.com/\)](https://www.glucosebuddy.com/), <https://mysugr.com/en/blog>

Various applications, such as ‘glucosebuddy’, ‘mysugr’ and ‘dediamater’ enable people with diabetes to track their blood sugar levels, activity, and nutrition to find relationships.

‘Cook Back to our roots’ – cooking classes in which dishes from foreign cultures are placed in the spotlight

[\(https://www.salto.nl/programma/cooking-back-to-our-roots/\)](https://www.salto.nl/programma/cooking-back-to-our-roots/)

Six videos that show how role models from different cultures cook national low-carb dishes.

Nationale Diabetes Challenge – national program to promote physical activity

[\(https://www.nationale diabeteschallenge.nl/\)](https://www.nationale diabeteschallenge.nl/)

For four to five months people with diabetes participate in a local walking group. The walking group makes a walk 3 times a week, and is also joined by care and sport professionals. The walks are organized by the Bas van de Goor Foundation, which initiates various sport events for people with diabetes.

For individuals and society

The national sugar challenge – national program to raise awareness about sugar consumption

<https://www.diabetesfonds.nl/minder-suiker/suiker-challenge>

This national program calls people to reduce their intake of added sugars for one month. Via daily advices, participants are informed and motivated.

Ketobox – Foodbox for low-carb meals

<https://www.ekomenu.nl/mijn-persoonlijk-menu>










Shop ‘Ekoplaza’ offers a weekly foodbox low in carbohydrates.

Low-carb assortment

Supermarkets offer a range of low-carb products, such as zucchini spaghetti and low-carb bread.

ANALYSIS OF ACTORS IN THE HEALTH MARKET RELATED TO NUTRITIONAL ADVICE AND HEALTH ASSESSMENT

The analysis below shows several parties that provide:1) generic, population-wide nutritional information, 2) professional care, 3) health wearables, 4) self-care blood tests, 5) in-shop health assessments and 6) Jumbo’s Foodcoach application. For each of these parties, a future outlook of the market is described. Moreover the scheme shows what the parties measure, teach and provide action possibilities for to their users. Also a price indication is given. The analysis revealed the opportunity to provide action-possibilities related to health data that is retrieved by other parties (see pink area). Possibly, Jumbo can collaborate with these parties. This is in line with Jumbo’s strength of influencing people’s food behaviour, while they miss the expertise, resources and experience of doing health tests.

MARKET		NUTRITION-HEALTH INTERVENTION				
PROVIDER	OUTLOOK	MEASURE What does it measure	TEACH What does it teach?	ACTION Action possibilities	(€)	
General	E.g.  	Replaced by personalised approaches	Population research Statistics	Nutritional facts Guidelines, advices Campaigns	Financial incentives Accessibility Promotion	Free
	Care 	For prevention, decentralised (self) diagnosis and e-health	Blood tests (e.g. nutritions, cholesterol) Physical assessment (e.g. BMI, blood-pres- sure) And to lesser degree: stool, urine analysis, body-scans	Test results Advice	Prescribe therapy and/or medication	Insurance Diverse > 15
Wearable	 	Tech, accessibil- ity and desire for health measurements	Physical activity Heart rate Calories Sleep	Monitored data, trends Advice	External motivation (score board, gamification)	~40 to 200
	self-test send to lab  	Tech, validation, accessibility and competition	Blood tests (nutrients, cholester- ol etc.) DNA test (saliva) Microbiome (stool) Blood pressure	Test results Advice	Amongst others: - personalised supplements - shopping list recommendations - personalised meal	~ 100 to 350
In-shop		Uncertain Point-of care assessments grow, but less brick-and-mor- tar stores	Blood tests (cholesterol) Blood pressure Physical assessment (body composition, skin)	Advices, suggestions	Buy medication Refer to medical specialist	3 to 5
Foodcoach		Expansion to recreational athletes and public fitness	No experience No knowledge No contacts	Jumbo has some experi- ence, contacts with dieticians and a channel	Foodcoach provides direct shopping opportunity and recipes	Free
There are various opportunities to do health measurements. Jumbo is inexperienced in this, and has not the right expertise. The provided interventions provide limited opportunities to activate users. Only a few self-tests interventions provide integrated action opportunities. As Jumbo's core strengths are in daily operations of shopping, meal planning and delivery; I suggest that Jumbo focusses on providing action possibilities for performed health measurements (as shown by the purple area). This can be supported with some nutritional advice and recommendations.						

