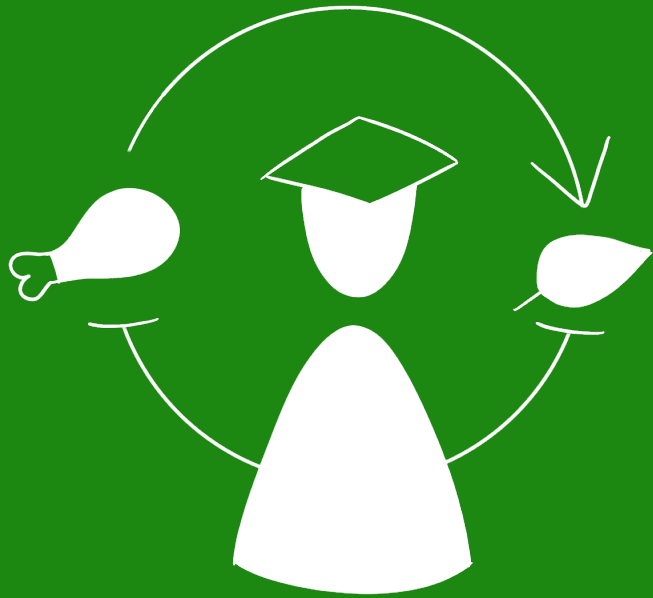


Designing the Veggie[🌱] transition



A strategy towards a successful vegetarian menu at the biggest Olympic training center in the Netherlands

Designing the veggie transition

A strategy towards a successful vegetarian menu at the biggest Olympic trainingscenter in the Netherlands.

Master Thesis

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Abstract

Floods, long periods of drought, wildfires, and natural disasters are becoming more frequent, in more extreme proportions. Our current food system is a major contributor to this. In particular, the livestock industry. This is due to the amount of land and water that the livestock sector uses, and the emission of greenhouse gasses. In order to work towards a livable planet for future generations, this project addresses how we can reduce the impact of our food system. One of the most promising ways to reduce the impact of our food system is to switch to a more vegetarian or plant-based diet.

This project focuses on the professional athletes who train at the Olympic training center Papendal and eat in the restaurant at Papendal. This is a unique situation where Papendal controls what the athletes eat. Although the plant-based market is growing enormously and more people are interested in reducing their meat consumption, hardly any vegetarian meals are sold in the restaurant. The manager of the sports restaurant at Papendal has no insight into what keeps athletes from choosing the vegetarian

evening meal and what can be done to run a vegetarian menu in the future successfully.

A survey with athletes at Papendal was conducted to identify the barriers and attitudes of athletes towards vegetarian food. This research showed that most athletes are open to reducing their meat consumption. However, the main reasons that prevented them from doing so were that they had not thought about it, did not know what they should eat to get all their protein, and did not like the taste.

In this project, a strategy was designed to help Papendal work towards the vision of a successful vegetarian menu in the sports restaurant, where the goal is that half of all meals sold will be vegetarian in six years.

Several models were used to design this strategy, including behavioral change models and a model for achieving organizational change. The motivation technique called nudging was addressed to motivate athletes to change their behaviour. This motivation technique gradually steers consumers in a particular

direction, at all times used for good purposes such as public health or sustainability.

Two roadmaps and two nudges were developed in detail as a final design. The organizational change roadmap helps Papendal work towards an optimal workplace for designing and implementing nudges. Furthermore, the other roadmap shows what type of nudges Papendal can implement over the years. Containing three horizons, each with a different focus of the behaviour change model.

Two nudges are designed in detail. To inspire Papendal what these nudges in the first horizon can look like. The first is a deck of playing cards containing information and visuals about the topic of vegetarian and plant-based food, which allows athletes to get in touch with this topic in an accessible and fun way. Next, a playful cube is designed with similar information on the sides. The cube can be placed on the dinner tables, attracting athletes' attention to increase awareness around this topic.

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Personal Motivation

My name is Jim Heijman, and besides my studies at TU Delft, I have been part of Team NL for four years. I live at Papendal, the largest Olympic training center in the Netherlands. I started judo when I was five years old, and I am now a five-time Dutch champion and have won several international medals.

I tell this story because I decided to stop eating meat and fish about two years ago, which is not very common in the sports world. My main motivation for doing this was the climate. In the years before I decided to stop eating meat and fish, I was trying to help companies move in a sustainable direction with my designs. However, this felt very contradictory to my personal lifestyle. I was flying all over the world and eating meat at almost every meal. This environmentally unfriendly lifestyle felt very contradictory to what I care so much about, the planet.

Although health was not my primary reason for making this change, as a professional athlete, it is very important. I was curious about how my body would react to this new diet. As a Team NL athlete, I have regular strength and

conditioning tests. To my surprise, my performance continued to improve. Even when I had my blood values checked, everything was fine. I can say that I felt fitter than ever.

Once I experienced that you do not have to compromise on your health and that it is much better for the environment and animal welfare, I knew I wanted my graduation project to be about this topic.

My main motivation is to contribute to a planet where I want my (possible future) children and grandchildren to be able to grow old, not at risk of natural disasters due to climate change.



Photo of myself in my judogi

Project Introduction

Our current way of consuming and producing meat and fish is not future-proof. Emissions from the livestock industry are enormous, the oceans are being fished empty, and biodiversity is declining harder than ever (Poore & Nemecek, 2018). One-half of the world's livable land is used for farming. More than three quarters of that is used for livestock production (Ritchie, 2019). The livestock industry occupies nearly 80% of farmland but produces less than 20% of the world's calorie supply (Ritchie, 2017). Most animals we eat had terrible lives, which is all happening even while we do not "need" to eat these animals for our health. Lynch et al. (2018) concluded that plant-based diets are a viable option for supporting athletic performance while contributing to overall physical and environmental health and typically reducing the risk of numerous chronic diseases. Something needs to be done about our current way of consuming and producing animal products to have a livable planet in the future for the next generations.

This project originated from this thought: Designing to change our eating pattern to

one that is considerably less harmful to the environment, within the planet's boundaries. A food pattern predominantly based on plants. *"A vegan diet is probably the single biggest way to reduce your impact on planet Earth"* - Poore & Nemecek, 2018.

At this moment, only five percent of the Dutch population has a vegetarian diet (a diet without meat and fish), and even fewer people have a plant-based diet. However, the plant-based market is growing enormously, and more people are open to reduce their meat consumption. At the moment, this is about 50% of the population (Stein, 2019). The rising demand for the consumption of plant-based foods will lead to a fundamental shift in food consumption. The plant-based meat replacements will have the potential to disrupt the 1000 billion dollar conventional meat industry (A.T.Kearney, 2019).

This project focuses on professional athletes training at the biggest Olympic training center in the Netherlands, called Papendal. How to design the transition to a more plant-based diet among

professional athletes on Papendal. Although these athletes live and train on Papendal, many can not cook for themselves and get their meals at the sports restaurant in this training center. This is a unique situation where the organization Papendal controls what meals the athletes eat. Therefore, this situation is ideally suitable for this project.

This project will answer several questions that help design the transition to more plant-based nutrition among athletes. For example, what currently keeps athletes from choosing the vegetarian option, what their attitude is towards vegetarian and plant-based nutrition, how to motivate people to change their behaviour, and what are interesting design techniques to work with for achieving a successful vegetarian menu at the sports restaurant.

Project Scope

Olympic training center Papendal

The context of this project is the largest Olympic training center in the Netherlands. Team NL athletes from different sports train here. Think of athletics, handball, volleyball, BMX, judo, track cycling, and many other sports. Papendal facilitates the sports environment and guidance needed to get the most out of the athlete's career. These are, for example, sport-specific training rooms, strength rooms, coaches, dietitians, and lifestyle coaches. Besides these facilities, there are also sleeping accommodations, breakfast, lunch, and dining options in the restaurant. Athletes are even able to follow a study at Papendal.

Who is involved?

Next to the athletes training on Papendal, the program expert for innovation and nutrition, the manager of the sports restaurant, the chefs in the restaurant, the dietitians and the communication department at Papendal will be involved. They are all involved in maximizing the success and impact of this project.



Olympic training center Papendal



From left to right: Jeroen Wouters (program expert innovation and nutrition), Jim Heijman (graduate candidate), Erik te Velthuis (manager of the sports restaurant)

The program expert for innovation and nutrition will be my supervisor at Papendal. He will provide feedback on my process and idea directions, whether this may be possible or not. In addition, the manager of the sports restaurant has to be involved closely since the restaurant will be a large component of this project. Despite that, over the years, I have obtained quite some knowledge about nutrition and health; dietitians need to be involved in ensuring that no important aspect of health is overlooked. Moreover, they are the ones that provide information to the athletes on their dietary patterns. Lastly, the communication department will be involved since the people here currently design the posters and other tools for promoting new projects.

Challenges

One of the challenges is that Papendal is not an environment where experiments are conducted when the effects on athletes' performance are unclear. Professional sports careers are relatively short, so there is no time to experiment. Papendal is a very controlled environment.

Another challenge is that athletes have busy training schedules. Therefore, it will be necessary to look carefully at how I can involve my target group in this project without hindering them with their training.

It is also a challenge to include all those involved in this project. These are not only the athletes but also the manager of the sports restaurant, chefs in the kitchen, the dietitians, and the program expert innovation and nutrition at Papendal.

Two weekly physical meeting

To give this project the best possible chance of success, I will meet every two weeks with the program expert and the manager of the sports restaurant. During this meeting, steps made will be discussed. Papendal will provide feedback on the process. It is crucial that the Papendal staff supports and believes in this project. Regularly substantiating and demonstrating why I have made specific steps increases the chance they are convinced of this project. The regular feedback ensures that I am not going in a direction they are all against and do not believe in. Getting the staff at Papendal on board with this project is crucial to avoid that not much will be done with this project in the future.

Project Approach - *Double Diamond design model*

Discover

Dive into the levels of our food system. Understand the current situation on Papendal and the view of the professional athletes towards vegetarian and plant-based food.

Define

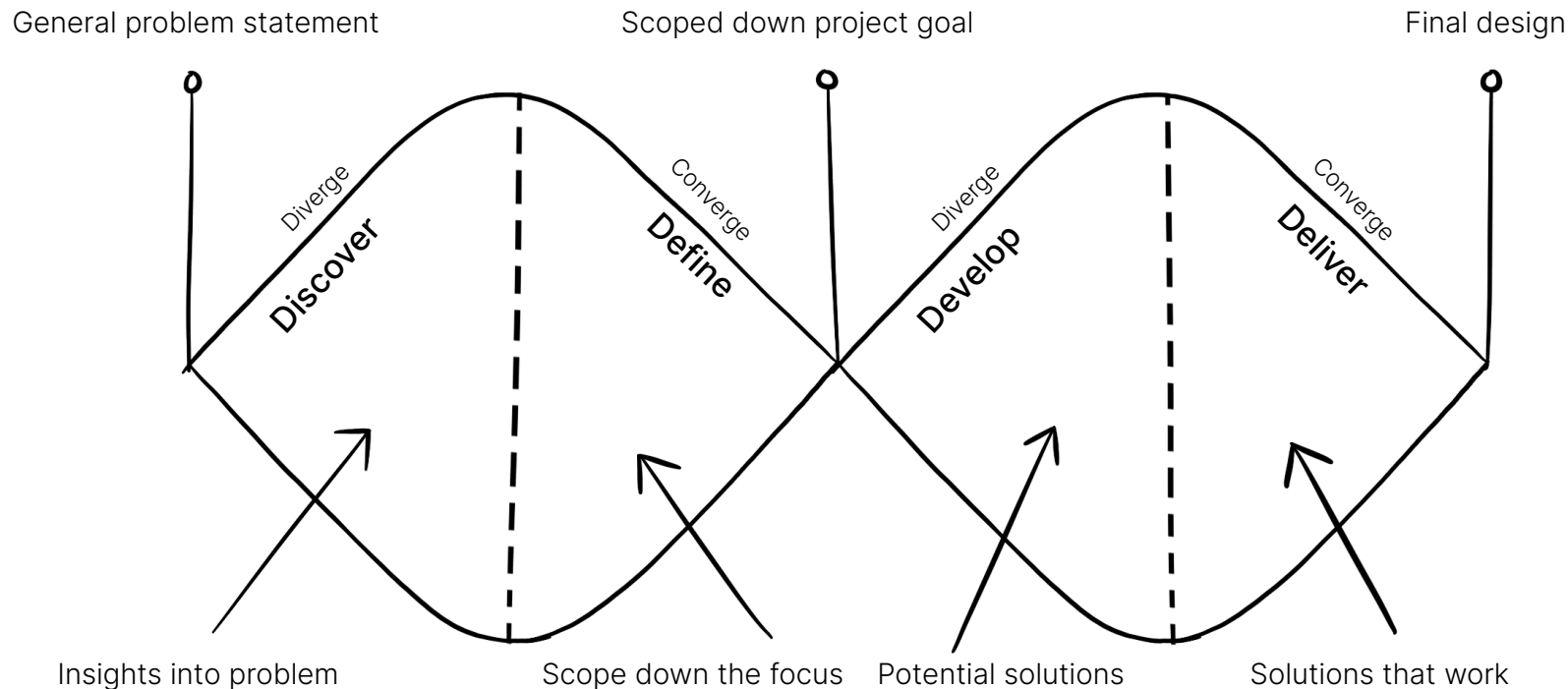
Analyze behaviour change models and how to motivate people to change their behaviour. Come up with a design statement for the next phase.

Develop

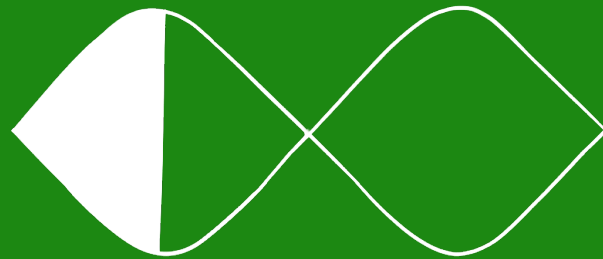
Develop potential directions that help Papendal move towards their future goal.

Deliver

Deliver a final design that the staff believes in and wants to implement to help them achieve the future goal.



Discover



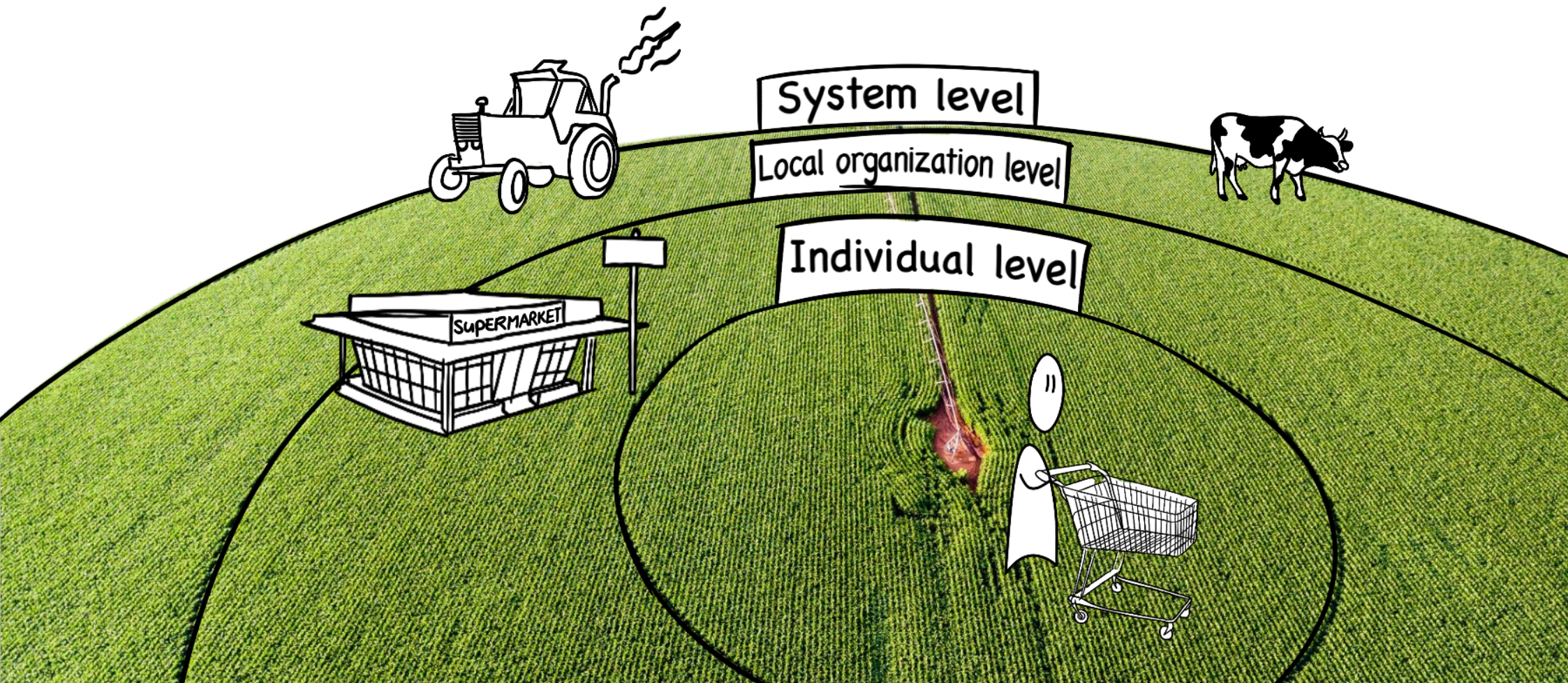
Discover

In the project's discover phase, I will look at our overall food system and where to focus on to reduce the impact of our food system. Then, the current situation at Papendal is analyzed, what the barriers are for Papendal and why it would be a logical step if they would facilitate this transition to a more vegetarian menu. Next, a survey with athletes at Papendal is conducted to gain insight into the athletes' attitudes towards vegetarian food. These groups are then identified using a design tool called personas, to create a clear understanding for which group it is most promising to design for.

Dividing our food system in three levels

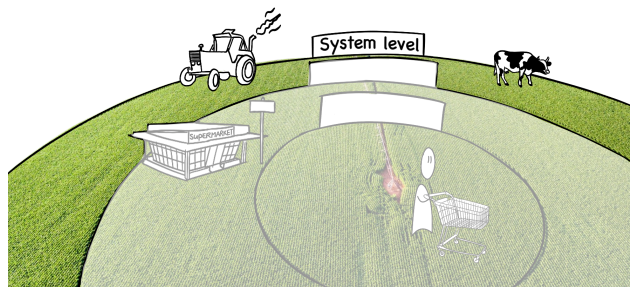
As shown in my personal motivation, I want to contribute to a planet where I want my (future) children and grandchildren to grow old. I aim to contribute to this future by reducing our food system's impact on the climate. However, it is impossible to solve this global problem with this single project. Therefore, I have to scope this project to make a difference and create as much impact as possible. For this project, I divide our food system into three levels.

Since I focus on the environmental impact of our food system, I left out the level of processing of the food products. Because this only takes up 4% of the emitted greenhouse gasses in our food system (Ritchie & Roser, 2020). Whereas the livestock and land use for livestock is responsible for over half of all greenhouse gasses emitted in our food system (Ritchie & Roser, 2020).



System level

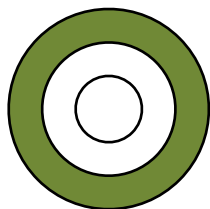
Production



At this level, it is about the agriculture structure. The farmers who actually produce the animal products. Problems at this level are that the current business model is based on efficiency. Therefore, farmers produce as much as possible with the available resources. As a result, most farm animals in animal agriculture spend their lifetime in small spaces waiting to get (most of the time brutally) slaughtered.

A few farmers who work within the boundaries of the planet and keep their animals more natural fall outside the current business model. A way of working in which it is hard to make a living.

Icon used throughout report:



Organizational level

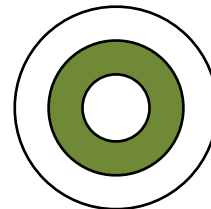
Distribution



At this level, it is about restaurants, canteens, and other organizations that offer food for individuals. They influence what they are offering to the consumers.

Sports center Papendal belongs to this level. I chose Papendal since it is a unique situation. Namely, it is a very controlled environment where they influence what the athletes eat.

Icon used throughout report:



Individual level

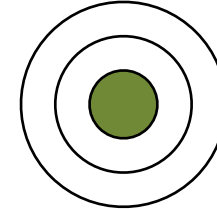
Consumption



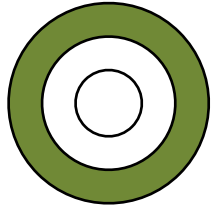
This level revolves around the individuals who ultimately make the food choice in a restaurant, canteen, or supermarket.

In this project, it will be the athletes training who partly eat at the sports restaurant at Papendal and partly make their food choices at other local organizations.

Icon used throughout report:



The impact of our food system



On system-level, the production of animal products is a major cause of climate change (Koneswaran et al., 2008). The animal agriculture sector appears to be the largest anthropogenic user of land. Half of the world's livable land is used for farming. More than three quarters of that is used for livestock production (Ritchie, 2019). Animal products provide only 18% of our calories but use 77% of our farmland (Ritchie, 2019). Livestock contributes to biodiversity loss and global warming. In addition, the production of animal products is responsible for 56% of greenhouse gas emissions from the food sector (Poore & Nemecek, 2018). The FAO (Food and Agriculture Organization) concluded that farm animal production is responsible for as much as 65% of total N₂O emissions. In the Netherlands, the livestock sector is the largest emitter of nitrogen (RIVM, 2020).

The production of animal products is also the largest driver of deforestation in Latin America (Sy et al., 2015), and livestock production pollutes freshwater resources.

People and animals face new challenges to survive due to the changes in our climate. Partly caused by our current food system. Floods, heat waves, droughts, storms, rising sea levels, and global warming are making it difficult for many people and animals on this planet to stay alive. The Intergovernmental Panel on Climate Change predicts an increase of 1.8-3.9 C by 2100 and warns that climate change could lead to some impacts that are abrupt or irreversible.



Increased flood events due to climate



Climate change making storms stronger



Farmers hit by drought

What would reduce the impact of our food system?

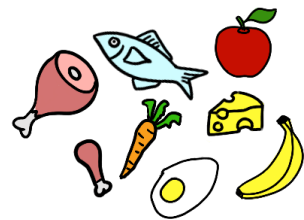
The production of animal products has the biggest impact on the climate in our food system. A study of the environmental impacts of omnivorous, vegetarian, and vegan diets (Rosi et al., 2017) showed a substantial difference in the degree of climate impact between different types of diets. The carbon footprint levels, water use, and ecological footprint of omnivorous diets are much higher than those of vegetarian and vegan diets. Therefore, switching to a vegetarian or vegan diet can significantly help reduce people's impact on the climate. "A vegan diet is probably the single biggest way to reduce your impact on planet earth" (Poore & Nemecek, 2018). It preserves biodiversity, significantly reduces CO2 and nitrogen emissions, requires less land, and takes less of our freshwater resources. In addition, a study from Our World in Data concludes that to reduce your footprint, it is much more important to focus on *what* you eat rather than whether your food is local (Ritchie, 2020).

	Omnivorous	Vegetarian	Vegan
Carbon Footprint (g CO2 eq./d.)	3959.3	2598.3	2336.1
Water Footprint (L/d)	3140.8	2304.7	2455.0
Ecological Footprint (Global m2/d)	26.0	16.1	14.5

Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)

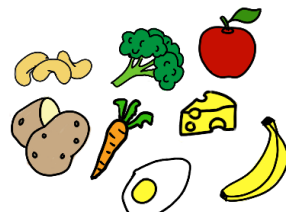
Omnivorous

In this diet, nutrients are derived from consuming animal and plant products. Therefore, this diet includes animal meat and dairy products.



Vegetarian

With a vegetarian diet, animal and plant-based products are still consumed. However, in this case, no meat and fish are eaten. The animal products, in this case, are mainly dairy and eggs.



Vegan (Plant-based)

With a plant-based diet, no animal products are consumed at all. People who follow this diet only eat plants and plant products, such as vegetables, grains, nuts, fruits, and seeds.



Reduce the production of animal products

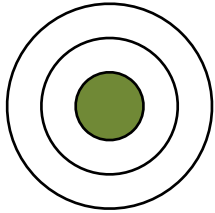
By producing fewer animal products, the impact on the climate can be significantly reduced. However, the farmers who produce these products simply follow demand and existing business models based on efficiency (Bezat-Jarzębowska & Rembisz, 2013). As long as the demand for animal products is high enough, there will be a business that produces these animal products, whether this is produced in the Netherlands or abroad.



Fortunately, it is now widely recognized that we must reduce our consumption of animal products for the sake of our planet. A scientific study (Rust et al., 2020) examined the biggest knowledge gaps for this transition. The most frequently mentioned knowledge gaps concern how to encourage consumers to buy more sustainable food.

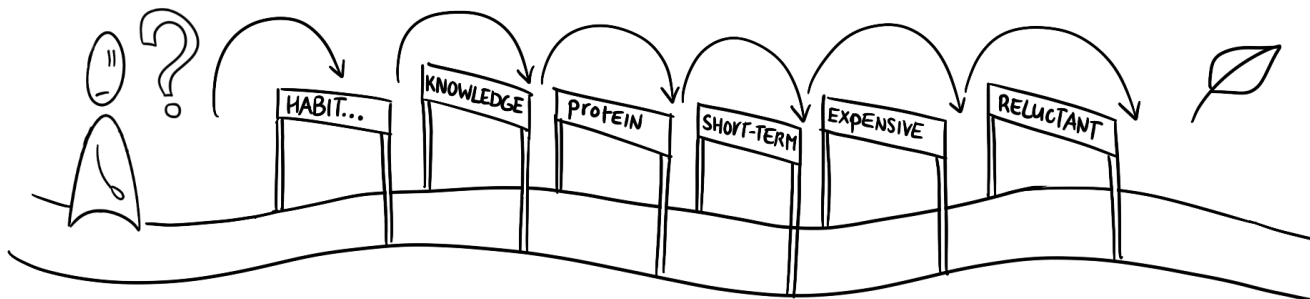
How to encourage consumers to buy more sustainable food

Barriers to reduce consumption of animal products



At this moment it can be hard for consumers to choose the sustainable option. The structure of our current food system is complex and involves many deeply embedded factors such as cultural, political and economic systems that are hard to adjust. Rust et al., (2020) and Stubbs et al., (2018) have compiled a list of the main factors that make it difficult for the consumer to choose the sustainable option.

1. Most food choices are due to **ingrained habits** hard to change.
2. A **lack of consumer knowledge** of the relationship between food, environment and health. As a result, consumers do not have a clear frame or reference what a sustainable diet is.
3. The **belief that meat is the best source of protein**.
4. Consumers are **reluctant about the negative impacts** of meat.
5. A **lack of prioritizing sustainability** over taste, convenience and price.
6. Humans, in general, choose behaviours that have **short-term-payoffs** and are less concerned with long-term costs, even towards their own health.
7. **Choice architecture**, where social factors such as traditions and cultural frames of reference persist meat is not only a source of nourishment, but also a cultural symbol closely linked with identities and is highly politicized.
8. Healthy and sustainably food can be **more expensive/rarer** to find, and/or take **longer to prepare**.
9. Government **subsidizes and incentives** encourage unhealthy food commodities and environmentally damaging farming practices.
10. Unyielding **power of large food companies** to lobby governments and manipulate consumers.
11. **A sustained mantra that we can "innovate"** ourselves out of this mess by creating new agri-tech solutions to reduce environmental damages without considering that we need systemic, not just procedural, change.
12. **Lack of incentives** for food supply chain actors and consumers to change.



Where to focus on?

To have a future-proof food system, we need to reform our current agricultural structure at the system level. To produce food within the limits of the planet and sell it at a fair price.

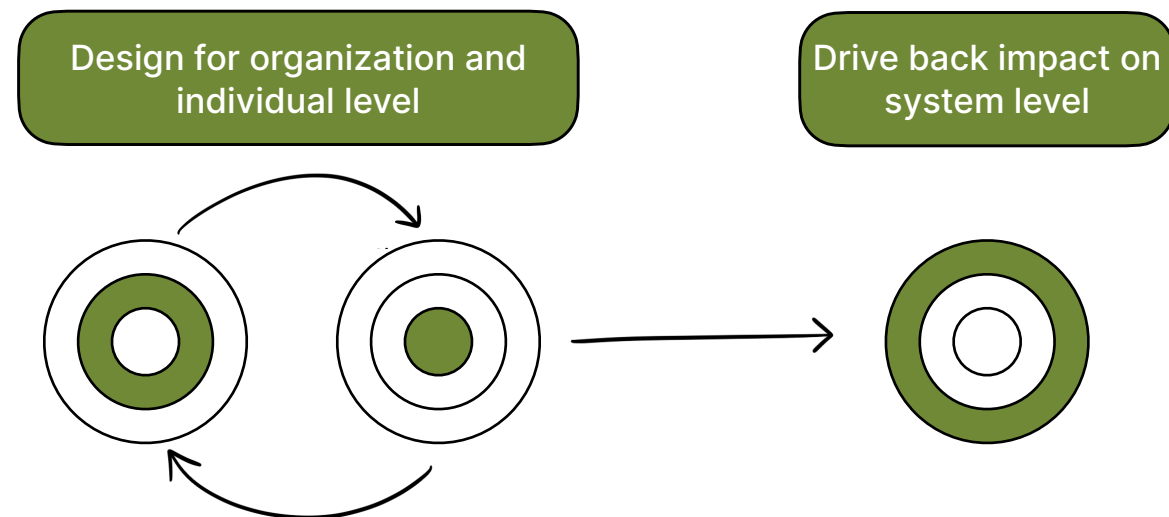
In order to move towards a future-proof food system, consumer demand have to change towards a more plant-based diet. Facilitated by canteens, restaurants, and supermarkets.

What can be designed at the individual and organizational level to reduce the impact at the system level?

In other words, what can be designed to help athletes change their demand for a plant-based diet, facilitated and supported by Papendal, to reduce the impact of our food system on the climate?

In this project, it is important to address both the organizational and individual levels. If there is only a focus on the organization, and Papendal adjusts what food they offer without considering the individuals, the athletes will likely maintain their demand for animal products and find a way to obtain their animal products elsewhere. Conversely, it will also not work if only the individuals change their demand, but the food choices offered remain the same.

It is important to understand the current situation at Papendal and dive into the lives and opinions of professional athletes to facilitate this transition. A clear picture of both must be created to see possible design directions.



Papendal

Papendal indicates that reformulating recipes is the strength of the team working in the sports restaurant, where innovation plays a big part. “Het innoveren en ontwerpen van nieuwe functionele voeding voor topsporters loopt als een rode draad door het Topsportrestaurant.”

Athletes, coaches, and other staff members of Papendal can all get food in the restaurant. In addition, a large group of athletes living on Papendal relies on the food prepared in the restaurant since they can not cook for themselves. On a weekday, over one hundred athletes have dinner in the restaurant. Some even have their breakfast, lunch, and dinner at the restaurant.

At this moment, when an athlete would like to consume a vegetarian meal for dinner, they have to go into the kitchen and ask up front if the chefs can prepare a vegetarian meal for them. If the athlete asks this question in the morning or around lunchtime, the chefs have enough time to make sure the athlete can have a vegetarian meal around dinnertime.

When an athlete does not ask upfront whether the chefs can prepare a vegetarian meal, he or she can choose out of:

- Two different types of meat
- One type of fish
- Two different kinds of (mixed)vegetables
- Two to three different types of carbohydrates (pasta, potato, or rice, for example)

Each of the mentioned four options above changes every day of the week. It is not the case that athletes eat the same every day of the week. However, it will be organized the same as listed above.

Despite the possibility of having a vegetarian meal for dinner, out of the 120 athletes that have dinner at the restaurant a day, only two to three athletes consume a vegetarian meal.

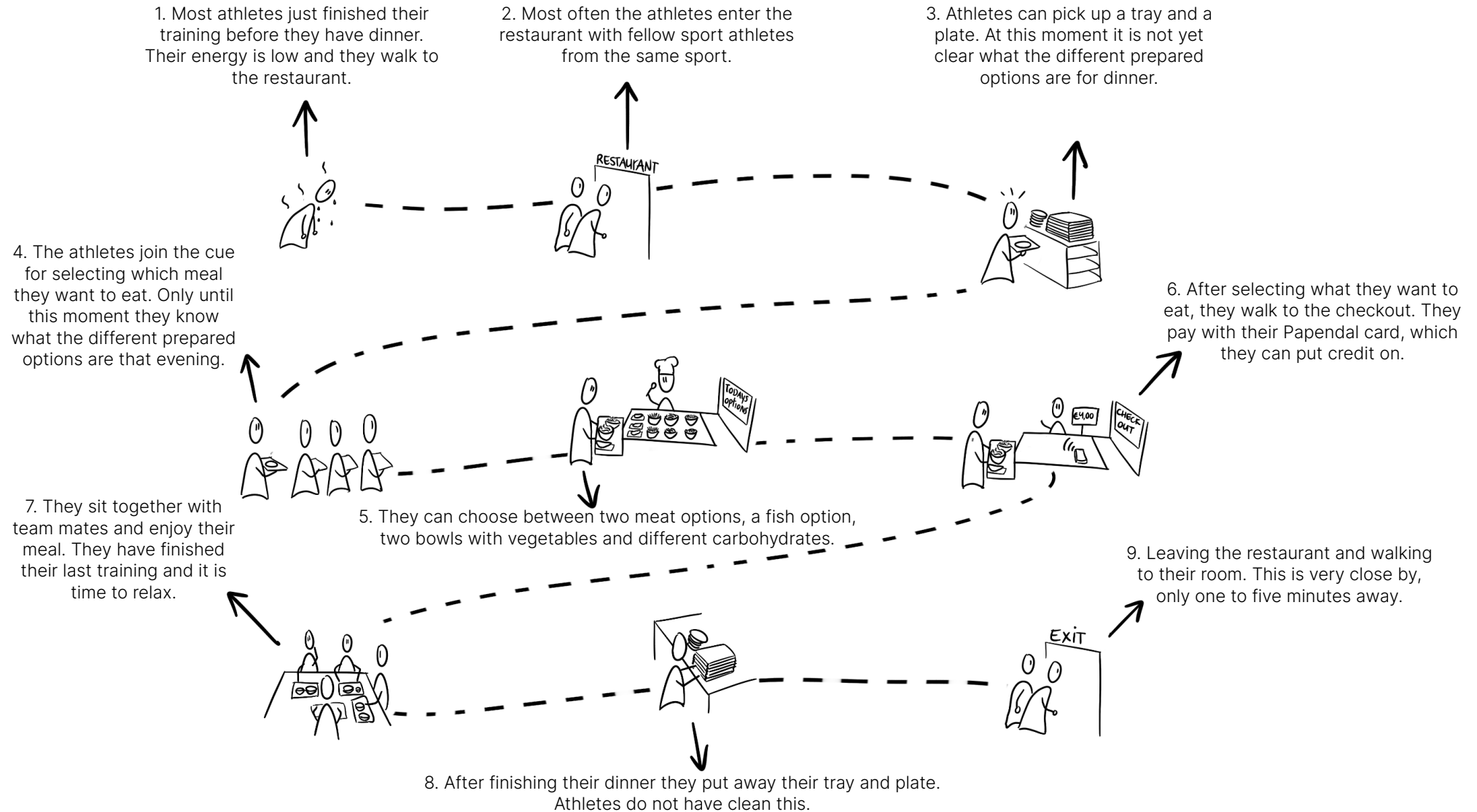
Papendal has done some tests with vegetarian and plant-based food in the past. For the main takeaways of these reports, see the appendix chapter 1.

Only two or three out of the 120 dinners sold a day at the restaurant are vegetarian.



Two pictures of the sports restaurant located on Papendal

Having a meat or fish dinner at the sports restaurant



Having a vegetarian dinner at the sports restaurant

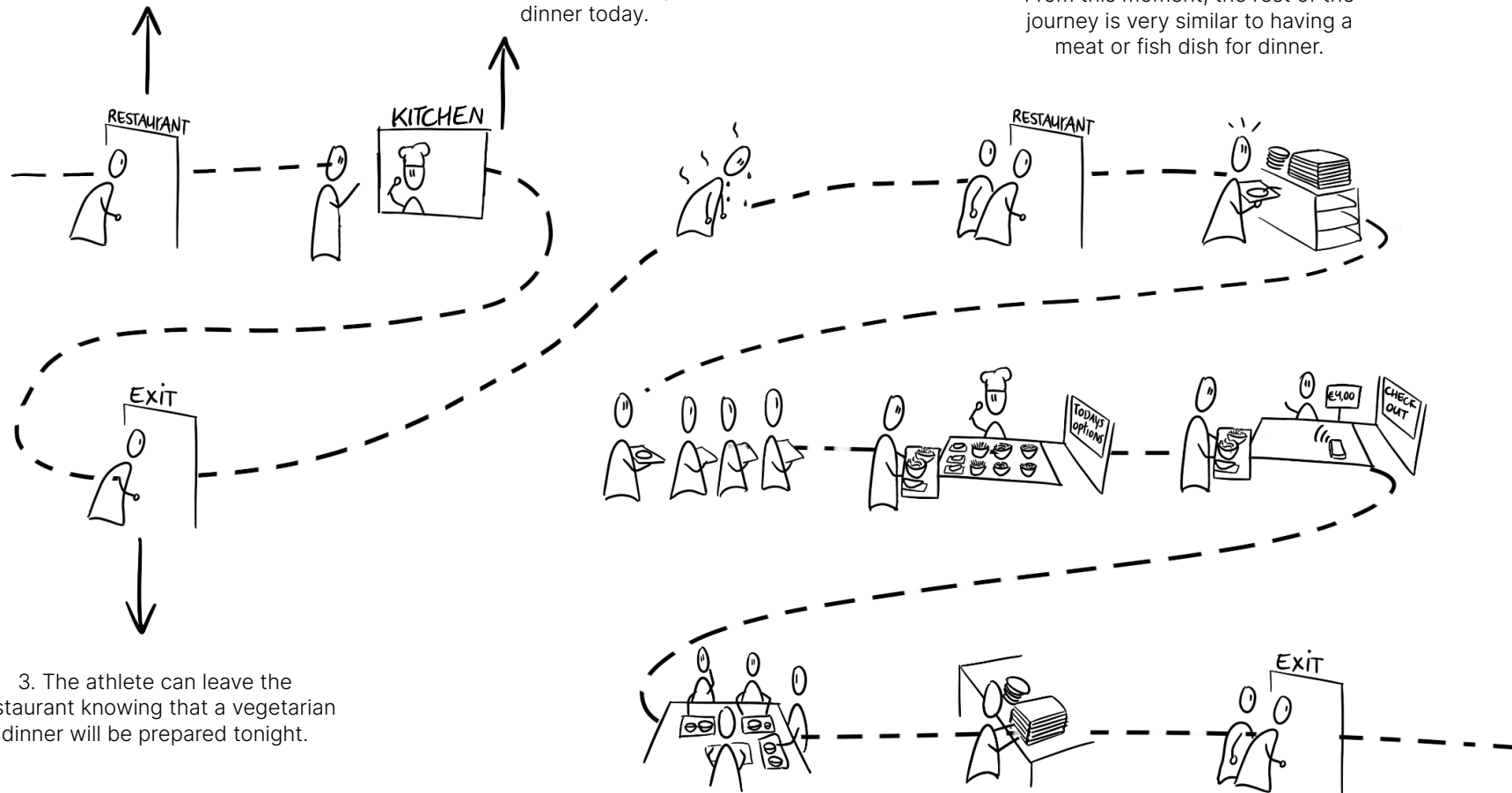
(To see two real life examples of how choosing the vegetarian option failed in the past see the appendix chapter 2.)