Appendix E

Customer profiles based on food purposes

This section provides additional explanation and support for the choice of the targetgroup that is introduced in Chapter 1 of the main thesis.

THE FOOD PURPOSE AND CHARACTERISTICS WHEEL

The thesis describes the food purposes that Jumbo has established, as well as my follow-up actions. Chapter 1 refers to a model that I created to capture the food intentions and characteristics of this group (see Image 1). For each target

group the wheel shows: 1) the size of the Dutch population that is part of this target group (numbers provided by Jumbo), 2) specific food qualities that are relevant for them to reach their goal, 3) currently available tools to reach their goal and 4) an overall estimation of the motivation to eat healthy. People with chronic lifestyle related diseases are expected to have high intrinsic motivation to change their diet compared to people who see food as filling and satisfying.

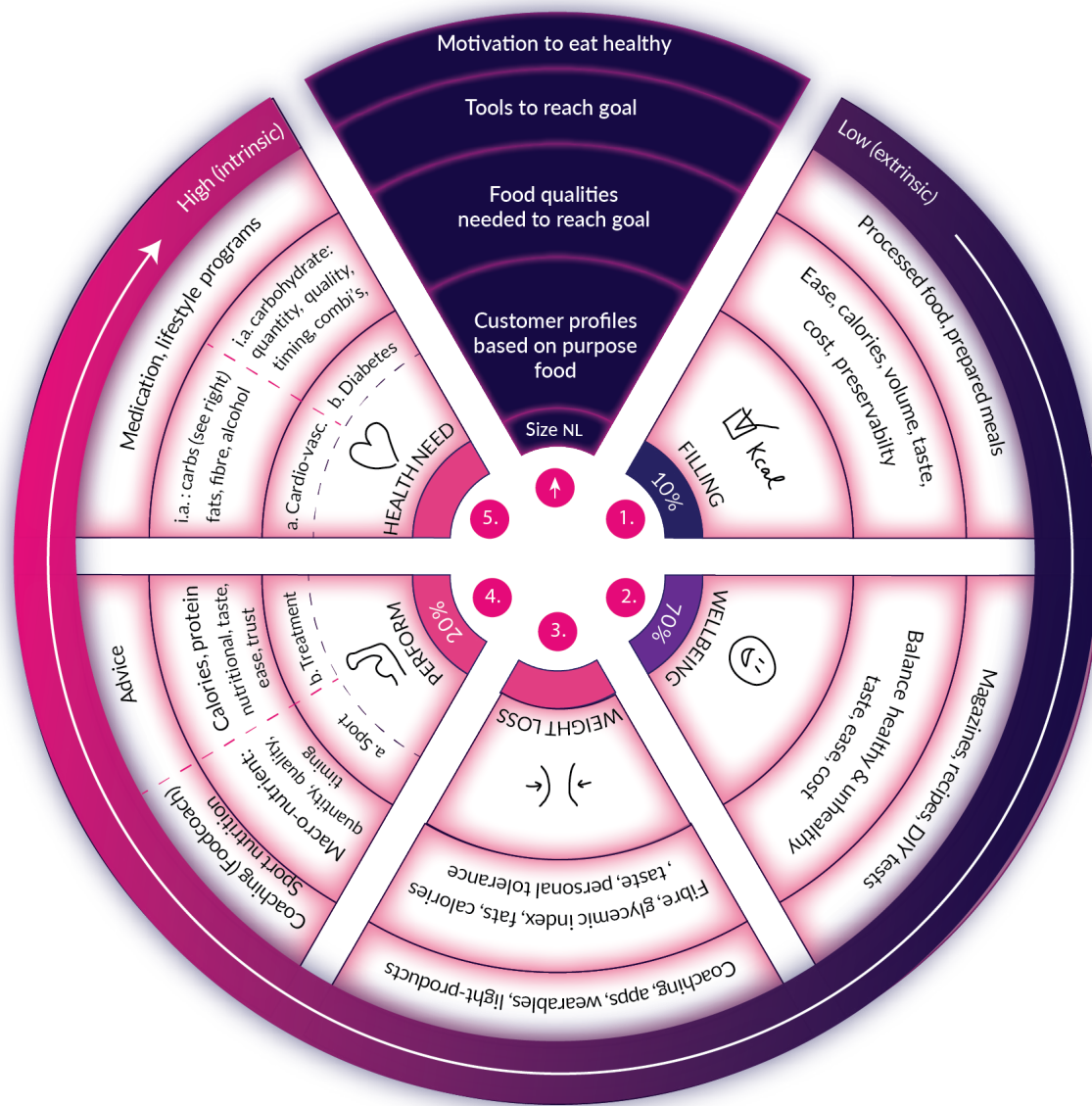


Image 1. A wheel displaying the five purposes food fulfils, a sub-specification of the purposes 'Perform' and 'Health need' and characteristics.

PERSONAS AND MATRIX

For each target group a persona was created and a possible service that may support this persona. These personas and scenarios are shown on the next pages.

Each persona has been mapped on a matrix based on information from the analysis. The x-axis of the matrix represents the role food has in achieving the goal of the persona (low/high). The y-axis represents the value Jumbo can add, for example by considering the degree of supportive facilities already available today (see Image 2).

This lead to the choice to focus on diabetes type 2. Some choices of this mapping are explained below:

- Feeling well (2), losing weight (3), performing well (4a and 4b) and feel better (5a) are scored relatively neutral on the x-axis, as they are impacted by various other lifestyle factors besides food. For example, sleep, physical activity and stress are determinants.