1. At least a couple of hours before it is time for dinner, the athlete has to go into the restaurant to ask a question to the chefs.

2. When the athlete arrives at the kitchen, he or she can ask the chefs if they can prepare a vegetarian dinner today.

From this moment, the rest of the journey is very similar to having a meat or fish dish for dinner.

3. The athlete can leave the restaurant knowing that a vegetarian dinner will be prepared tonight.



Health barrier for Papendal

The world of professional athletes is challenging. Careers in top-level sports are relatively short, so athletes have to perform in the short term. Because of this, health is extremely important. Papendal supports this with dietitians and a sports restaurant where the chefs prepare healthy sports meals for the athletes.

When I start talking about the transition to a plant-based diet with the dietitians, chefs, and innovation manager of Papendal, it quickly becomes clear that there are still many question marks in the area of health. Doesn't a plant-based diet interfere with the athletes' performance? Do they not suffer from deficiencies as a result? From a TeamNL visual (Nutrition, 2020), it can be interpreted that eating vegetarian or plant-based would not be good for your performance. To see this is currently visualized, see appendix chapter 3.

The situation in which athletes experiment with plant-based food without knowing where to pay attention to, must be avoided. Then the adoption of a vegetarian or plant based diet could lead

to deficiencies. This could be to the detriment of their performance.

To increase this projects viability, it is important that Papendal supports and believes that transition will not decrease athletes' health and performance.

Therefore I have done a literature study on the effect of plant-based and vegetarian food on health and performance (to see the takeaways on this literature study see appendix chapter 4.). In addition, I have talked to both dietitians at Papendal and a dietitian with expertise in plant-based nutrition (appendix chapter 5.), and shared my personal strength and fitness results from before and after my change to a vegetarian diet (appendix chapter 6.). Lastly, I showed several professional athletes who have switched to a plant-based diet for an extended period (appendix chapter 7.).

The bottom line is that the most important thing is what the meat dish is replaced by. Lynch et al. (2018) concluded that plant-based diets are a viable option for supporting athletic

performance while contributing to overall physical and environmental health and typically reducing the risk of numerous chronic diseases.). Fuhrman and Ferreri (2010) note that the associated benefits of vegetarian diets are not explained by the avoidance of meat and other animal products, but because of the benefits of eating more whole plant foods. These products contain beneficial nutrients, fibers, antioxidants, vitamins, minerals, and phytochemicals.

By showing the Papendal staff several ways that replacing meat and fish with more whole plant food products has been proven to be good for health and performance, they became more supportive of this transition. Knowing that the athletes do not have to sacrifice health on this. This is a crucial step for this project. If they believed that whole plant foods hinder health and performance, this project would have a small chance of success.

What's in it for them?

Shift in food consumption

The European plant-based food market experienced huge growth over the last years. This sector grew up to 49% from 2018 to 2020, and it is expected to show similar growth in the coming years (Nielsen Market Track, 2021). The rising demand for the consumption of plant-based foods will lead to a fundamental shift in food consumption (A.T. Kearney Analysis, 2019)

In recent years there has been a rapid increase in the number of flexitarians and reducers interested in reducing their animal consumption. At the moment, this is about 50% of the population (Stein, 2019).

What does this mean for Papendal?

Plant-based foods will play an increasingly important role in our food consumption among athletes. To stay in line with the established core values of Papendal, the reformulation of recipes in which innovation plays a large part, it is a natural step to go along with the developments towards more plant-based food.

The manager of the sports restaurant indicates that the idea was already there to focus more on plant-based food in the future. Although hardly any steps had been taken yet, and these steps had not been thought out since they had no clear picture of where to start and how to facilitate this.

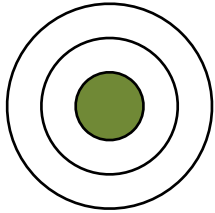
Potentials for the future

Besides the fact that it would be a logical step given the developments of plant-based food and the core value of the restaurant, it offers the potential for much more. At the moment, Papendal is already seen as a role model by many organizations. Tours are given to different companies to show how Papendal supports the careers of professional athletes. These tours also include the sports restaurant. Papendal has always been ahead of developments in sports nutrition. If they do not develop towards more plant-based food, there is a chance that they will lose this function as a role model in several years, since innovative companies are already fully committed to plant-based food.

For example, Ikea wants 50% of all restaurant meals in its stores to be plant-based by 2025 and 80% of all food packaging (Nielsen Market Track, 2021).

In addition, despite whether Papendal wants to encourage this transition, there will be an increasing demand for vegetarian and plant-based meals over the years. When they act now, they would still be in time because not many athletes are asking for it yet, but when this number gets bigger and bigger, they need to be prepared for this rising demand.

The Professional Athletes



Athletes from many different sports follow a full-time training program at Papendal. Nearly all athletes have a busy training schedule with multiple training sessions each day of the week, except for the weekends. Next to these busy training schedules, athletes have international tournaments and training camps. In this chapter, I will show what a day in the life of a professional athlete can look like, to see where there are opportunities and what needs to be considered when designing for these athletes.

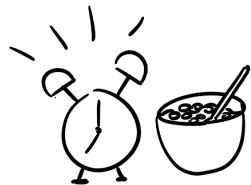
Next, I will survey a large group of athletes at Papendal to gain further insight into their barriers and attitudes towards vegetarian and plant-based food.



Pictures of three sports teams. From top to bottom: athletics, volleyball and judo.

Day in a life of a professional athlete on Papendal

I will use a regular training day of myself since I know that this is a similar experience for a bigger group of athletes living on Papendal. This day in a life gives an indication of which activities take place on a training day.



8:00 Alarm & Breakfast

I wake up, get a shower, and have breakfast. Many athletes have a fridge available where they keep the products they need for breakfast. In my case, my yogurt, fruits, and oatmeal. I will pack my strength gear, proteins for after the training, and judo stuff for the technical training after strength.



8:45 - 10:00 Strength training

Strength training with other judo athletes is the first training of the day. This training is with a group of 10 athletes.



10:10 Quick shake and snack

This is the right moment to take my protein, right after your training. I have my shake and proteins ready and fill it with tap water. Then, when I have time, I walk by the restaurant and eat a banana and a sandwich with peanut butter.



10:30 - 11:45 Technical judo training

The technical training is meant to improve our tactics and techniques. We spend much time finetuning our skills. This training is in a small group of 4 athletes.



12:00 - 12:45 Lunch time at the restaurant

Since I have used much energy in the morning with two training sessions already, I quickly head to the restaurant where I will be having lunch. Everything is close to each other (you do not have to walk longer than 5 min). Most of the time I have lunch with two other judo players who just finished their technical session.



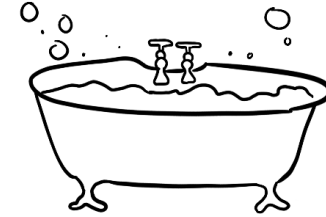
13:30 - 14:30 Powernap

Now, I am tired of the strength and technical training and need to lay down for a while to get the most out of my last training in the afternoon. This training is the toughest of all. Therefore I will jump into my bed and sleep for close to an hour.



15:30 - 17:30 Judo training

I will walk from my room towards the judo hall and get changed for the judo training. We set goals we want to work on upfront to make the session as valuable as possible. After the session, we will reflect on our goals for this training. This judo training is with a large group of 40-50 athletes.



19:30 Relax

Now it is time to take a well-deserved shower and start relaxing. I still have a high adrenaline level because of the last training, but I feel my body getting more tired. Focussing on something is hard.



15:15 Healthy snack before training

Although I had a big lunch and breakfast, my body is already telling me it needs more food. So I will have a healthy snack before the training. This snack is again some fruit in combination with a sandwich or nuts.



18:00 - 19:00 Dinner at the restaurant

Many athletes on Papendal have now finished their last training of the day. Then, all athletes head to the restaurant to have dinner. Large groups are sitting next to each other. Even though I have a kitchen in my residence on Papendal, I will still have dinner in the restaurant most of the time since I'm too tired to cook for myself.



20:30 Healthy snack before bedtime

I burn 4000-5000 calories on a day like this. I am struggling to eat that amount. But to make sure I'm getting close to it, I will always have some nuts or other healthy snacks ready in my room for when I feel like I can eat again. Which mostly happens 1.5 hours after I have finished my dinner.

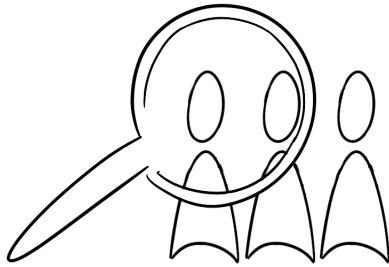
Takeaways day in a life

As shown, it is a day that takes much energy. The life of a professional athlete consists of a lot of training and much rest. Nearly all the attention and energy goes into training and preparing for tournaments. Apart from that, there is little time and energy to do other things. So even though some athletes have quite some time between two training sessions, this time is mainly spent resting. For some, this means watching a movie, and others take a power nap.

What is important to take into account is that athletes can use the design as accessible as possible. Because many athletes will not use it if it requires a lot of energy and attention.

Moments where there is potential for the athletes to get in touch with this subject are, for example, after lunch, between training sessions, or after dinner. After lunch and dinner the athletes have some time to relax. If the break is long enough in between multiple training sessions this can also be a possibility for athletes to get in touch with this topic.

Personal study with professional athletes



Introduction

The motive for this research is that the staff of Papendal does not clearly understand the athletes' attitude towards vegetarian food. They have no idea how many athletes would like to eat vegetarian and what the main barriers are to eating vegetarian.

Several scientific studies have already been done on what keeps people from adopting more vegetarian food. As indicated earlier in the chapter "barriers to reduce consumption of animal products". However, there is a realistic possibility that this differs from professional athletes and that certain reasons have a more substantial influence, which should be considered in the final design.

From my experience, I can say that professional athletes have a different approach to food than most non-professional athletes. Professional athletes are generally very conscious about their food choices. This research will therefore be done with the professional athletes at Papendal who eat in the restaurant to find out their view on vegetarian food and what currently prevents them from doing so.

Target group

Athletes training on Papendal.

General Information

Number of respondents: 102

Of which male: 47

Of which females: 55

There are athletes from 17 different sports included in this survey.

Goal

The goal of this research is to get more clarity on:

Current dietary patterns of the athletes at Papendal.

Are the athletes open to reduce their meat and fish intake?

What are the barriers to not adopt a vegetarian diet?

What role does social acceptance play with vegetarian food?

Set up

For this research, first, an open question will be asked to the respondent. Then the respondent will scan a QR code and fill out this questionnaire on his or her phone. After completing this questionnaire, a quarter of the entire group will be asked a follow-up question. I have chosen a quarter because it would otherwise take too much time, and I expect already enough valuable information to come up with a quarter of the athletes. Participating in this survey takes between five and ten minutes.

The questions of the questionnaire are based on a combination of existing literature, previous studies conducted at Papendal, interviews with chefs and dietitians, and some personal experience.

The questionnaire will be conducted in the restaurant. The restaurant is chosen because the athletes who eat here fit within the target group. In addition, it was chosen to ask athletes around lunchtime or after they had finished their dinner.

These are the two times when the athletes can often relax and do not have to go straight to the next training session. Therefore, I first asked the athletes if they were willing to participate in a survey I was doing, which would take between five and ten minutes.

If the athletes were willing to participate, I first asked the following question, "what comes to mind when you think of vegetarian food?". I did this for their top-of-mind response.

After answering this question, I asked the athletes to scan the QR code to fill in the questionnaire.

After completing this questionnaire, I asked about their experiences regarding vegetarian food and how they would envision it in the restaurant. This question was asked to a quarter of the group to open the conversation about vegetarian food at Papendal.

The complete questionnaire is shown in appendix chapter 8.



Picture of the sports restaurant where the survey is conducted.

Results and interpretation

The respondents answered 32 questions in the questionnaire and a quarter of the group provided extra information in the interview afterwards. The most important results are shown below, directly with some level of interpretation.

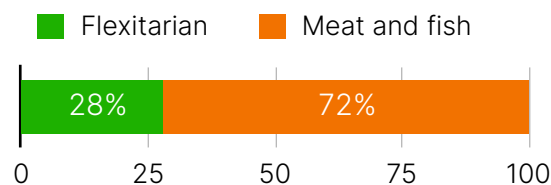
1. Top-of-mind thoughts

The first question: "what comes to mind when you think about vegetarian food?" was answered with both positive and negative associations. The top five negative associations were: 1. How do I get my proteins? 2. Less taste. 3. Not attractive. 4. Different. 5. Expensive. The top three positive reactions were: 1. Good for the environment. 2. Health. 3. Replacements get better.

Lastly, some athletes shared neutral thoughts on this question. Top-of-mind thoughts that were mentioned were: 1. Meat replacements. 2. Vegetables. 3. Plants. 4. Being creative. 5. Colorful. This shows that the athletes with vegetarian food are not just linking to the vegetarian burgers from the supermarket. On the contrary, colorful and creative is more linked to a healthy meal consisting mainly of whole plant food.

2. Current diet

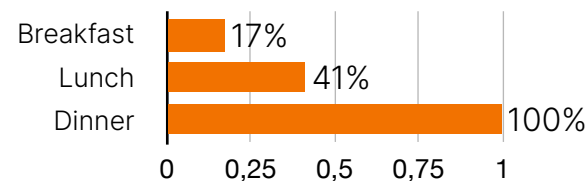
When asked what the athletes' diet consists of, it turned out that already 28% do not eat meat daily.



Although 28% of all athletes indicated to be flexitarian, only three out of 120 meals are sold as vegetarian. This means that the days when the flexitarians do not eat meat are outside of Papendal, something the chefs were not aware of.

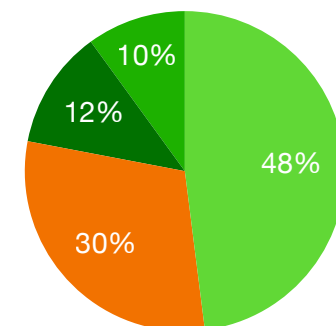
3. Meat consumed at which meal

The athletes indicate that when they consume meat at a meal, this meal is always dinner, and less often breakfast or lunch.



4. Currently trying to reduce meat intake

The question about if athletes try to reduce their meat and fish intake shows promising results. The biggest group of athletes is currently not reducing their meat intake but is open to it. Some athletes even try to reduce their meat consumption already.



- No, but I am open for it
- No, and I am not planning to do so
- No, I have already reduced my consumption of meat
- Yes

This while initially, the chefs thought that most athletes would not be nearly as optimistic about it as this result shows. The rest of the results are analyzed with a comparison between the group that is open to reduce their meat intake, and the group that is not planning to do so.

5. Barriers

Among the group open to consuming less meat, the most frequently cited reason for not eating more vegetarian is "I never really thought about it." While among the group that is not open to eating less meat, the most cited reason is that they do not like (or like less) the taste of vegetarian food.

The four most frequently cited reasons for both the group open to eating less and the group not open to it are:

- I've never really thought about it
- I don't like the taste/it tastes less good
- I miss important nutrients
- I have no idea what to eat then.

Other barriers among the group not planning to eat less meat and fish are:

- I am used to eating meat
- No idea why I should reduce
- Meat is the easiest and tastiest source of protein

In both the group that is open to reducing and the group that is not, the reason that vegetarian food is less tasty is mentioned quite often. However, the athletes responded positively when asked if they

had a positive taste experience with vegetarian food.



The follow-up question was with what type of vegetarian food this positive experience was. These were almost all different types of vegetarian products. So, although the athletes' associated vegetarian food with less taste, most still had a positive taste experience with vegetarian products.

6. Why are people open to eating more vegetarian food

Respondents cited various reasons why they would like to eat more vegetarian. The most frequently cited reasons why people would want to eat more vegetarian are:

- For personal health
- For the environment
- Care for the animals
- Curious to try other things

- Rather have a nice piece of meat once in a while than eat meat every day.

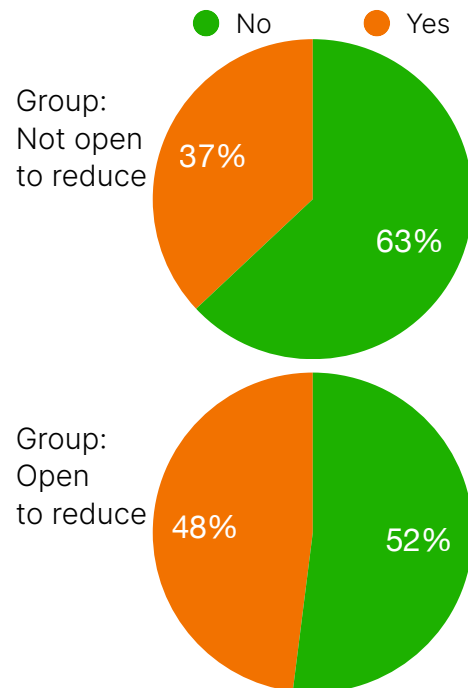
An interesting note that emerged from the interviews was that people who were already reducing their meat consumption almost always cited multiple reasons. Usually, they were primarily motivated by one reason, but they added another reason. For example, I do it mainly for my personal health, but it is also good for the environment!

The following observation was made based on this result, which is not scientifically proven. So I will keep this in mind when I take this thought into consideration when developing my design. I assume this stems from the assumption that essentially everyone wants to be a good person. This phenomenon is also discussed by an expert in this transition to more plant-based foods by Dennis Vink. When people perform certain behaviours and do not need to do anything extra to add more benefits to these behaviours, it is easy to add them to their reasoning. Because they are already performing this behaviour. So when people eat less meat for the environment, it is easy to say it is also good for the animals and possibly better for their personal health.

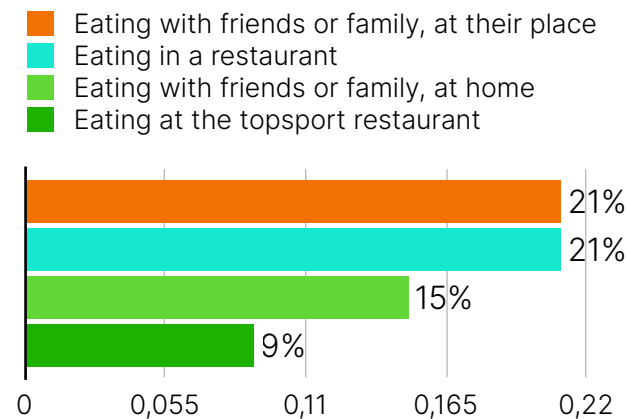
7. Social Acceptance

Most athletes who are not open to reducing their meat consumption think that what others think of your food choice does not influence whether or not you choose this food. However, a larger proportion of the group who are open to reducing their meat consumption thinks it affects their food choice.

Do you think the fact that what others think of your food choice can affect whether or not you choose it?

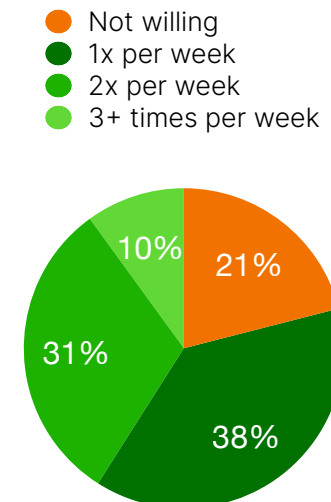


The table below shows the situations in which athletes think what others think of their food choice affects their food choice. The situations in which the opinion of others has the most influence on the food choice are: when eating with friends or family and when eating in a restaurant. Conversely, the situation in which the opinion of others has the least influence on the food choice is: in the restaurant.



8. Open to eating the vegetarian option

Among all athletes, only 21% are not open to eating at least one vegetarian meal as an evening meal. There are even athletes among the group who initially say they are not planning to reduce their meat consumption and are not open to this, who are apparently open to eating a vegetarian meal once a week. The largest group, consisting of 38% of all athletes, is open to eating a vegetarian meal 1x in a week. Followed by another large group of 31% who are even open to choosing this option 2x a week. A huge difference with the current number of vegetarian meals sold per day.



Noteworthy quotes

A quarter of the total group was asked another question after filling in the questionnaire. This question was about their experiences with vegetarian food and how they would see the development of vegetarian food at the sports restaurant. Among the conversations, quotes that stood out are shown below.

“Ik heb het gevoel dat er steeds meer druk komt te staan op vleeseten. Je hebt nu zelfs bij de MacDonalds een MacPlant burger”

“Ik heb twee maanden geprobeerd volledig plantaardig te eten voor mijn gezondheid, maar ik was de enige op Papendal. Als ik aankwam bij de keuken hoorde ik ze zeggen ‘daar heb je hem weer...’ Dat was vervelend. Ik wist ook niet wat ik zelf thuis moest maken. Voor mij was het alles of niks. Ik merkte niet direct verschil, wist niet wat ik moest maken en vond het vervelend dat ik de enige was. Toen ben ik ermee gestopt”.

“Als ik een stukje vlees niet pak, eet iemand anders dat wel weer. Het maakt niet uit wat ik doe.”

“Ik eet thuis veel vaker geen vlees dan op Papendal, want hier heb ik geen keuze.”

“Als ik een lekker vegetarische optie zie in het topsport restaurant wil ik het wel pakken. Maar je moet het vragen, dat ga ik niet doen.”

“Een keer hadden ze een gevulde paprika die er heel lekker uit zag. Ik wilde hem pakken maar dat mocht niet, want ik had het niet van te voren aangegeven.”

“Als ze straks een vegetarische optie gaan klaarmaken, moet dat niet hetzelfde soort vlees na proberen te doen dat er al ligt. Juist iets anders zou aantrekkelijker zijn, dan hebben we ook wat meer keuze.”

“Als er vegetarisch gehakt of kipstukjes door pasta heen zit vind ik het wel lekker, maar los een stuk vleesvervanger niet.”

“Ik heb het gevoel dat juist die vleesvervangers chemisch zijn, hoe krijgen ze anders al die voedingsstoffen erin?”

“Ik eet gewoon wat Papendal mij te bieden heeft, het maakt me niet zoveel uit.”

“Ik ken geen kampioen die geen vlees eet. Je hebt het gewoon nodig voor spiermassa.”

Conclusion

The results are promising. Clear barriers have emerged as to why athletes do not yet follow a vegetarian diet and reasons why athletes are open to eating more vegetarian. A large part of the barriers can be explained by a lack of awareness around the subject of vegetarian eating. Many athletes have no idea how they would get their protein from vegetarian food, do not know what they need to eat to get all the essential nutrients, and do not know why they should cut reduce in the first place.

Despite these barriers, the largest group of athletes, about half, are open to reducing their meat intake. Another part is already performing this behaviour, but outside the environment of Papendal, something the chefs were not aware of. Some athletes did not even know that you could choose a vegetarian meal at Papendal. For the athletes who did know, it felt like too much effort to perform the behavior of vegetarian food in the restaurant.

All in all, the study shows a large gap between the athletes' attitudes towards vegetarian food and the current amount of vegetarian meals sold.

Discussion

The theory of cognitive dissonance explains some of the arguments of the people who are not open to reducing their meat consumption. This happens when people's actions conflict with their previous attitudes, and as a result, they change their attitudes to be more consistent with their actions. This phenomenon, known as cognitive dissonance, is considered one of the most influential theories in psychology (van Veen, 2009). Psychologists discovered that people feel at their best when they act in a way that is consistent with their values and beliefs. However, we experience this so-called cognitive dissonance when this is not in line. Two examples of cognitive dissonance in athletes are:

"If I don't choose this meat option at the grocery store, someone else will, so it doesn't matter" - Therefore, they act as if it is okay to choose the meat option.

"Everyone I know eats meat, so it must be okay to keep eating meat" - justifies their behavior.

When athletes cite all kinds of different reasons to keep eating meat, it does not mean that, deep down, they do not know that it is better to leave the meat out of their diet. It is simply easier to change their attitude than their behavior. Cognitive dissonance is discussed in a little more detail in appendix chapter 9.

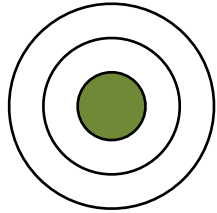
If we look at social acceptance, what others think of your food choice at the sports restaurant has the least influence. A possible explanation for this could be that the chefs decide what will be prepared that day, and the athletes can only eat what the chefs prepare. Perhaps they do not feel responsible for the choice of their chosen meal. Another possible explanation is that Papendal is seen as a safe and familiar environment where the athletes feel at home and are under much less social pressure than when they eat in a restaurant or with friends and family.

What's next?

This questionnaire actually created three different groups in terms of athletes' attitudes toward reducing their meat consumption. A group that is not open to it, a group that is open to it, and a group already working on it. A design tool that helps to get a clear picture of different groups of people is called "personas." Creating personas can help convert the research results into different personas, each representing one of the different groups.

Next to creating personas to design for, it is valuable to dive into how to get the athletes actually to reduce their meat intake. What interventions have been researched? And how to motivate athletes to change their behaviour.

Personas



A widely used design tool is the creation of personas. This tool can be helpful to a designer with a user-centered approach (Guo et al., 2011). Creating different personas can help to get a clearer picture and better understanding of the group you are designing for as a designer. The personas will be created with information based on the results of the research conducted with the athletes.

The athletes can be divided into three groups for "reducing their meat and fish consumption."

- The first group: those who are not open to reduce their meat and fish consumption.
- The second group: people who are not yet reducing their meat and fish consumption but are open to it.
- The third group: people who are reducing their meat and fish consumption.

Of these three different groups, the second group is the most promising to design for. Being open to change is crucial in the process of actually changing something. However, many people do not persist when they are open to reducing their meat consumption in actually changing their behaviour (Stubbs et al., 2018). Moreover, this is not only the most promising group to design for in terms of whether people are open to change. It is also the largest group of athletes, meaning that it will potentially create the most positive impact compared to when a smaller group was targeted.

When people are not open to reducing their meat consumption, namely the first group, it takes a lot of energy and time to get them moving in a direction where they are making changes to their diet.

On the other hand, the people who are already reducing their meat and fish consumption do not need the same amount of focus and attention to help them choose the vegetarian option.

Finally, multiple personas will be created that belong to the group where athletes are open to reducing their meat consumption because this group is the most promising to design for.

Three groups of personas

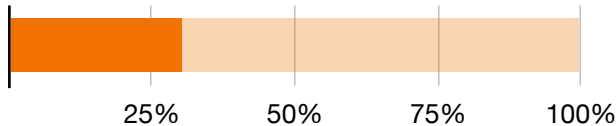
Group most appealing to design for



Jeremy

Not open for reducing

Group size: 30%



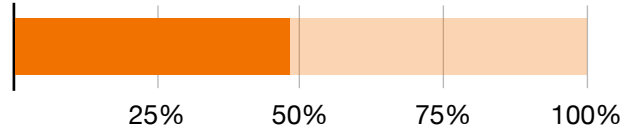
Open to eat a vegetarian dinner at the sports restaurant: **0.84x a week**



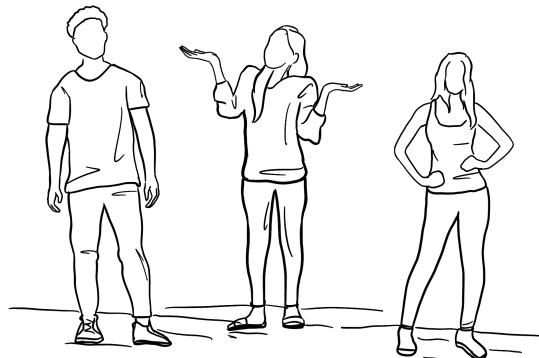
Kevin, Anna & Kim

Open for reducing

Group size: 48%



Open to eat a vegetarian dinner at the sports restaurant: **1.41x a week**

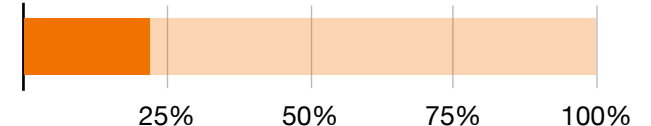


38

Laura

Already reducing

Group size: 22%

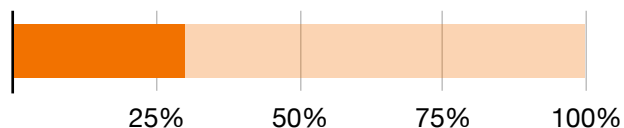


Open to eat a vegetarian dinner at the sports restaurant: **1.91x a week**



Not open for reducing

Group size: 30%



Open to eat a vegetarian dinner at the sports restaurant: **0.84x a week**

Jeremy, 25 years old.



Why would I? I need meat for my proteins, its easy and tasty. I just stick to meat.

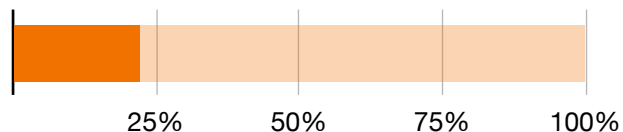
Why shouldn't I eat meat?
It's easy and tasty.

Athletics



Already reducing

Group size: 22%



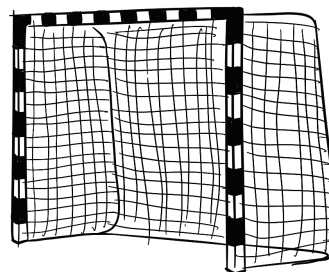
Open to eat a vegetarian dinner at the sports restaurant: **1.91x a week**

Laura, 22 years old.



I believe eating more vegetarian is better for my health, the climate, and animal welfare! Furthermore, meat replacements are getting better and better! The tasty replacements make it easier.

Handball

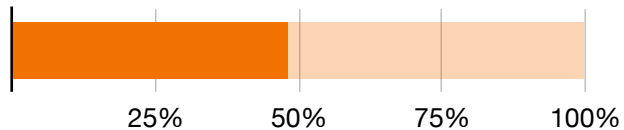


I'm eating more and more vegetarian! It's good for my personal health, good for the climate and animal welfare!

Group most appealing to design for

Open for reducing

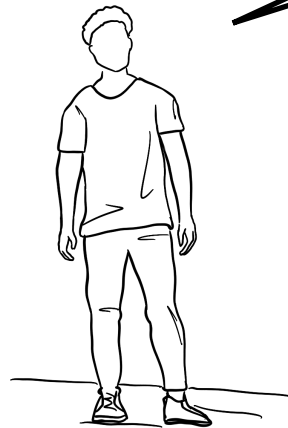
Group size: 48%



Open to eat a vegetarian dinner at the sports restaurant: **1.41x a week**

Kevin, 20 years old.

To be honest, I have never really thought about eating vegetarian. I just like meat. I do not mind eating vegetarian sometimes, but I'm not going to ask or wait for it.



Judo



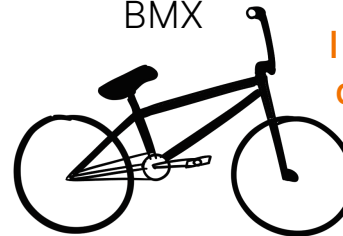
I don't mind eating more vegetarian, but I'm not putting in extra effort.

Anna, 25 years old.

My parents did not eat a lot of meat, so me neither. However, I do not cook for myself, so I can not decide when I eat vegetarian. But I do care for the environment and animals, so I would like to eat less meat. I did not know that you could eat vegetarian at Papendal.

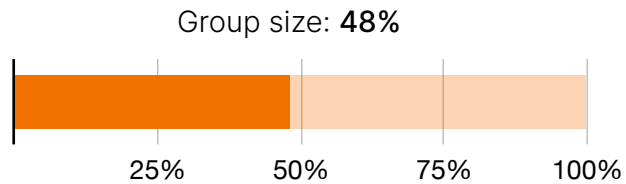


BMX



I don't cook for myself so I can't decide when to eat vegetarian.

Open for reducing

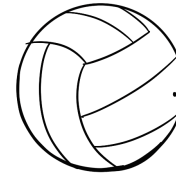


Open to eat a vegetarian dinner at the sports restaurant: **1.41x a week**

Kim, 21 years old.



Volleyball



I like to try new things, but I do not know how to start. So, for now, I stick to meat. At the moment, I have no idea how I would get all my proteins from vegetarian foods, for example. Which is super important for me. If eating more vegetarian food will improve my personal health, then I will definitely start eating it.

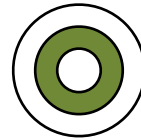
**I'm curious to try out new things!
If it would be better for my health
then I would definitely pick the
vegetarian choice!**

The barriers and motivators of the group that is open to reduce their meat consumption will be mainly used for the development phase of the design of this project. However, there are numerous overlapping barriers among the different groups. So even though the focus will be mainly on the barriers of the group that is open to reduce their meat consumption, this will also help for some barriers of the group that is not yet planning to reduce their meat consumption.

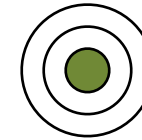
Key Takeaways discover phase



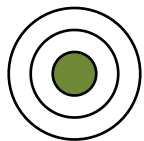
The impact the food system and consumption have on the climate is enormous. Climate scientists have suggested that “a vegan diet is probably the single biggest way to reduce your impact on planet Earth” (Carrington, 2018; Poore & Nemecek, 2018). What can be designed at the individual and organizational level to reduce the impact at the system level?



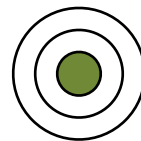
A large barrier for Papendal is health. However, a (more) vegetarian diet can positively affect personal health. The most important factor is with what the meat dish is replaced. The dietitians and chefs can organize the replacement dish and make sure the meal contains all the essential nutrients.



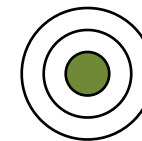
At this moment, hardly any athlete consumes a vegetarian dinner in the sports restaurant. An athlete has to ask the chefs upfront if they can make a vegetarian meal, which is experienced as too much effort.



Own study shows that the biggest group of athletes is open to reduce their meat consumption, but they are not yet reducing their meat consumption at the moment. This group is most promising to design for.

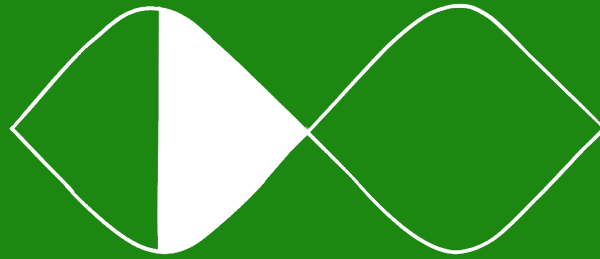


Many obstacles can be explained by a lack of awareness around the topic of vegetarian food. Many athletes are unaware of what they should eat to get all the essential nutrients and unaware of why they even should reduce their meat consumption in the first place.



The different personas help get a clearer picture of whom to design for. Even among the group that is open to reduce their meat consumption, multiple different attitudes and motivations come to light, different barriers to take into account when developing the final design. The final design can help athletes open to change overcome their barriers.

Define



Define

Different behaviour change models are examined to get people to start reducing their meat consumption. Next, a motivation technique called nudging will be addressed to determine how you actually motivate people to change their behaviour. After that, I will look at what might need to change in the work environment to enable Papendal to implement this motivational technique to its athletes effectively. Finally, a design statement will be formulated, with an outcome goal that Papendal can work towards.

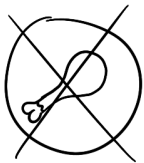
How to get people to reduce their meat consumption

Many interventions have been tested in canteens and restaurants to reduce consumer meat consumption. Some are considered more extreme interventions and others are more acceptable interventions but may be less effective. Rust et al., (2020) divided the tested interventions into six categories. Ranging from the more extreme interventions listed on the left to more acceptable interventions on the right.

Interestingly, eliminating the meat option did, of course, result in less meat sold at that location. However, it did not change consumers' food choices. So in other situations, consumers would still choose the meat options, meaning that the behaviour did not change. Consumers will find another place to choose the meat option if the demand is still there. The focus should therefore be on behaviour change, to have a greater impact at the system level when consumers eat in other places.

Providing information and cooking classes may not be as effective initially, but may be more effective in the long run than just eliminating the meat options.

Interventions that help people adjust their attitude towards vegetarian food are interesting for this project. In this case, providing cooking classes and providing information. The intervention menu placement & visibility can potentially help too. However, the effect of this would be limited to only the restaurant on Papendal, and not in other places.



Eliminate choice
No meat days in canteens

Vegetarian days in Finnish schools resulted in 18% less food consumed from the canteen but no difference in food choice or waste.

Lombardini & Lankoski, 2013



Restrict choice
Substitution

Replacing beef with beans in the US could free up 42% of US cropland and reduce GHG emissions by 334 mmt. accomplishing 75% of the 2020 reduction target.

Harwatt et al., 2017



Fiscal (dis)incentives
Tax and price change

A Danish saturated fat tax reduced consumption of high fat beef by 9% (but an increase in low-fat beef by 8%) & a negative effect on the economy.

Bødker et al., 2015



Change defaults
Menu placement & visibility

Due to changes in vegetarian meal replacement, vegetarian meal purchases increased by 6%, which reduced carbon emissions by 5%.

Hansen et al., 2019



Provide services
Cooking classes

A 6-week cooking program in the US resulted in increased consumption of fruit and vegetables, and reduced spending on meat and unhealthy snacks.

Flynn et al., 2013



Provide information
Healthy eating

A systematic review of interventions to reduce meat consumption found healthy lifestyle counseling were associated with reduced meat consumption.

Diepeveen et al., 2013

How to have “the right” conversation about this topic?

Next to the previous shown interventions a single conversation can also inspire people about this topic and potentially help them change their attitude towards vegetarian food. It depends on how this conversation goes, whether this is a primarily extreme or more accepted intervention. It will depend on the dynamics of the conversation, whether both individuals want to make a point and it becomes more of a discussion, or whether they listen and respond to the other with understanding. The following points were established with the contribution of several experts. Namely Tobias Leenaert, writer of the book *How to create a vegan world*. Saskia Mulder, trainer and speaker in the field of sustainability, and Lobke Faasen, dietitian who is an expert in plant-based food.

Do not confront people with facts.

Confronting people with facts only pushes people away, which is the last thing you want to achieve in a conversation about this topic (Leenaert & Hall-Bailey, 2017).

Health least threatening

Tobias Leenaert shows that health is the least threatening reason for people among the three main drivers of vegetarian and vegan nutrition (climate, animal welfare, and health). People tend to be more open to conversations about this topic when health reasons are discussed, compared to why it is terrible for the climate or hurting innocent animals. (Leenaert & Hall-Bailey, 2017). This is linked to cognitive dissonance, and people can feel threatened (Leenaert & Hall-Bailey, 2017).

Dynamic of the conversation

Saskia Mulder describes that if you have a conversation with someone about this topic, people predominantly remember the dynamic of the conversation rather than all facts mentioned (Mulder, 2020). Suggesting that all facts are less important. It is more important how the person feels at the end of the conversation and how the person will remember his conversation.

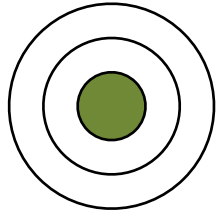
Expectations

“Do not try to persuade people with one single conversation, and expect that after this conversation, they will completely change their lifestyle” - Tobias Leenaert. People simply take time to let shared information sink in and potentially act on this information. Tobias compares this with planting a seed, which needs time to grow and evolve (Leenaert & Hall-Bailey, 2017).