- For feeling well (2) and losing weight (3) various tools are already available, and therefore score lower on the value Jumbo can add.
- Jumbo Foodcoach already works on a service for athletes; therefore target group 4a can be excluded.
- Diabetes type 2 (5b) is preventable and often reversible by adequate nutrition (Hallberg et al., 2019). Diabetes type 2 is primarily influenced by Metabolic factors, being: 1) high fasting plasma glucose and to a lesser degree by high body mass (BMI) (Institute for Health Metrics and Evaluation, 2020). Both factors are closely connected to diet. Value Jumbo can add is in: 1) creating awareness of their blood sugar levels and 2) support people in using food as medication instead of treating and controlling symptoms using medication.

SUBTYPES AND MOTIVATION & SKILL

Chapter 1 describes that research created three subgroups in people with pre-diabetes (Hardie et al., 2015) and explains my choice for subgroup 3. Subtype 3 is mentioned to be 'ready' to change and benefit most from a nutritional strategy. Due to the poor diet habits, this target group is considered to score relatively low on skills (see Image 3). This means that they are receptive to, and may benefit from, support.

An addition to this is that diabetes has a higher prevalence in people from certain countries, such as Surinam and Turkey. These people may need support that matches their culture and food traditions. However, I decided not to specifically focus on these cultures as I expect many of them to do shopping at markets, discounters, and foreign supermarkets. Furthermore, I focus on the non-complicated users that have the possibilities to change. The reason for this is that research suggests that people may be unlikely to change due to their situational context, such as poor housing and limited budget (Barry et al., 2018). By creating successes in the aforementioned target group, these first-movers can act as role models for more complicated target groups.

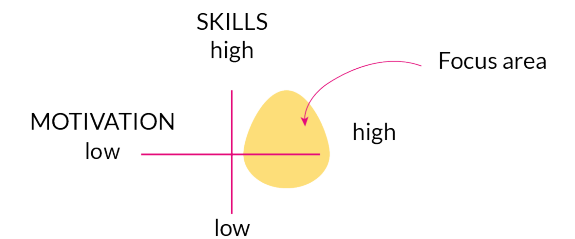


Image 3. An impression of the motivation and skills of the selected focus group.