Inspire and make people curious

Instead of focussing on how bad the dairy industry is for the climate or animal welfare, show people how it makes you feel after making the switch (Leenaert & Hall-Bailey, 2017). Show them what positivity it brought you. If the switch positively affected your health or what tasty meals you have eaten lately that you enjoyed. Share the positivity which inspires them and potentially makes them curious about this topic .

Behaviour change models



The first paragraph of this chapter showed the different interventions that are already researched. Showing that the interventions that focus on changing the attitude of people would potentially have the most influence in the long run since they focus on behaviour change. As the icon above indicates, behaviour change models are linked to the individual level.

Eating meat has been part of their behaviour for most people their entire lives. Therefore, a designer is faced with designing for behaviour change if he wants to help people switch to a more vegetarian diet. In the following chapters, I will discuss different behaviour change models and how to motivate people actually to change their behaviour.

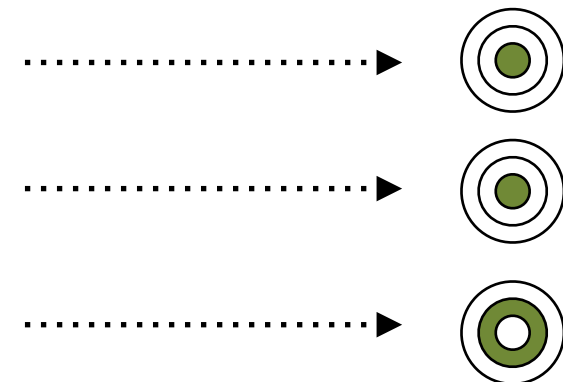
Different models have been developed to understand the stages of behaviour change and the factors influencing behaviour. Two existing behavioral models will be analyzed and briefly discussed to determine which parts are appropriate for the context of this project.

Finally, appropriate parts of the different behavioral models will be integrated into a model used for the remainder of this project.

Many different factors influence behaviour. However, most can be divided into three levels.

- Personal: one's beliefs, knowledge, attitudes, and skills (this is at the individual level).
- Social: interaction with other people (also still at the individual level of the food system).
- Environment: the context in which the person lives. (In this case, the context is Papendal, at the organizational level of the food system).

In general, approaches that consider all levels have the greatest chance of success (Mahamuni et al., 2019).



The Transtheoretical Model

This model focuses on a person's individual decision-making process and assumes that the person has the intention to change his or her behaviour. The Transtheoretical (TTM) works (just as Tobias Leenaert describes in his book *How to create a vegan world*) from the assumption that people do not change behaviour quickly and decisively. Instead, change in behaviour, especially habitual behaviour, occurs continuously through a cyclical process (Prochaska, 2019).



Different phases of the Transtheoretical Model

Stage 1. Precontemplation (not ready): There is no intention to change anything in the foreseeable future. Unfortunately, people are unaware that their behaviour is problematic and do not see the benefits of changing behaviour.

Stage 2. Contemplation: People have the intention of changing behaviour in the foreseeable future. They recognize that their behaviour may be problematic.

Stage 3. Preparation (determination): people are ready to take action and take small steps within the next 30 days. They begin to believe in what the changed behaviour might bring them.

Stage 4. Action: people have recently changed their behaviour and plan to continue doing so.

Stage 5. Maintenance: people have maintained the desired behaviour for more than six months. They are working to prevent relapse to earlier stages.

Stage 6. Termination: people have no desire to return to their old behaviour and are confident they will not relapse. However, this stage is rarely reached. Often people remain in the maintenance stage.

Promising components to use from the TTM.

Of the three different levels, this model focuses primarily on the individual level. There is less emphasis on social and environmental level. This model assumes that the person goes through these steps under supervision. This corresponds to the role Papendal can play for athletes. It also involves major behavioral changes that are more difficult to adapt to, which corresponds to the case with behaviour like an eating pattern containing meat and fish. Since people have probably had this pattern their entire lives, this makes just about all parts of this model helpful for this project.

An estimation of the time spent on each phase is shown in appendix chapter 10.

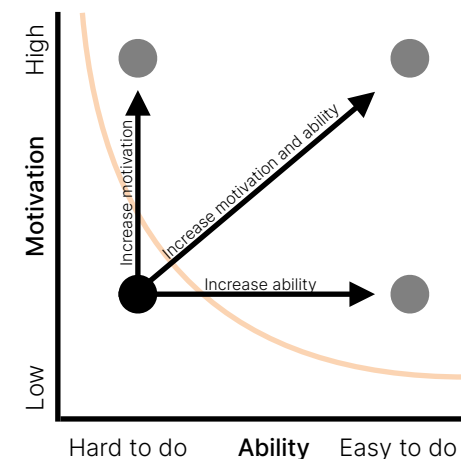
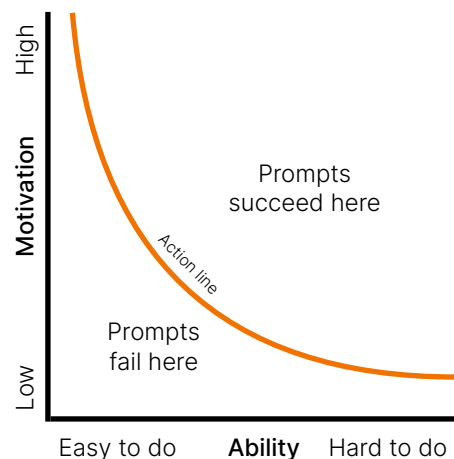
Fogg's behaviour model

Fogg's behaviour model, designed by Professor BJ Fogg at Stanford University, is based on three factors that must come together for a particular behaviour to occur (Fogg, 2019).

- Prompt, there must be a prompt to initiate the behaviour. Something that prompts or reminds a person to perform a particular type of behaviour.
- Motivation, the level of motivation that people have. This varies on a scale from low to high.
- Ability, whether it is easy to perform this behaviour. Varies on a scale from easy to do to hard to do.

When a particular behaviour does not occur, at least one of the factors is missing. For example, impulse control is just as important as motivation and ability. According to Professor Fogg, very few behaviours occur unprovoked by an external request.

The ability factor is linked with the environmental level of behaviour change. In this case, Papendal. Both the motivation and ability factors will be considered in the integrated behavioral model that will be used for developing the design. Later in the define phase, there will be looked at in what form the prompts can occur.



Integrated behaviour change model

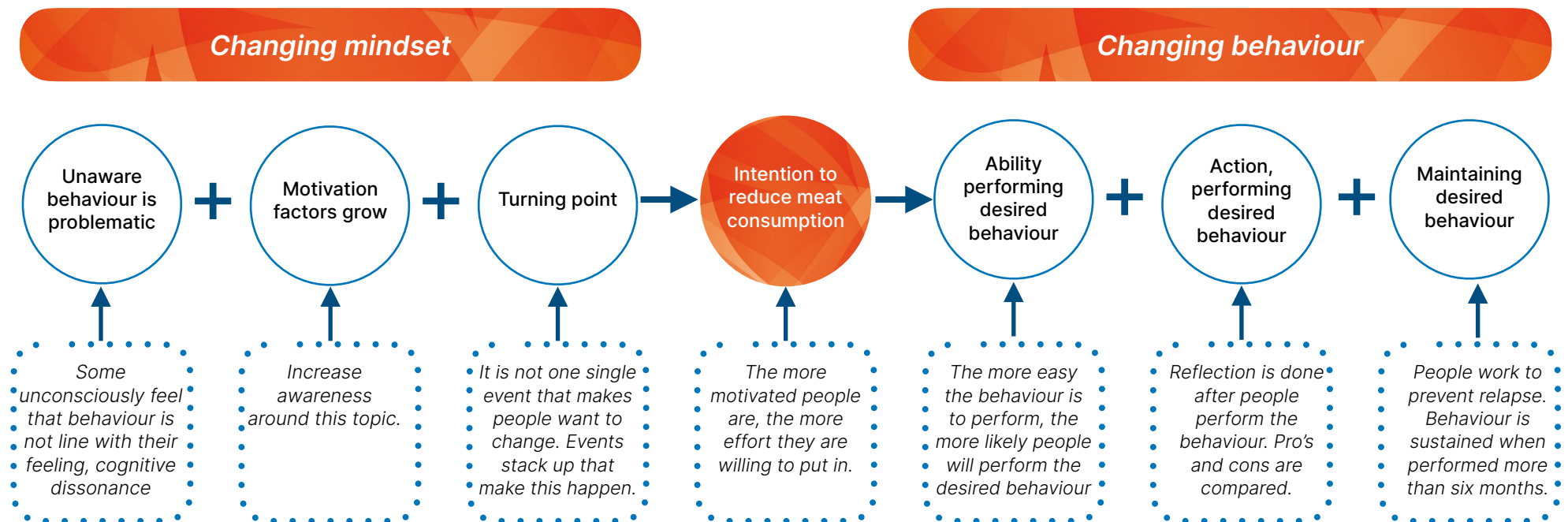
People must often change their attitude toward a particular behaviour before performing it (Mahamuni et al., 2019). The model below is the integrated behaviour model with similar phases as the TTM model and factors from Fogg's behaviour model. In addition, insights from the define fase were also included. Finally, in addition to the previous insights, this model was also created using insights

from conversations with Maura van Styrum, the brand manager of LiveKindly. An organization that is on a mission to make plant-based living the new norm, and shift the global food system to a sustainable one.

Although social acceptance plays a role in meat reduction behaviour, this was deliberately not prominent in the model.

Because the research with the athletes at Papendal showed that only 9% of the athletes felt that the opinion of others influenced whether or not they chose this food choice. Despite not being included explicitly in the model, social acceptance will be taken into account in the final design, to make the design as complete as possible, with the greatest chance of success.

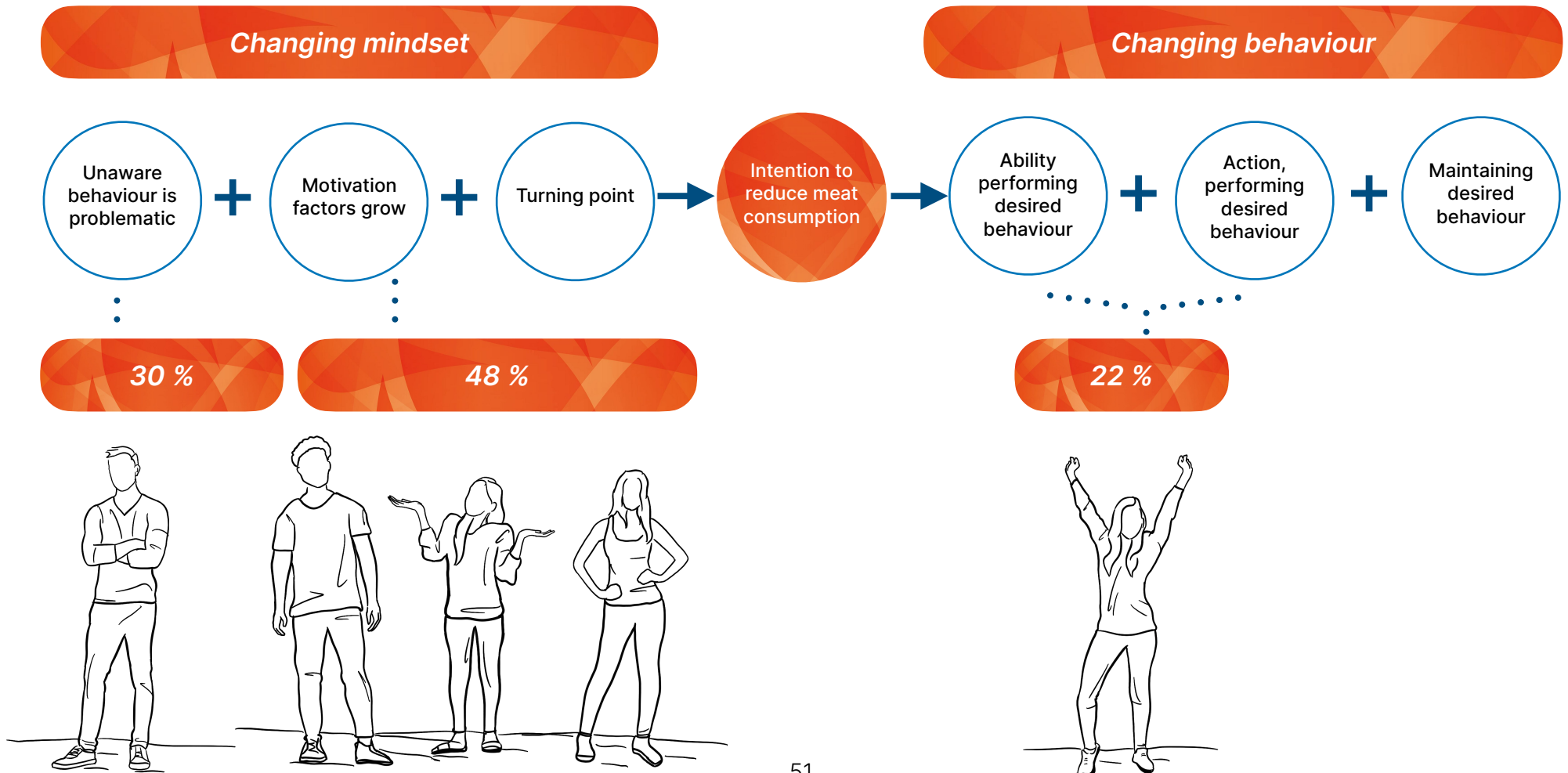
Meat reduction journey



Athletes on behaviour change model

A visual representation shows where the athletes are on the behaviour change model. Including the group of 30% is not planning to reduce their meat consumption.

The largest group of 48% is open to reducing their meat consumption, and the group of 22% is already reducing their meat intake.



Progression over the behaviour model

Athletes can move to subsequent stages of the behaviour change model. There will be a difference in how quickly the population, the entire group of athletes, moves across the model and how individuals can move across this model.

Individual

The speed at which individuals go through this behavioral change model depends heavily on how motivated an individual is. For example, someone highly motivated in various areas, such as health and climate, and willing to take the initiative can immediately start choosing vegetarian meals. This person is also willing to schedule an appointment with a dietitian and agree on what would be best to replace the meat. When this athlete manages to perform this behaviour for six months, it can be said that he has passed the model's final stage and maintained the desired behaviour. Therefore, going through this model can be done in 6 months at the earliest, bearing in mind that this person has already experienced many motivational factors and has already reached the tipping point.

Going through the first part of this model, namely changing mindset, can take years for some individuals. When athletes are not at all open to the different motivational factors around vegetarian nutrition, these can be completely blocked out. Some may not even be open to reduce their meat intake even after four to six years.

Population

Estimating how the population would progress over the model can hardly be done in detail. A well-educated guess has to be made. Many different factors play a role in progression. For example, the vegetarian and plant-based market will also be more and more actively promoted outside Papendal, which can influence the thoughts and mindset the athletes have around this topic. Next, the guidance at Papendal will not be as intensive as, for example, when people in a rehab clinic want to get rid of their drinking or smoking behaviour. Papendal does not want and needs to take on this role. They want to facilitate and support the shift but not put too much pressure on the athletes. It must remain their own

choice, and the athletes must at all times still be able to decide for themselves what they want to eat. This causes a less strong urge to change the behaviour than in a rehab clinic. The estimation is based on the fact that Papendal wants to facilitate the transition but not put pressure on the athletes, the shift that more and more people are open to reduce their meat consumption, and other visions and goals of large companies. An estimation is made that the largest part of the population will shift to performing and maintaining meat reducing behaviour in about six years.

How to motivate people to change their behaviour

Nudging

Nudging is the gradual steering of people in particular directions. Nudging is an interesting motivational technique because it usually does not cost much and can potentially promote economic and public health (Sunstein, 2014). Many nudges aim to improve public health and make life simpler, safer, or more accessible for people to navigate. Nudges can take the form of the prompts that are necessary to perform the behaviour (Fogg, 2019).

With nudging, it is important that consumers have the opportunity to choose their own direction at all times and are not forced in the direction of the nudge.

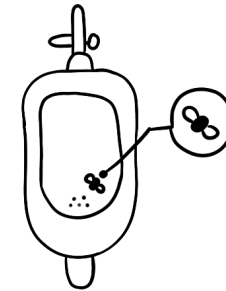
There are different types of nudges: Nudges that encourage the desired behaviour, and nudges that discourage undesired behaviour. In addition, there is a difference between internally and externally imposed nudges. With internally imposed nudges, the person decides to use this nudge to help them perform the desired behaviour (Ly et al., 2013).

With externally imposed nudges, the person is usually unaware that the nudge is gently steering them in a particular direction. The final difference is between nudges that activate desired behaviour and nudges that reinforce people's self-control. Nudges to activate desired behaviour are appropriate when people are not thinking about the correct behaviour. Nudges that boost people's self-control help them execute a decision (Ly et al., 2013).

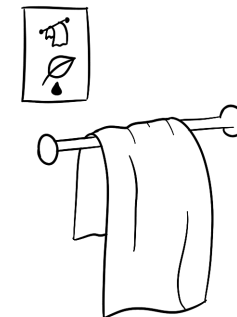
To see the table with the different types of nudges, see the appendix chapter 11. Appendix chapter 12. contains a list of promising nudging strategies, followed by the process of designing nudges in chapter 13.

Two well-known simple examples of nudges

1. The fly in the toilet. Nudges men to aim at the fly and prevent spills around the toilet. Resulting in up to 80% reduction in cleanup costs and increased unpleasantness (Ingraham, 2021).



2. The sign in many hotel rooms to reuse towels, to save water and help the planet. Directing people in a direction where they hang up their towel and reuse it (LaBarre, 2020).



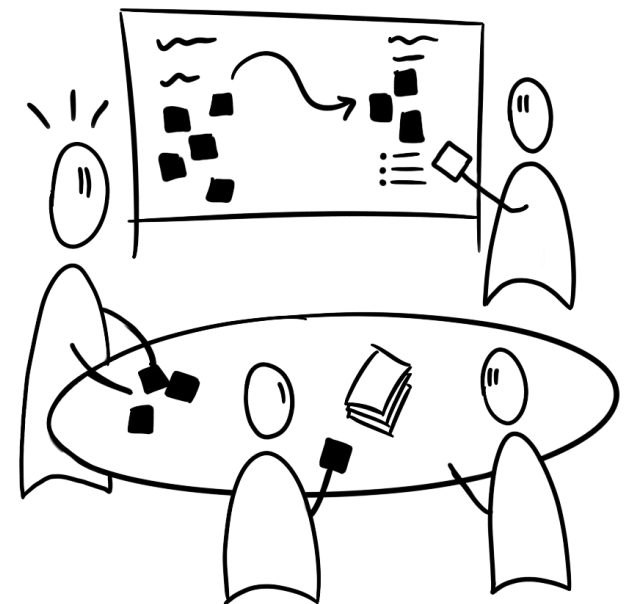
The right work culture for designing and implementing nudges

Designing and implementing nudges is an interdisciplinary process that is project-based and experimental in nature. Therefore, a work culture that supports these qualities and takes a project management approach to implement nudges would greatly support the nudges development process (Ly et al., 2013).

At Papendal, several departments are linked to food. The kitchen with its chefs, food experts, and the communication department. The communication department is least involved in the topic of nutrition, but the communication department sometimes makes promotional material about nutrition which is placed in the restaurant. These departments currently work infrequently together. While the various departments have a lot of knowledge and qualities in their own discipline, they are currently not really combined with the ones from the other departments.