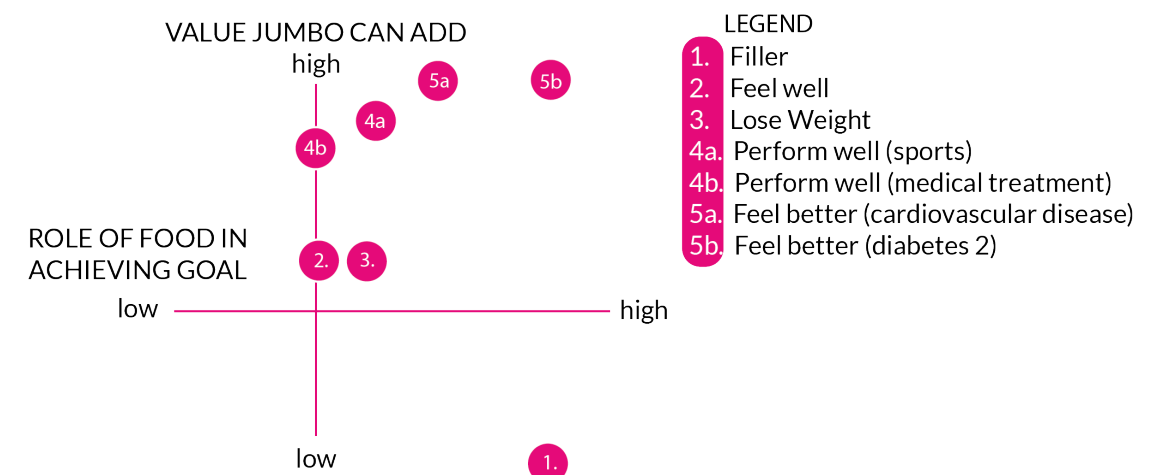


Image 2. The food purposes mapped on the matrix.

PERSONAS AND FUTURE SCENARIO'S

Food purpose: filling



GOAL

"I need quantity and energy"



MOTIVATION towards (healthy) eating
Stijn has no intrinsic motivation to eat healthy. He is driven by extrinsic factors such as ease, costs and enjoyability.



TOOLS to reach goal
Stijn does his shopping online, and picks them up when returning from work.



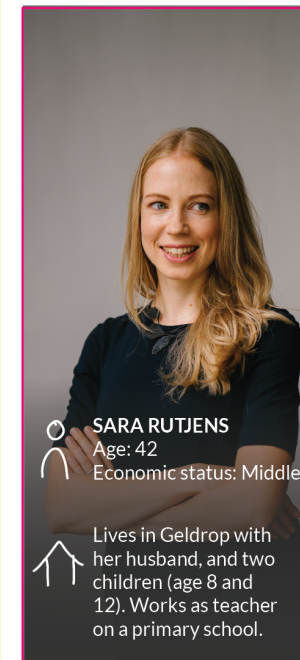
SKILLS to reach goal
Stijn has low skills in cooking. Therefore, he routinely stacks his house with processed, ready-to-eat food. Sometimes he also orders a pizza.



FOOD CHALLENGE
How can we provide Stijn food that 1) matches his energy demands, 2) is filling, 3) is enjoyable, 4) is convenient and 5) is economically attractive?

FOOD QUALITIES STIJN NEEDS TO CONSIDER TO ACHIEVE GOAL:
Ease, calories, degree it fills, preservability, economic attractiveness

Food purpose: wellbeing



GOAL

"I just want to feel well and have a balanced life"



MOTIVATION towards (healthy) eating
Sara finds healthiness only one aspect of eating. What she cooks also depends on product promotions, taste preferences of the family and the time and motivation she has to cook. She sometimes rewards herself with a snack.



TOOLS to reach goal
Sara sometimes asks her mother for advice. Also, she browses through recipes. While shopping, she sometimes looks at the nutritional values. Sara uses online shopping and home-delivery. She considers buying food-boxes.



SKILLS to reach goal
Sara knows about the general food guidelines. She learned to cook from her mother and uses many family recipes. Every day in the week stand for a certain meal category, like pasta. That creates structure.



FOOD CHALLENGE
How can we provide Sara with food that is 1) healthy, 2) enjoyable, 3) matches the desires of the household and 4) easy and 5) is economically attractive?

FOOD QUALITIES SARA NEEDS TO CONSIDER TO REACH HER GOAL:
Balance of healthy and unhealthy products, nutritional values, tastiness, convenience, economic attractiveness

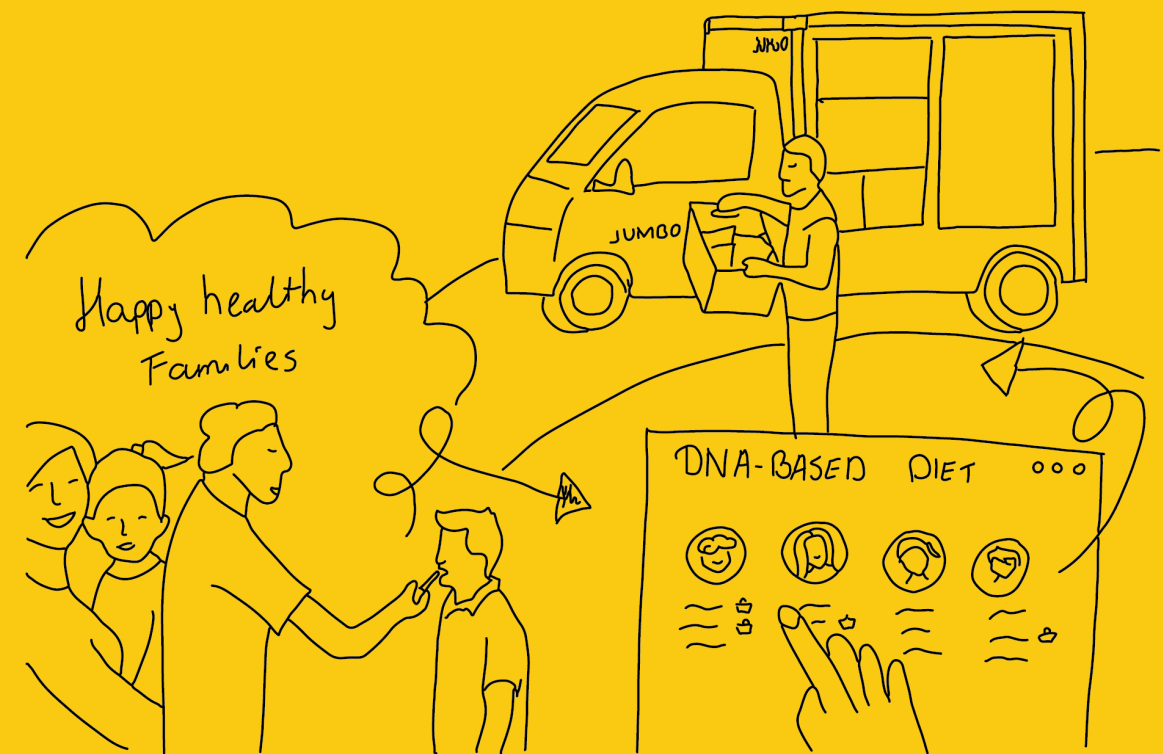
FUTURE FOOD SCENARIO FOR STIJN

Design your meals: choose your ingredients, taste, shape and size. The product will be 3D printed for you



FUTURE FOOD SCENARIO FOR SARA

Discover what food fits each of you best; easily visible when doing the online shopping.



Food purpose: weight loss



JAN-PIETER DE RUIJ
Age: 49
Economic status: High

Lives in Scheveningen with his wife. Is chief officer of a tech-firm.

GOAL

"The last years I had a sedentary life with lots of stress. Now it's time to lose that excess weight"

MOTIVATION towards (healthy) eating

Jan-Pieter has intrinsic motivation to lose weight. He is not happy with his body image. His motivation fluctuates, and in times of stress he falls back in old habits. His wife supports his goal and takes care of purchasing healthy products.

TOOLS to reach goal

Jan-Pieter consults a lifestyle coach to monitor and discuss the progress. He purchased a fit-bit to track his activity. Jan-Pieter buys top-notch products, such as salmon, and follows the latest proven diets. He considers doing a DNA test to see this response to carbs and lipids.

SKILLS to reach goal


Jan-Pieter knows what caused him to gain weight, and how to reverse this with a healthy lifestyle. Yet, Jan-Pieter can not always withstand seduction and the feeling of hunger.