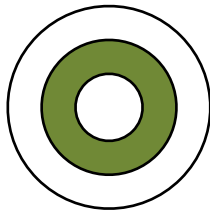
The current work culture within Papendal has much potential to grow into an ideal work culture for the design and implementation of nudges. However, at the moment, the qualities are not yet effectively used. For example, when the chefs want to promote their new dish. The qualities of chefs are coming up with new tasty and healthy dishes but not promoting them. The communication department has the qualities in place to promote this dish. However, this department is often not involved. Resulting in chefs promoting the new dish by writing it on the chalkboard in the kitchen or printing a photo on an A4. The communication department could have promoted this dish in a more attractively looking way, making it more effective.

Designing and implementing nudges is an interdisciplinary process that is project-based and experimental in nature.
(Ly et al., 2013)



How to create the right work culture to design and implement nudges

Organization change model



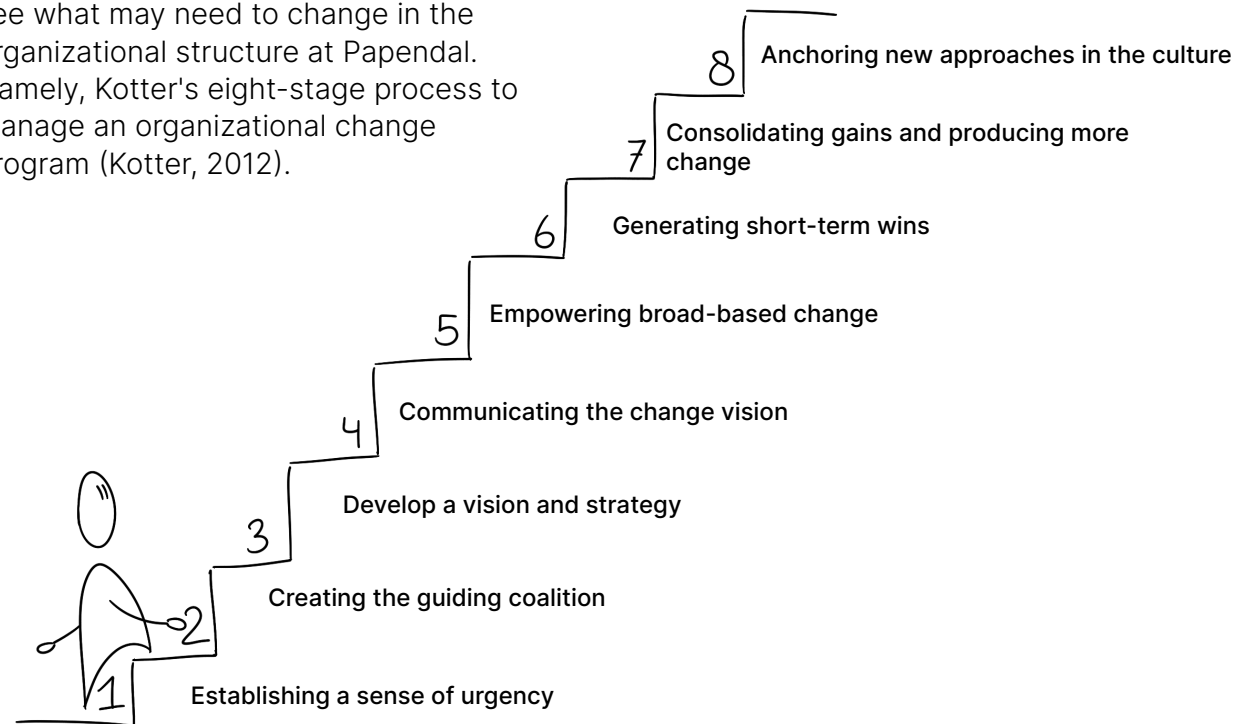
The described motivational technique, nudging, aims at the individual level. Papendal would be the organization that would implement the nudges at the organizational level. However, before Papendal can begin to implement nudges effectively, Papendal's organizational work environment needs to be evaluated. To find out what may need to change to create the right work culture to help move athletes across the behaviour change model.

Organizational change can be a great opportunity for growth. There are different types of organizational change. It can be an evolution in the direction of the entire organization, or it can involve only a small aspect of a company.

Although the vision and strategy of the sports restaurant may change, Papendal's overall vision remains the same. Namely facilitating the professional athletes at Papendal as well as possible. Therefore, the change will only affect part of the organization.

One of the most recognized organizational change models is used to see what may need to change in the organizational structure at Papendal. Namely, Kotter's eight-stage process to manage an organizational change program (Kotter, 2012).

The following section briefly explains the different steps of Kotter's model. Side note: the last two steps can, and will be combined as "building on change".



1

Creating urgency

Awareness of the need to change is key to actually change. Making clear why they actually need to change and that the change needs to happen now. If it is unclear why the organization needs to change or that this can also be done after a couple of years, the change will likely be postponed or not addressed with the same intent.

2

Guiding coalition

In this stage, a group with enough power to lead the change must be formed. When a group lacks the power to implement changes, it will be hard to realize the change. Luckily the manager of the sports restaurant is allowed to implement many changes in the restaurant.

3

Vision and strategy

Link various ideas and potential solutions to an overall clear vision. This helps the team understand the direction and gets them on the same page. Then, work on a strategy that includes what steps need to be taken to work towards the future vision.

4

Communicate vision

The steps after you create the vision and strategy will determine the level of success. First, communicate the vision frequently and powerfully. Use this vision to refer to when decisions need to be made and use it to solve problems. Are these in line with the vision?

5

Empower change

Remove barriers that are in the way of the change. Look what is missing that may increase the potential success of the strategy and vision. This may mean hiring a new staff member that has an important role in delivering the change.

6

Short term wins

Achieving some desired results does motivate the staff members. Show the staff members these short-term successes instead of focusing only on the long-term goal, which may seem too far away to keep the motivation high. Instead, choose some short-term targets with little room to fail.



Build on change

Build on the change. Evaluate the wins and keep looking for what can be improved. The short-term wins are just the start, but the real change runs deeper. Set goals to build on the momentum that is created by short-term wins.

Design statement

Design requirements

The outcome of the final design is limited when the focus is only on the individual or organizational level. Taking both levels into account will increase the viability of this project.

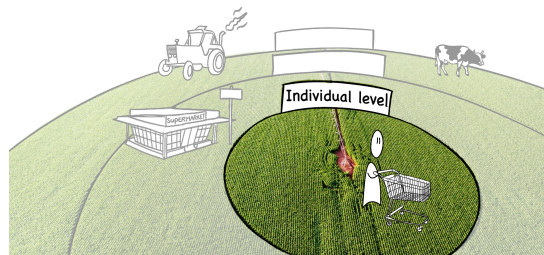
Requirements for local organizational level (Papendal)

- For the organization, it must be clear how they can facilitate and realize the transition to more plant-based food in the future. With a clear future goal and guidelines on what they should/could focus on in which phase.
- The design should inspire Papendal to facilitate this transition more creatively instead of limiting themselves to flyers and TV screens.
- The design should encourage Papendal to let different existing departments collaborate and work together. Making it an interdisciplinary project would have the best chance of success.



Requirements for individual level (athletes)

- The design should help overcome the barriers of the group of athletes that is open to reduce their meat consumption.
- The design should be accessible for athletes, considered the busy training schedules and lack of energy to put in extra activities or tasks for the athletes.
- The design should help the group of athletes (open to reducing their meat consumption) choose the vegetarian option both on and outside of Papendal.



Design statement

Design a strategy for the local organization level (Papendal) that helps and inspires them to move towards a clear vision and goal, consisting of general guidelines on where they can focus on in what phase. In addition, provide Papendal with some specific creative tools on the individual level that encourages athletes to choose the vegetarian option both at and outside Papendal.

Key elements in designing this transition

Large group flexitarian, not a small group entirely vegetarian

The goal is to get most athletes to eat vegetarian a few days a week and not to have only a small group of athletes eat entirely vegetarian. If the majority eat vegetarian for a few days, more impact is achieved in terms of sustainability than if a small group eats completely vegetarian. Moreover, the "reducitarians" drive the demand (Leenaert, 2019). An appropriate quote taken from a statement by Anne-Marie Bonneau (author of the book *Zero Waste Chef*) is, "We do not need one vegan doing it perfectly. We need a hundred doing it the best they can."

Not one perfect way

Tobias Leenaert states in his book *How to create a vegan world* that there is not one right way to make this transition. Different ways work for different groups. There are guidelines for what works for a group of

people, but that does not mean that different ways can not contribute to this transition. Many different ways contribute to this transition in their own way.

One bite at a time

Biologist and plant-based expert Dennis Vink shows that most people who now have a vegan diet had a vegetarian diet before that and, before that, even a diet based on meat and fish. To design this transition, it is valuable to understand that most people who now have a vegan or vegetarian diet ate meat in the past. Although a vegan diet has the least impact on the environment and is better for animal welfare than a vegetarian diet, it is not wise to try to change people from a diet of meat and fish to a completely vegan diet. It is too big of a step that athletes will find far too extreme and, therefore, likely to fail. Several experts in this transition, even athletes who have transitioned to a vegan diet, suggest taking it slowly. Start with one daily meal you want to replace rather than switching completely.

Vision

A future in which our food system operates within the boundaries of the planet, where a plant-based diet is the norm.

Outcome goal

By the time of the Olympics in Los Angeles (2028), half of the dinners sold at the sports restaurant on Papendal will be vegetarian.



Numbers behind outcome goal

The numbers used to calculate are from Rosi et al., (2017). *Environmental impact of omnivorous, vegetarian, and vegan diet*. Moreover, these are not even the footprints of athletes. Considering that the athletes generally have to eat even more, the difference in footprint could possibly be even larger.


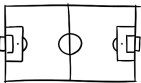
Assuming that 120 athletes (number of athletes eating at the restaurant on a weeknight) will eat vegetarian half of the week, the total kg CO2, liters of water, and m2 land saved are massive. The following will be saved per week:

Carbon footprint, water footprint and ecological footprint of 120 people.

	Seven days a week Omnivorous	Half of the week omnivorous half vegetarian	Saved per week when eating vegetarian half of the week
Carbon Footprint in kg CO2	3325	2753	572
Water Footprint in liters	2638272	2287110	351162
Ecological Footprint in m2 land	21840	17682	4158

kg CO2 saved: 572  = 4800 km driving 

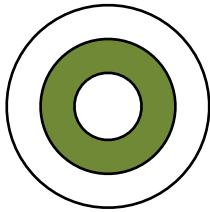
liters water saved: 351162  = 2700 filled baths 

m2 land saved: 4158  = 0.63 soccer fields 

Reaching this goal would mean an enormous difference in the impact their diets have on the climate, far less harmful. Imagine what this could mean if the athletes would eat vegetarian half of the week for a year or longer.

Getting the staff on board with design statement

Key takeaways two weekly meetings with staff of Papendal



The purpose of the two weekly meetings was to keep the staff informed and provide an opportunity to validate my direction of this project.

During the two weekly meetings, it became clear that health was a major barrier for Papendal in implementing more vegetarian food. I put a lot of energy and effort into acquiring sufficient knowledge about the effect of vegetarian and plant-based foods on health and performance. If I could not convince them that it would not negatively affect (and perhaps even improve) the health of the athletes, then it was likely that they would not implement this project the way I had designed it for. Fortunately, after several conversations with dietitians, a literature

review, sharing personal experiences, and data of my strength and conditioning tests, they began to understand that vegetarian and plant-based foods can be good for people's health and performance.

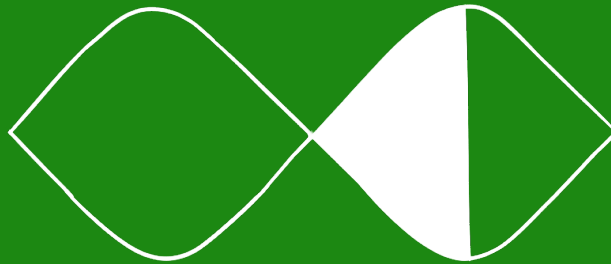
Based on the promising results of my own research with the athletes, I suggested that as a first intervention, they can prepare a vegetarian option by default every day rather than only when an athlete asked for it during the day. I was hoping they would keep it in and that more athletes would already choose the vegetarian option. The sports restaurant's chefs and manager were convinced and will make it happen. This will be discussed further in the development phase.

They had never heard of creating personas to design for. However, the response to the personas created was very positive and helped the staff better understand what the different groups looked like.

When I mentioned during the two-week meeting that I was going to create a future vision and a goal to work towards, they responded that they probably had a different future goal in mind. So they suggested that each of us (i.e., the program expert and the manager of the sports restaurant, and myself) put together a future mission and goal and then integrate them with each other. However, when I created and explained my future vision and goal using the behaviour change model and reasoning, they agreed and fully supported it.

Lastly, most meat alternatives in the restaurant are plant-based. However, the dish most of the time will contain some dairy which makes it a vegetarian meal. In addition, my own research showed that promoting the plant-based meat alternatives as vegetarian dishes is experienced more positive than when they are promoted as plant-based meat alternatives. But this clarifies that the term vegetarian and plant-based is both used when I'm talking about these dishes.

Develop



Develop

In the develop phase, the first milestone is addressed, a step that Papendal has taken after seeing the results of the earlier study with the athletes. Then different design directions come forward, and explained why these design directions could help Papendal to work towards the established future goal. The different design directions will be developed in this phase. However, the final designs will emerge in the deliver phase of the project.

First Milestone

The earlier research conducted with the athletes at Papendal showed that the athlete's mindset towards vegetarian food products was not nearly as negative as previously thought by the chefs. Moreover, a large group of athletes was already open to eat vegetarian once a week.

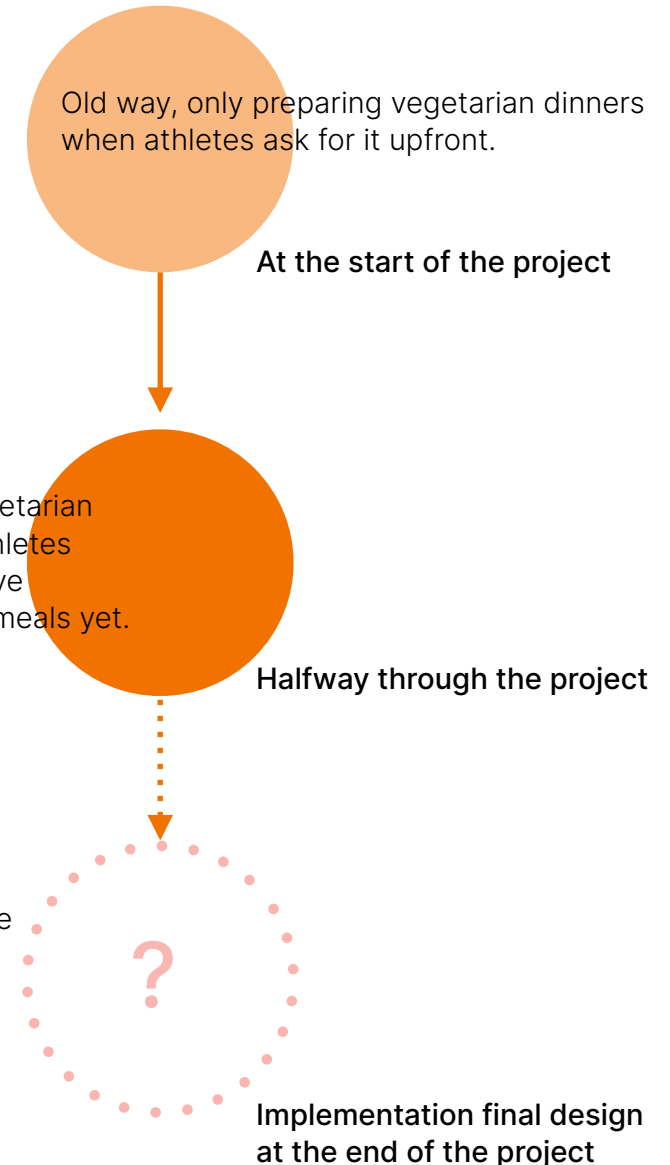
This group may not even need active communication to choose the vegetarian option. As a result, I proposed to prepare a vegetarian option every day, without the athletes having to request it themselves in advance. With the goal to see how many athletes actually choose the vegetarian option without any active promotion around it.

The chefs will start to prepare the vegetarian dishes, but there will be no active communication for these dishes. This means that the vegetarian dish will only be written on the chalkboard where the other dishes are and nothing more. This idea is to balance supply and demand before vegetarian meals are actively promoted.

By the time the design is implemented, it is also clear how many athletes are already choosing the vegetarian option without actively promoting it. The increasing numbers can then be explained based on the designed strategy and not because supply and demand appeared to be imbalanced in the first place.

First Milestone. Start preparing vegetarian meals five days a week, without athletes having to ask for it upfront. No active communication around vegetarian meals yet.

Implementation final design to move to a successful vegetarian menu at the restaurant



Findings first milestone

The chefs started enthusiastically working on new vegetarian dishes. They prepared various new vegetarian dishes, still playing around with the portions to see how much of it needs to be served to get enough protein.

One time a chef recommended the vegetarian hamburger and immediately ten burgers were sold that evening (only one or two compared to when they did not recommend it). However, this was thus actively promoted and not just supply and demand.

The chefs sometimes chose to prepare a vegetarian option as the day's snack during lunch. Some people took the vegetarian option and found out much later that this was vegetarian (they did not know the dish was vegetarian when they took it, but it just looked delicious). The taste was perceived positively. However, the vegetarian dish was still not taken nearly as much as the athletes indicated in the survey to what extent they were open to take a vegetarian evening meal. This shows that they are open to it, but as previously indicated, they have not yet reached the tipping point and actually intend to reduce their meat and fish intake.

The statement of professor Fogg may apply here. That very few behaviours occur unprovoked without a prompt (Fogg, 2019). Even though choosing a vegetarian meal is now possible for all athletes, the prompt that stimulates this behaviour is still missing. Which results in that there is not a big difference in the amount of vegetarian meals that are sold.

Limitations first milestone

Apparently, it was not possible to prepare the vegetarian meal and put it right next to the meat and fish dishes. Because the vegetarian dish may get cold or start to look less delicious, since it is not taken as much as the other meat bowls. However, this resulted in the athletes being able to choose the vegetarian meal, but they did not see this meal served next to the other dishes. As expected, the consequence was that not many vegetarian dinners were sold.

Another limitation was that the vegetarian dishes were, most of the time, similar to the meat option of that day. So when a meat hamburger was prepared, they would also have a vegetarian hamburger.

However, after conducting my research, I suggested that the vegetarian option should be different from that day's meat option. Providing the athletes with an extra option would be more attractive.

Lastly, at the checkout, the vegetarian meal was not always selected. The staff member behind the checkout often selected just a meat meal instead of a vegetarian meal, so the numbers did not add up, and possibly more vegetarian options were sold.

Design directions

In the design statement that was created, it became clear that the design should be for the organizational level (Papendal) and the individual level (athletes). A design that provides Papendal as an organization with a global plan to work towards its vision, where there are specific creative tools on an individual level that the athletes can use.

Roadmap organizational change



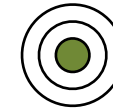
Before Papendal has the right qualities in their work culture for designing and implementing nudges, several things need to happen. This was mentioned in the chapter about the organizational change model in the definition phase of this project. One design direction is, therefore, to design a roadmap for Papendal that helps them create the right work culture for designing and implementing nudges. This can be a roadmap for the organizational level. In which it becomes clear what steps they can take to create the right work culture. The roadmap can show what may already be going well and what can be worked on per phase.

Roadmap nudges over the years



This roadmap can offer Papendal guidelines and inspiration what type of nudges they can implement over the years, since Papendal has no experience with implementing and designing nudges. This roadmap can show different horizons over the years. All horizons will have a list of potential nudges specific to that horizon. This roadmap can show what they can focus on in different phases in the future. This is related to where the athletes are on the behaviour change model. For each phase, some nudges can be proposed to implement.