FOOD CHALLENGE

How can we provide Jan-Pieter with: 1) (healthy) food low in calories 2) appetite control 3) tasty food, 4) food that fits his DNA, 5) less seduction and 6) coaching?

FOOD QUALITIES JAN-PIETER NEEDS TO CONSIDER TO REACH HIS GOAL:
Fibre, (high), glycemic index (low), fats (healthy), calorie-density (low), tastiness, carb & lipid tolerance

Food purpose: performance (sports and health)



DAAN RAATJES
Age: 32
Economic status: Middle

Lives in Nijmegen, works as freelance journalist and is an enthusiasts biker.

GOAL

"I want to reach the top of the Mont Ventoux within 2 hours"

MOTIVATION towards (healthy) eating

Daan is ambitious and has a clear goal in mind. He is intrinsically motivated to adjust his lifestyle to reach his goal. From friends and family he receives full support.

TOOLS to reach goal

Daan consulted others to hear their experiences and tips. He browsed biking magazines. Also, Daan buys from the sport nutrition assortment.

SKILLS to reach goal

Daan knows how to train his biking, but has limited knowledge how food can improve his performance.

FOOD CHALLENGE

How can we provide Daan with: 1) the right food and 2) the right way of consumption (quantity and timing).

FOOD QUALITIES DAAN NEEDS TO CONSIDER TO REACH HIS GOAL:
Type of macro-nutrient, quantity of macro-nutrient, timing of consumption in relation to sport and goal.

FUTURE FOOD SCENARIO FOR JAN-PIETER

Get recommendations based on your physical activity and weight goal.





Annemijn Klaassen
Age: 62
Economic status: Low

Lives alone. Work in administration. Diagnosed with breast-cancer. On the planning: surgery and chemotherapy.

GOAL

"I want to be optimally prepared for my surgery and chemotherapy. I really want to do everything I can to survive."

MOTIVATION towards (healthy) eating

Annemijn developed intrinsic motivation to make dietary adjustments to support her health. Also, she wants to comply to the advices from medical specialists. Yet, her mind does not stand to researching how food can support her.

TOOLS to reach goal

Annemijn received some folders with dietary advice from her medical specialist.

SKILLS to reach goal

Annemijn has limited health literacy and does not know how she can best support her performance. She does not know how to interpret dietary information and integrate them in her diet.

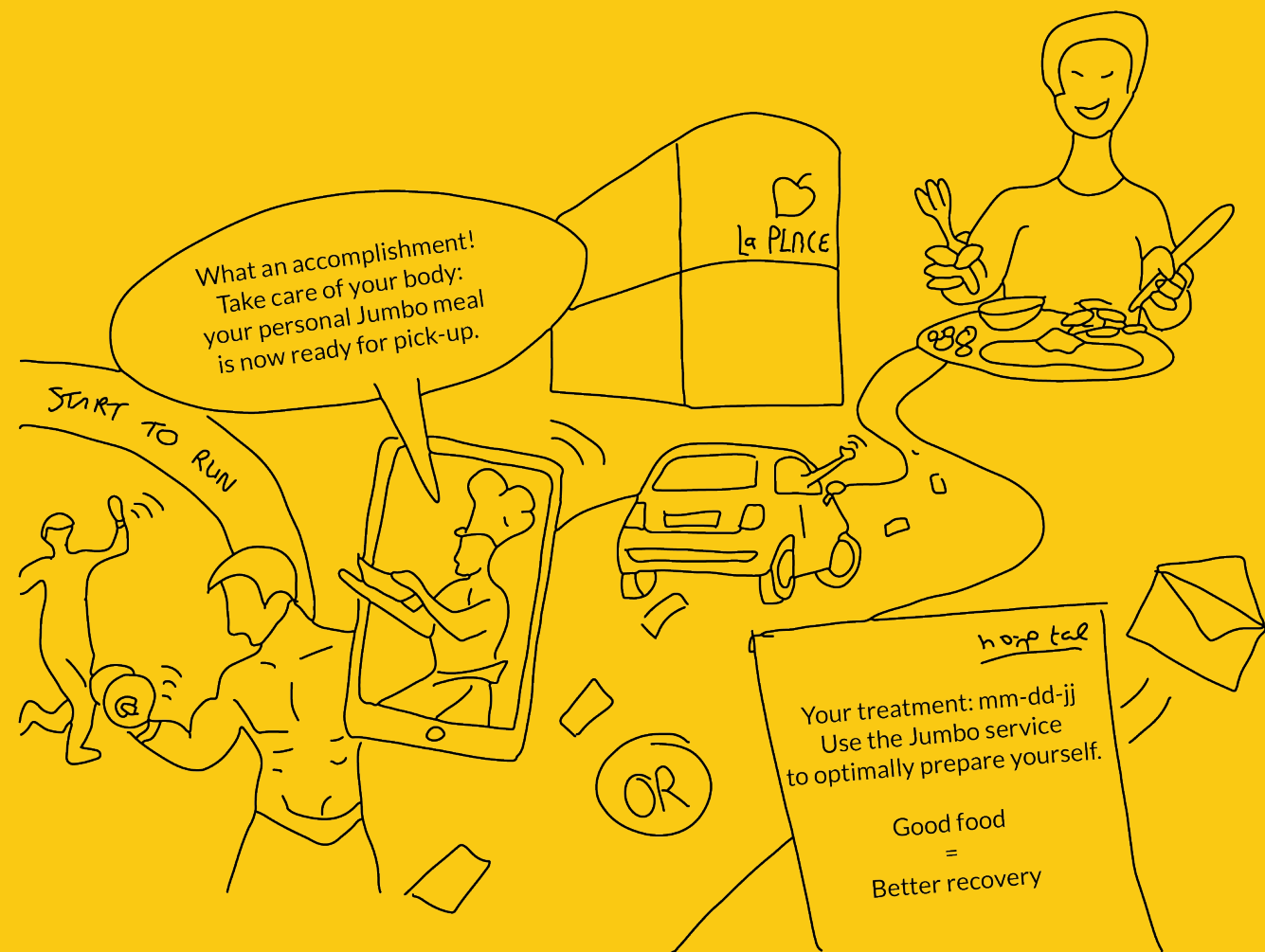
FOOD CHALLENGE

How can we provide Annemijn with: 1) the right foods to support her treatment 2) an easy, understandable and accessible way to follow the recommendations, and 3) a supportive context.

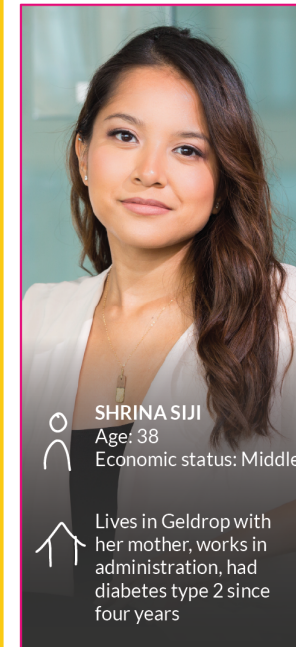
FOOD QUALITIES ANNEMIJN NEEDS TO CONSIDER TO REACH HER GOAL:
Surgery preparation and supporting chemotherapy: Calories (enough), protein (high), no deficiencies, ease, taste, and trust.

FUTURE FOOD SCENARIO FOR DAAN EN ANNEMIJN

Jumbo meals tailored to optimize your performance. Meals to support sport performance and to get people in perfect condition for hospital treatment.



Food purpose: health need (diabetes type 2 and cardiovascular disease)



SHRINA SIJI
Age: 38
Economic status: Middle

Lives in Geldrop with her mother, works in administration, had diabetes type 2 since four years

GOAL

"I want to reverse diabetes 2"



MOTIVATION towards (healthy) eating
Food has played an important cultural role in Shrina's family. She sees food as a socializing activity. Over the past years, she developed the intrinsic motivation to reverse her diabetes and stop medication.



TOOLS to reach goal
Shrina uses an application to count her carbohydrates. She considers following a 6-month program to reverse diabetes.



SKILLS to reach goal
Shrina developed basic understanding of how to control her diabetes with food. Yet, she does not know how to use food to reverse diabetes.