Two nudges designed in detail for athletes



Many different types of nudges can be proposed over the years in the roadmap. Some of these are very easy to implement, and others require more creativity. Papendal has enough qualities to design and implement the simple nudges, but the staff is less likely to be able to work out a more creative nudge. For example, a nudge that is not designed for the standard banners, TV screens, flyers or similar communication tools. Two creative nudges can be worked out in detail to inspire Papendal. Nudges that Papendal probably would not have worked out in the first place.

Direction values

These design directions allow Papendal to live up to its potential. They already have many qualities in place to work towards a successful vegetarian menu in the restaurant. These design directions bring different departments at Papendal together, provide general guidelines and specific creative tools that will all help them move towards their future goal. Where the roadmaps support Papendal in the long run, the designed nudges help them on their way and give them an idea of what it can look like.

Direction challenges

Before Papendal can effectively implement nudges, they should first go through the steps of the organizational change roadmap. Of course, there are also nudges that Papendal can implement without going through the steps of the organizational change model. However, when Papendal does not consider what can change on the work floor, the chances are that the design and implementation of nudges will be done

much less effectively. At the same time, this project has enormous potential because Papendal already possesses many necessary qualities for implementing and designing nudges.

To maximize the chances that Papendal will also go through the steps on an organizational level, it is essential to properly communicate to Papendal why this is such an important topic and why it will be a good action to facilitate this transition. Both for the athletes and for Papendal as an organization itself. Moreover, to show they already have many qualities to design and implement nudges successfully. This can increase their motivation, so they do not just limit themselves to implementing nudges without making changes on the work floor.

A convincing presentation to Papendal employees can help create enough support and increase their motivation to take on this project with both hands.

Develop the following design directions:

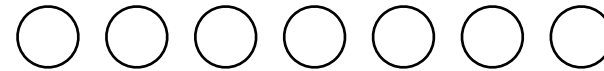
1. Roadmap organizational change
2. Roadmap nudges over the years
3. Two specific tools (nudges) in detail for athletes

To see the other design direction that was not chosen to be developed, see appendix 14. This design direction was only effective in the short term and had not helped Papendal in the long run to realize the future goal.

Organizational Roadmap

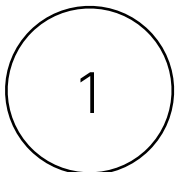
Designing and implementing nudges is an interdisciplinary process, project-based and experimental in nature. The organizational roadmap will help create a work culture that supports these qualities needed for designing and implementing nudges.

Kotters change model

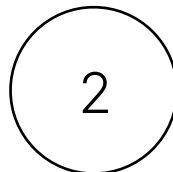


Ultimately, the different steps Papendal can take to create the right work culture for designing and implementing nudges will be visualized in one roadmap. In this section, the different steps of Kotter's change model are explicitly elaborated for the context of Papendal. What Papendal may already be doing in this phase, and what can be done to move to the next phase.

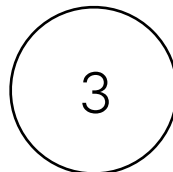
Creating
urgency



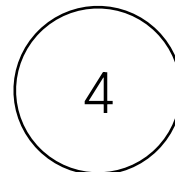
Guiding
coalition



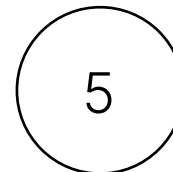
Vision and
strategy



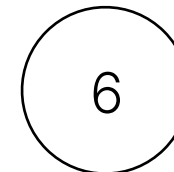
Communicate
vision



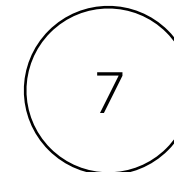
Empower
change

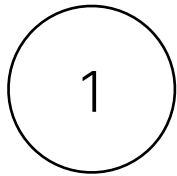


Short term
wins



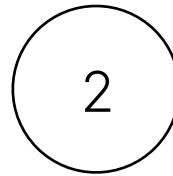
Build on change





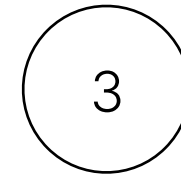
Creating urgency

Creating urgency: it must be clear for the staff members why Papendal will focus more on vegetarian food in the future. The restaurant manager already wanted to do more with this, but this project helped him take action. To stay in line with the established core values of the sports restaurant, it is a logical step to go along with the development of plant-based food. In addition, in setting up this project, I spend much time talking about why this project can be so valuable. That there is a huge difference in environmental impact when more vegetarian food is consumed instead of meat and fish. A convincing presentation of myself to the staff members of Papendal would also help create the urgency needed.



Guiding coalition

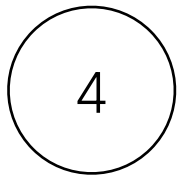
Guiding coalition: there must be a group with authority to initiate a change. A group that is involved in the urgency of the issue. Papendal already has this group available to perform this change in the future, namely the kitchen, the food experts and the communication department. This group could work together on this transition in the future, with clear communication. There are two weekly meetings with the innovation manager and the kitchen staff. An idea is to include the communication department and nutrition experts in this meeting and address this transition.



Vision and strategy

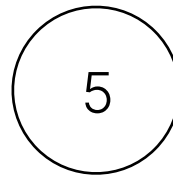
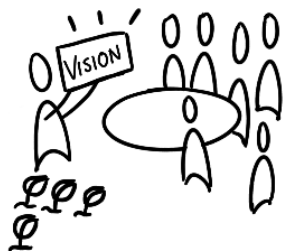
Vision and strategy: it is essential to have a clear goal to work towards and a strategy that roughly describes the steps they can take in line with the vision. The strategy can support Papendal towards the goal of selling half of the total evening meals vegetarian in 6 years. I will design a roadmap containing the relevant type of nudges per phase. This will be the next chapter in the develop phase.





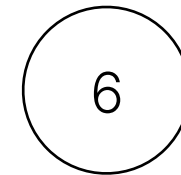
Communicate vision

Communicate vision: Once the vision is established, it must be shared within the organization. This is partly already done by me every two weeks by discussing with the innovation manager and manager of the sports restaurant what my progress is in this project. Also, my final presentation at Papendal will play a part in spreading the vision among the employees. It is advisable to have the vision come back often in meetings with the guiding coalition. In addition, it is valuable to show through actions that are in line with the vision that something is done with it within the company. Actions show more than when it is only mentioned during a meeting. An example is the kitchen garden set up at Papendal, which is in line with focusing on more plant-based food.



Empower change

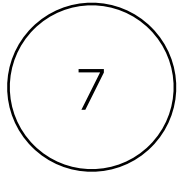
Empower change: with this step, it is important to identify what within the organization is helping to work towards the vision and what may be getting in the way. Here it is possible to reflect on which employees may lack the knowledge to make specific steps. Questions include: do the chefs have the necessary information to make healthy, varied, and tasty vegetarian or plant-based meals? Or perhaps they need a workshop on cooking vegetarian meals? Or perhaps even hiring a chef with experience cooking in this area? Another question could be, do the nutrition experts have enough knowledge about how athletes can eat more vegetarian in a healthy way? Or do they need some further training for this as well? Or finally, does the guiding coalition have the qualities needed to implement and further develop nudges? Or do they need a (part-time) designer to work on the nudges?



Short term wins

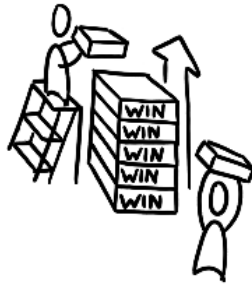
Short-term wins: to keep the motivation among the employees high, establishing short-term wins can help tremendously. This means not only looking at the long-term goal, which can sometimes seem endless. But rather looking at goals that are achievable within the short term. These can then also be celebrated when they are achieved. Here the guiding coalition will be able to set new achievable goals. Some possible achievable goals are: selling at least ten vegetarian dinners in one day. Implementing a nudge, such as offering vegetarian snacks every week or every other week. This could also already be a short-term goal. Once a couple of nudges have been implemented, celebrate that the organization is moving towards its vision.





Build on change

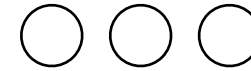
Build on change: real change does not come from achieving and celebrating short-term wins but from achieving them again and again and making them part of the work culture. After the achieved short-term wins, evaluating what went well and what could be done better next time plays a role in making it part of the work culture.



Nudges for athletes Roadmap

This roadmap will show the staff of Papendal where they can focus on the coming years. Which type of nudges can be implemented at which phase to help athletes move over the behaviour change model and reach the future goal of Papendal: Having a successful vegetarian menu at the restaurant.

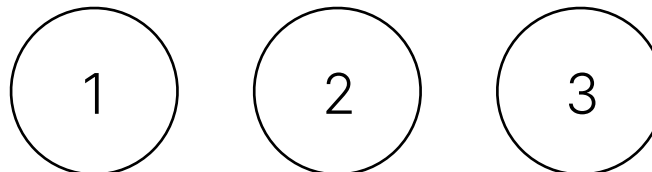
Three Horizons



This roadmap will have three horizons, each with a different focus and goal. At first, the three horizons are described. Which part of the behaviour model this horizon focuses on, what potential barriers are for athletes in this horizon and what type of nudges would fit in this horizon to help the athletes move over the behaviour change model. For each horizon, between 10 and 15 nudges are proposed. These nudges are not developed in detail but inspire what type of nudges would fit in this horizon. The three horizons for the final deliverable will be visualized into one attractive roadmap.

For some guidelines prior to the different horizons see appendix chapter 15.

Awareness Engagement Shift the norm

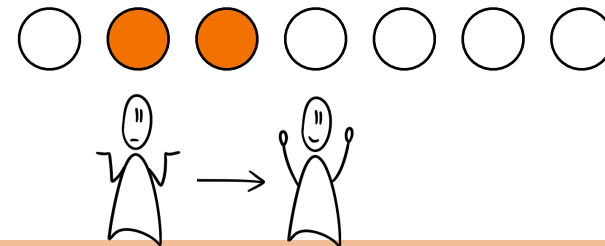


2022 - 2024

Increase the motivation of athletes until they have reached the tipping point and intent to reduce their meat consumption.

Horizon I - Awareness

Behaviour change model



The main bottlenecks of athletes in this horizon are unawareness of this topic, not (or less) liking the taste of the no-meat option, missing motivational factors, and thinking that they would miss important nutrients. Athletes are more likely to perform desired behaviour with increased cognition. Therefore, there should be aimed to encourage the target action rather than discourage the old behaviour. Nudges in this horizon focus on increasing the motivational factors and getting athletes acquainted with this topic in an accessible way.

List of potential nudges - *The more elaborated list of this horizon is shown in appendix chapter 16*

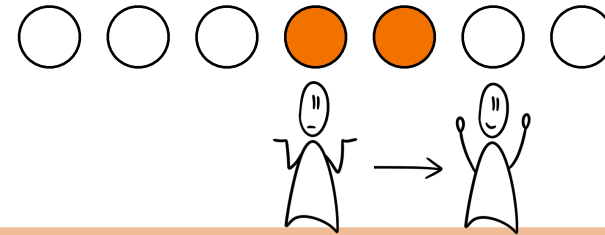
- Make visually attractive
- Vegetarian option on top
- Taste experiences
- Make behaviour fun
- Instagram stories
- Use of social norms
- Combo veggie deal
- Recognizable veggie style
- Use of role models
- Veggie whatsapp group
- Involve dietitians
- Special spot with promotion
- Show cheapest option
- Deck of cards
- Playful cube

2024 - 2026

Athletes reached the tipping point and intent to reduce meat consumption. Support athletes to perform this new behaviour

Horizon II - Engagement

Behaviour change model



Potential barriers for athletes in this horizon are that they set the bar too high for themselves, which makes it hard to get acquainted with the new behaviour of reducing their meat consumption. Another barrier could be that they do not want to put in extra effort in choosing the no-meat option. Choosing the no-meat option will have to be as least as easy as the meat option. Nudges in this horizon focus on helping athletes perform the actual new behaviour. Choosing the vegetarian or plant-based option should be as least, if not more, accessible and attractive than the meat option.

List of potential nudges - *The more elaborated list of this horizon is shown in appendix chapter 17.*

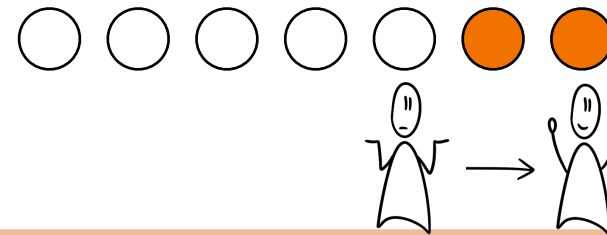
- Let athletes try out new meals
- Make behaviour fun
- The "Green ticket"
- Athletes work towards self set goals
- Organize physical gather group with dietitians
- Expand veggie whatsapp group
- Inform athletes about past choices
- Use of social norms
- Eliciting intentions
- Differences in prepared meat options
- Vega(n) cooking workshops
- Plant-Based BBQ
- Two veggie options

Horizon III - *Shift the norm*

2026 - 2028

Help athletes maintain the changed behaviour.
Support athletes to prevent relapse to earlier stages of the behaviour change model

Behaviour change model



Barriers for athletes in the last horizon are that some may not know if they can stick to this behaviour in the future or outside the environment of Papendal. Again, athletes can set the bar too high for themselves, which makes it hard to stick to this behaviour. Nudges in this horizon aim to help athletes prevent relapse into earlier stages of the behaviour change model.

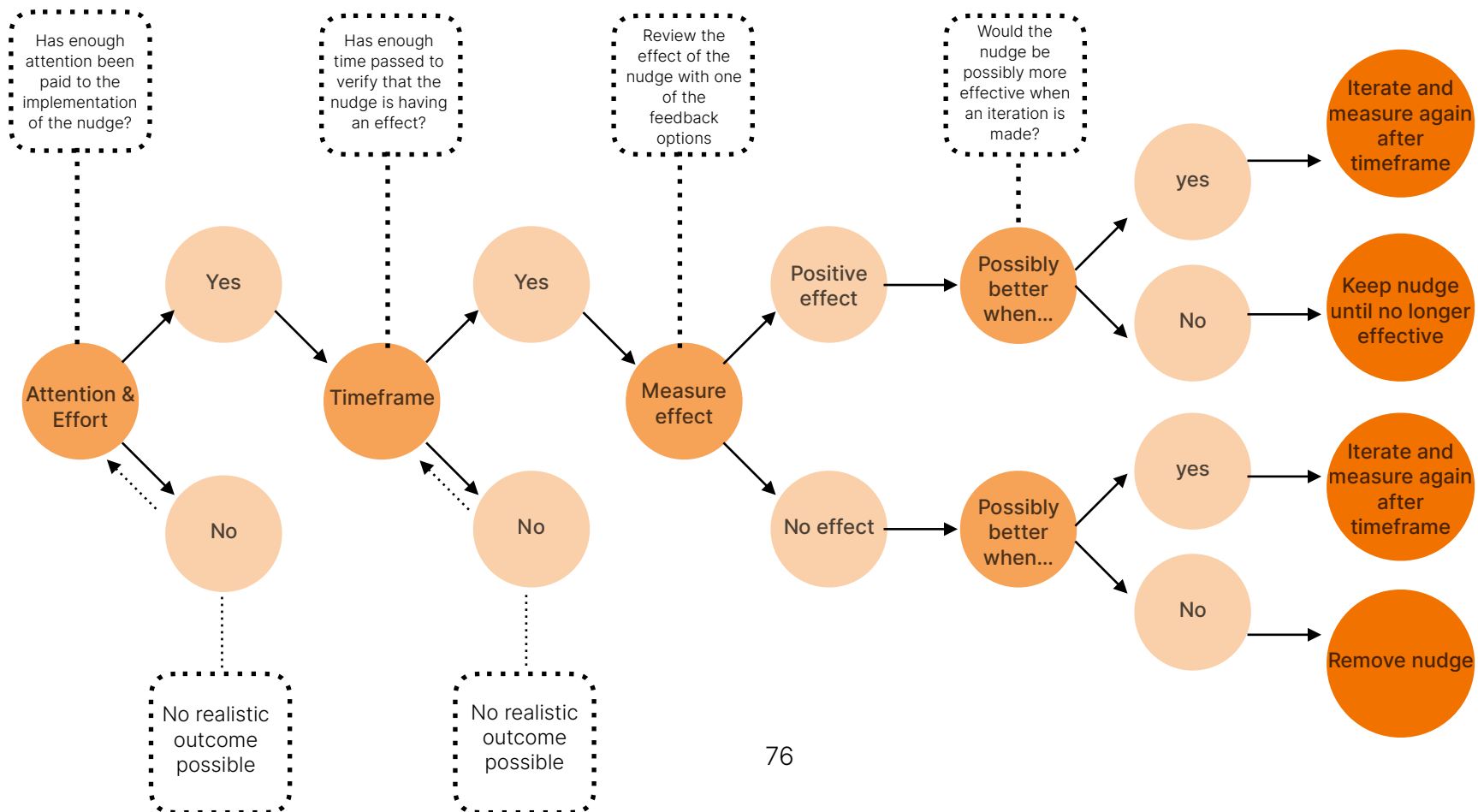
List of potential nudges - *The more elaborated list of this horizon is shown in appendix chapter 18.*

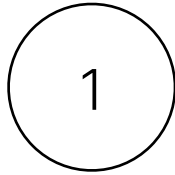
- Build on veggie WhatsApp group
- Workshop veggie abroad
- Organize veggie events
- Use of social norms
- Two veggie one meat option
- Pricing
- Buddy up!
- Self determined try out period
- Ready to cook plant-based boxes
- Meat discouraging nudge

Nudge evaluation model

To evaluate introduced nudges, I created a model with several questions that can be answered to decide whether to keep the nudge, iterate on the nudge, or remove the nudge.

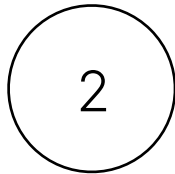
The limitation of this model is that the questions can not always be answered with clear data but will require an estimation. In addition, it is not an existing scientific model to evaluate nudges but a personally created model. Nevertheless, the model will provide some more guidance in the process of implementation and evaluation of nudges.





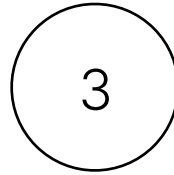
Attention and effort

The first question is, “has enough attention been paid to implementing the nudge?”. This question needs to be answered by the relevant department that was accountable for implementing the nudge. If they do not have the idea that they missed out on certain important elements with the implementation and development, they can answer this question with a yes and move on to the next step.



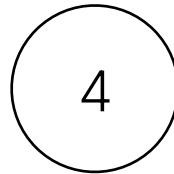
Timeframe

The second question is whether enough time has been past to measure if the nudge has an effect or not. This varies between all nudges. An estimation will be made on how much time the nudge needs to be visible in order to possibly check the effect of this nudge.



Effect

The third step is to review the nudge. The scheme on the right includes different ways to review the effectiveness of the nudge. Remark: when multiple nudges are implemented closely after one another, it may be hard to measure which nudge had the most effect.



Better if..?

Lastly, the question can be answered whether new information may have come up, which would make the nudge even better. Then, the decision can be made whether to iterate on this nudge and let it evolve.

How to get feedback

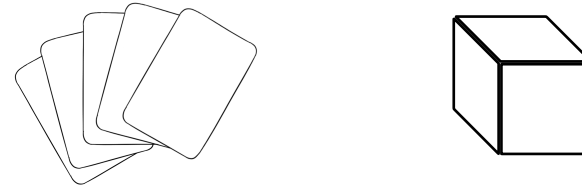
- Checkout registration system
- Papendal voedingspanel
- Word of mouth
- Existing designed feedback systems
“Happy or Not” or “FourSmileys”
- Instagram story with question
- The veggie WhatsApp group when more and more athletes are part of this group

For more elaboration on the feedback options see appendix chapter 19.