FOOD CHALLENGE
How can we provide Shrina with: 1) the right food to reverse diabetes, 2) foods that fit her culture, 3) advices on consumption (e.g. timing) and 4) 3) health literacy and control (to withstand seduction, make healthy decisions).

FOOD QUALITIES DSHRINA NEEDS TO CONSIDER TO REACH HER GOAL:

Carbohydrates: amount & quality (glycemic index (low), fibre (high)), right food combinations, right food timing, appetite control, taste, fit to culture



MAARTEN LOS
Age: 55
Economic status: Low

cardiovascular diseases in family, recently diagnosed with various non-optimal cardiac metrics;

GOAL

"My biggest nightmare: get a heart attack too."



MOTIVATION towards (healthy) eating
Maarten is intrinsically motivated by the fear for health problems. Yet, he looks up to change his dietary habits.



TOOLS to reach goal
Maarten received the reference to the website from the Hartstichting for dietary advice. Also, he is subscribed to take medicine and advised to quit smoking.



SKILLS to reach goal
Maarten does not know how food influences his cardiovascular health. He also does not know how to change his diet.



FOOD CHALLENGE
How can we provide Daan with: 1) the right food to support cardiac health 2) health literacy, 3) assistance in making dietary changes and grow his motivation?

FOOD QUALITIES MAARTEN NEEDS TO CONSIDER TO REACH HIS GOAL:

Blood sugar: carbohydrates: amount & , quality (glycemic index (low), fibre (high)), right food combinations, right food timing, appetite control
Blood Pressure: salt (less), licorice (low), alcohol (low), specific foods that lower blood pressure (e.g. chia seeds),
Cholesterol: fats (healthy), fibre(high),

FUTURE FOOD SCENARIO FOR SHRINA AND MAARTEN

Meal suggestions and personal discounts based on your health (metrics), such as stool, heart rate and blood sugar.



The tool shown in Image 4 was used to explore the knowledge of, and attitude towards, a low-carb diet. The tool was used by both people unfamiliar to the diet, and people who adopted a low-carb diet.

0. GETTING STARTED

Hello!
Thank you for sharing insights about your consumption!

Filling in this template costs ~10 minutes. Your answers are fully anonymous. Please work from left to right. There are no good or bad answers.

Please introduce yourself
Age: _____
Gender: _____
Profession: _____

Do you follow a diet?
☐ Yes, namely, _____
☐ No

What do you consider when doing groceries?

Which foods do you consider as rich in carbohydrate?

What do you consider when buying and eating carbohydrate rich products?

1. ON A TYPICAL DAY, I EAT...

Please take a look at the example in the left corner.

On a typical day:

1A When do you eat?
Please circle on the timeline

1B What do you eat?
Please describe & how many portions?

1C Why do you choose to eat this?
Please describe why you choose to eat this product. Or in a meal, why did you pick these ingredients?

2. CHALLENGE: EAT LOW-CARBOHYDRATE

You are instructed to eat less carbohydrates. Please answer the questions below.

2A I find eating low-carbohydrate (please circle):
Really easy Easy I don't know Difficult Really difficult
Because:

2B What would you eat when eating low-carb?
& how many portions?

2C Why do you choose to eat this?
why did you choose these products and ingredients?

2D What may hinder you eating this?
Please describe these barriers

2E What pains could you experience when eating this?
Please describe the pains that you experience when you would eat this low-carb meal or snack.

3. SOME LAST QUESTIONS

If research shows that eating less carbohydrates is healthy for you. Will you follow this advice? Please describe why or why not.

How would you describe the changes that you can make in your current diet to eat low-carb?

What do you dislike in low-carbohydrate meals?

If you eat low-carbohydrate, what are the top 3 difficulties that you will face?

How could you be supported in eating low-carb?

EXAMPLE

WHAT?	WHY?
06	
07	I like to start with something sweet.
08	2 slices bread, jam, 1 milk is healthy
09	
10	1 Snicker → easy to carry & enjoy it

THANK YOU! VERY MUCH :)

v.p.m.vanengen@student.tudelft.nl

Image 4. The tool used during a fieldwork activity.

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