Developing the specific tools

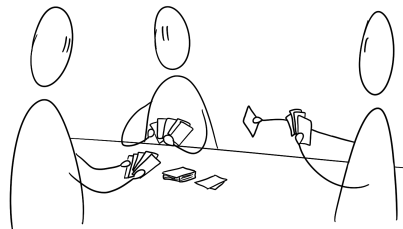
Two nudges of horizon I are selected to design in detail, to inspire the staff of Papendal what concrete nudges can look like.

Deck of Playing card and the playful cube

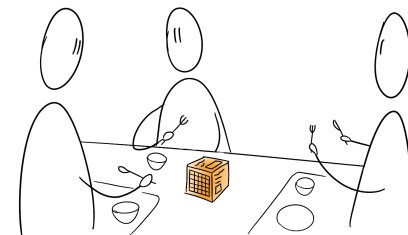


Two nudges that are less likely to be created and implemented by the staff of Papendal itself are nudges that make athletes more aware of this topic in a creative way. For example, a game of playing cards or a playful cube that can be placed on the tables. Both nudges have been worked out in detail to inspire the staff of Papendal how what these nudges could look like.

Deck of playing cards



Playful cube



Deck of playing cards



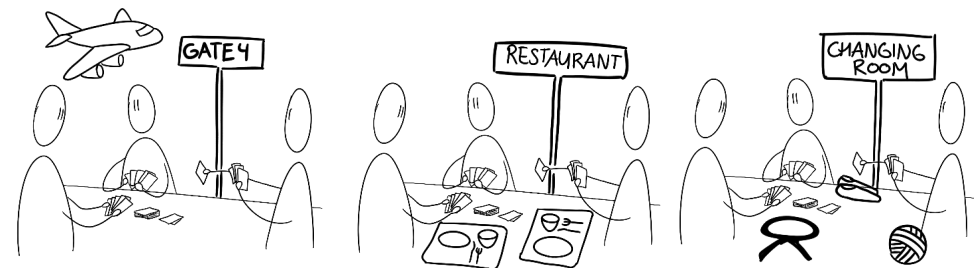
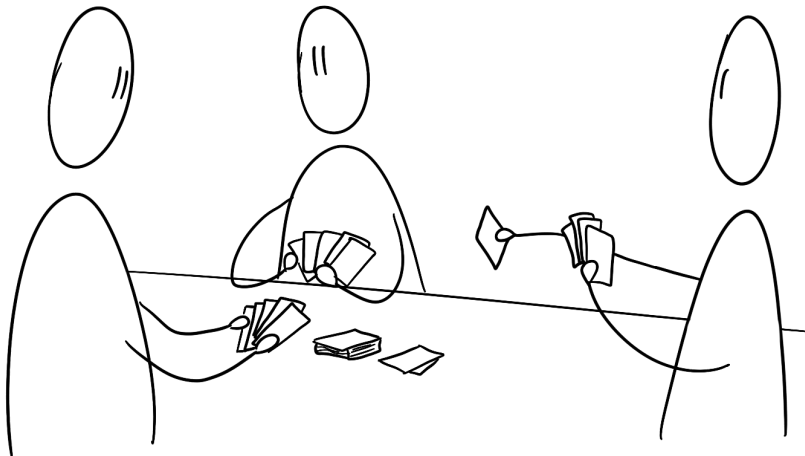
In general, athletes spend much time with each other. Not only when they train with each other, but especially around training sessions. Think about traveling together to international competitions, where they wait for hours and hours at airports. Or in between training sessions at an international training camp.

What can be useful to have at these moments around training sessions is a deck of playing cards. A deck of playing cards consists of four different kinds. Normally hearts, clubs, diamonds and spades. In this case, it could be fruits, vegetables, nuts, and legumes. Four important food categories in a vegetarian and plant-based diet. Regular card games can be played with this designed deck.

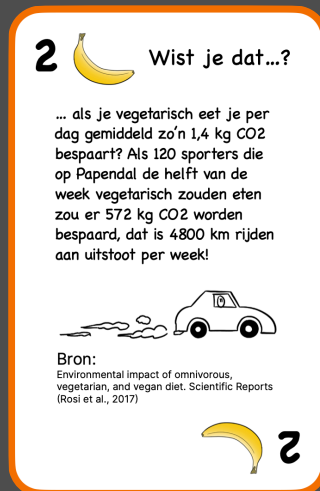
A standard deck of cards has 52 playing cards. Each category has 13 cards. So there will be 13 fruit, vegetable, nut, and legume cards in the deck. All with information on the cards that help raise awareness around this issue and overcome barriers that help the group that is open to reducing their meat consumption. The deck is an accessible way for athletes to get in touch with this topic. Each category provides information on this topic in a different form.

The deck will consist of:
13 Fun Facts - cards
13 Q&A - cards
13 Tips & tricks - cards
13 Recipe - cards

The information on the playing cards will be based on results from my own research with athletes, literature research, and personal experience. In addition, multiple people have inspired me with knowledge in the transition towards vegetarian and plant-based food: Lobke Faasen, a dietician with expertise in plant-based nutrition (Faasen, 2021). I had several conversations with her to validate my information. But also a biologist and an expert on the plant-based transition Dennis Vink (Vink, 2022), who widely shares his experiences with this transition.



Playing card ideas



Simple but with a playful font. Recognizable by the orange outline. Other type of cards could have a different colored outline (next to a different icon).



Complete colored card. Other type of cards could have other colors. Although the type of card will be easily recognizable, the colors make the cards potentially a bit more childish.



Card with a TeamNL background. A background athletes are familiar with. The text may be a bit less clear to read under different circumstances.



Complete black and white background, with better to read font which is less childish. This card will be the cheapest to print since no colors are used. However, it may also be less attractive because no colors are used.



A still simpel card with the font that is good to read. The colored banana makes it a bit more playful than the black and white card. A nice balance between playful and good to read.

4 Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 1,4 kg CO2 bespaart? Als 120 sporters die op Papendal de helft van de week vegetarisch zouden eten zou er 572 kg CO2 worden bespaard, dat is 4800 km rijden aan uitstoot per week!



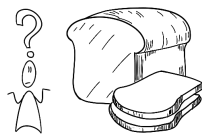
Bron:

Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)



B Vraag en antwoord...

Kan jij vijf gezonde plantaardige producten bedenken die je op je brood kan doen?



Antwoord:
Bijvoorbeeld: avocado, hummus, pindakaas,
gesneden groente, tapenade



7 Recepten

Sushi bowl

Scan de QR code voor het recept!



Rijst
Avocado
Mango
Zeewier
Edamame bonen
Komkommer
Gebakken uitjes



3 Tips en Tricks!



Wees lief voor jezelf. Ben je van plan meer vegetarisch te gaan eten? Doe dit dan stapje voor stapje. Begin misschien met 1 avondmaaltijd per week? Lukt het even niet? Helemaal niet erg, dit gebeurt bij iedereen! Behoud je motivatie en pak het weer op wanneer je er aan toe bent.



Playing card option one

TeamNL 

4 🌙 Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 1,4 kg CO2 bespaart? Als 120 sporters die op Papendal de helft van de week vegetarisch zouden eten zou er 572 kg CO2 worden bespaard, dat is 4800 km rijden aan uitstoot per week!



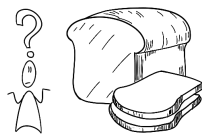
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B 🍆 Vraag en antwoord...

Kan jij vijf gezonde plantaardige producten bedenken die je op je brood kan doen?



Antwoord:
Bijvoorbeeld: avocado, hummus, pindakaas,
gesneden groente, tapenade



7 🌿 Recepten

Sushi bowl

Scan de QR code voor het recept!



Rijst
Avocado
Mango
Zeewier
Edamame bonen
Komkommer
Gebakken uitjes



3 🍀 Tips en Tricks!



Wees lief voor jezelf. Ben je van plan meer vegetarisch te gaan eten? Doe dit dan stapje voor stapje. Begin misschien met 1 avondmaaltijd per week? Lukt het even niet? Helemaal niet erg, dit gebeurt bij iedereen! Behoud je motivatie en pak het weer op wanneer je er aan toe bent.



Playing card option two

TeamNL 🌿

4  Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 1,4 kg CO2 bespaart? Als 120 sporters die op Papendal de helft van de week vegetarisch zouden eten zou er 572 kg CO2 worden bespaard, dat is 4800 km rijden aan uitstoot per week!



Bron:
Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)

 **4**

B  Vraag en antwoord...

Kan jij vijf gezonde plantaardige producten bedenken die je op je brood kan doen?




Antwoord:
Bijvoorbeeld: avocado, hummus, pindakaas, gesneden groente, tapenade

 **B**

7  Recepten

Sushi bowl
Scan de QR code voor het recept!



Rijst
Avocado
Mango
Zeewier
Edamame bonen
Komkommer
Gebakken uitjes

 **7**

3  Tips en Tricks!



Wees lief voor jezelf. Ben je van plan meer vegetarisch te gaan eten? Doe dit dan stapje voor stapje. Begin misschien met 1 avondmaaltijd per week? Lukt het even niet? Helemaal niet erg, dit gebeurt bij iedereen! Behoud je motivatie en pak het weer op wanneer je er aan toe bent.

 **3**



Playing card option three

Selecting the playing card option

A test was done with 15 athletes to select which playing card was most appealing. The different playing card options were printed and shown to the athletes. The test was done individually to prevent athletes from going with the group's opinions.

A clear winner came out of this test. The option that got by far the most votes was card option one. Since these athletes will use the deck of cards and it should be appealing for them, selecting option one to design the complete deck of 52 cards was logical.



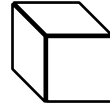
11 votes

2 votes

2 votes



The playful cube



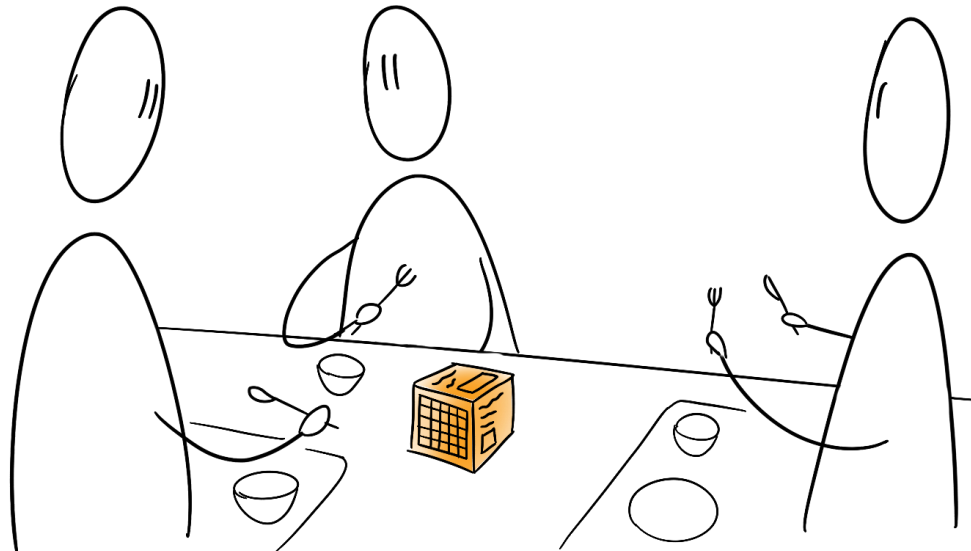
The cube can be placed on the dining tables in the restaurant, so that during and after eating their lunch and dinner, the athletes can interact with this cube. During lunch and dinner, the athletes will have some more time to get in touch with this topic. Many athletes do not leave immediately after they finish their dinner but stay a little longer, which can be an excellent time to look at the information on the cube.

Currently, the dining table is already occasionally used to promote certain activities, for example, with a flyer on the table. So the athletes are already familiar with the fact that sometimes something is promoted on the tables.

The idea of the cube is that there can be different kinds of information about the subject on different sides. The distinct shape and various types of information make it likely that the cube will stand out on the table, thus attracting the athletes' attention.

The cube will have to be designed to be attractive when only one person is sitting at the table but also when several are sitting at the table.

The reactions from both the staff and the athletes were very positive. The chefs and content designer were very excited about the cube, something they had not thought of themselves but which fits Papendal perfectly. A playful way to bring the athletes in touch with this subject. (No detailed user test has been done with the design of the cube. I showed a concept version of the cube to about 15 athletes, with the primary reaction that the cube looked fun and attractive. They indicated they would be curious about what would be on it).



Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 1,4 kg CO2 bespaart? Als 120 sporters die op Papendal de helft van de week vegetarisch zouden eten zou er 572 kg CO2 worden bespaard, dat is 4800 km rijden aan uitstoot per week!



... de helft van de sporters op Papendal open staat om hun vlees en vis inname te verminderen? 20% is hier zelfs al mee bezig! Bij welke groep hoor jij?



Bron:
Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)

TeamNL

Tips & Tricks!

Wees lief voor jezelf. Ben je van plan meer vegetarisch te gaan eten? Doe dit dan stapje voor stapje. Begin misschien met 1 avondmaaltijd per week? Lukt het even niet? Helemaal niet erg, dit gebeurt bij iedereen! Behoud je motivatie en pak het weer op wanneer je er aan toe bent.

Gun jezelf de tijd. Het aanpassen van je eetgewoonte die je al je hele leven hebt kost simpelweg tijd om te veranderen. Leg de lat niet te hoog voor jezelf.



TeamNL

Vraag & Antwoord

1. Kan jij vijf gezonde plantaardige producten bedenken die je op je brood kan doen?
2. Waar kan je je eiwitten uithalen als je plantaardig eet?
3. Wat de drie voornaamste redenen zijn om minder vlees te eten?



Antwoord

1. Bijvoorbeeld: avocado, hummus, pindakaas, gegerilde groente, tapenade of
2. O.a. noten, bonen, peulvruchten, graanproducten, tofu, tempe, sojameik of
3. Gezondheid, milieu & dierenwelzijn

TeamNL

Fun facts can be displayed on this side, similar fun facts to those displayed on the deck of playing cards, all with a specifically designed outline. The fun facts present information to the athletes that they may not yet be aware of. In addition, it increases their awareness of the subject of vegetarian and plant-based foods and gives them insight into other athletes' opinions on the subject. Two type of nudges are used with fun facts: the use of social norms, and eliciting intentions.

The tips and tricks are also similar to the tips and tricks that are shown on the deck of playing cards. Based on the results of barriers from the interviews with the athletes. These tips and tricks may partly help the athletes overcome their barriers.

The question and answer side can be used by one single athlete sitting at the table and multiple athletes, where one athlete asks the question to the rest of the group sitting at the table.

Recepten

Sushi bowl



Sushi rijst
Avocado
Mango
Zeewier
Edamame bonen
Komkommer
Gebakken uitjes

Wraps met falafel



Wraps
Falafel
Hummus
Avocado
IJsbergsla
Gegrilde groente




Scan de QR code voor het recept

TeamNL 

Woordzoeker

Vind jij de producten die je meer moet eten als je minder vlees eet?

P	N	L	N	D	J	F	V	R	V	L	B
T	E	N	G	T	C	T	P	Q	X	Q	R
X	T	R	R	B	R	R	F	K	Y	O	D
P	H	S	A	F	Y	Y	W	E	Z	G	N
G	C	I	N	F	R	U	I	T	N	I	E
I	U	P	E	X	D	J	J	Q	T	D	D
Y	R	B	N	U	I	B	P	J	K	L	A
W	V	N	T	K	N	D	H	E	W	V	Z
J	L	L	T	G	R	O	E	N	T	E	N
V	U	N	Q	Y	D	L	X	D	S	I	H
P	E	N	O	T	E	N	P	P	C	T	D
Y	P	E	T	R	W	Y	Q	P	B	F	K

Noten

Groenten

Granen

Zaden

Fruit

Peulvruchten

TeamNL 

Contact informatie

Heb je vragen over de vegetarische gerechten in het restaurant? Stel ze gerust aan de koks!

Heb je vragen over wat voor gezonde vegetarische producten je kan eten als je wil minderen met vlees? De deur van de diëtiste staat altijd open!

Ben je benieuwd naar meer tips, tricks en redenen waarom het plantaardig eten zo'n belangrijk onderwerp is? Bekijk dan eens de grote gids voor de beginnend veganist met het scannen van deze QR code!



TeamNL 

On this side, healthy and relatively simple recipes can be shown, each with a different sketch that shows the meal. In addition, the most important ingredients can be shown with each meal to give the athletes an idea of what is in this meal. If the chefs agree on this meal, they can make a small document with tips how to cook this meal. Then it would be possible for athletes to scan a QR code and see how they can make this meal themselves outside Papendal.

In this puzzle, six words are hidden. Six food products that are important to eat when consuming more vegetarian or plant-based meals. However, athletes can only play this puzzle once, which is a limitation of this puzzle. However, the puzzle may at first attracts athletes' attention. Which would also be valuable to get them in touch with this cube on the table.

It can be possible that the other sides of this cube raise questions among athletes. It is good for athletes to know where they can get answers to their questions. This will allow them to refer to chefs about recipes, dietitians about further health questions, and perhaps an existing researched guide.



Updating the cubes

For the deck of playing cards, there will be designed at least 13 tips & tricks, fun facts, questions and answers, and recipes. On one single cube, there will be no more than a maximum of three tips and tricks, two recipes, three questions and answers, and three did you know facts. This means that with the information on the deck of cards, at least four completely different versions of the cube can be made.

Since one version of a cube can be placed on the dinner tables for around two weeks until most athletes have seen this version completely, updating the cube with new information can increase the number of weeks that this cube can be implemented. This helps increase the awareness and tackle obstacles of athletes around the topic of plant-based and vegetarian food.



Side note to the design of the cube

Papendal has recently created a garden where they grow their own vegetables to prepare their dishes.

At first sight, it might look like I used the same style to design the cube. However, the style of the cube in the bottom left corner was actually designed before the large promotion board for the “Papendal Moestuין”. Even the small sketches are in a similar style as on the cube and playing cards, indicating that it fits perfectly with the promotion style of Papendal.



Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 1,4 kg CO2 bespaard? Als 120 sporters die op Papendal de helft van de week vegetarisch zouden eten zou er 572 kg CO2 worden bespaard, dat is 4800 km rijden aan uitstoot per week!



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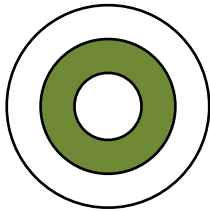
Bron:
Environmental impact of omnivorous, vegetarian, and
vegan diet. Scientific Reports (Rosi et al., 2017)

TeamNL 



Getting the staff on board with design directions

Key takeaways two weekly meetings with staff of Papendal



Initially, the program expert innovation and nutrition had in mind that after creating the personas and the design statement, I would come up with a design fairly quickly that they could implement immediately. While it was good to hear that they had so much confidence in me that they could implement this immediately, I explained that it was wise to have a long-term plan. To avoid the situation returning to an unchanged state after implementing a few nudges.

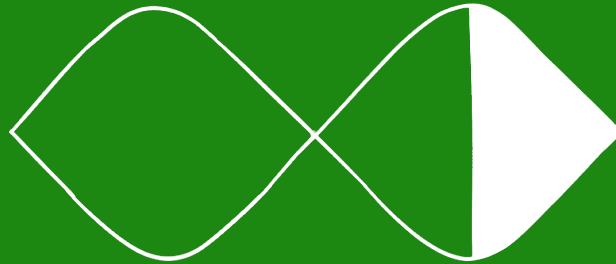
I told in the two-week meeting that designing and implementing nudges is a process where different departments work together. That this will be part of the roadmap of what can change on the work floor of Papendal for designing and

implementing nudges. A collaboration between food experts, chefs, and the communication department has not been addressed so far. It turned out that this was also a point of attention that staff members would like to realize in the future but is not really paid attention to yet. This gives an extra motivation to realize this in the future, the cooperation between different departments.

According to the communication department, the nudges I designed were "spot on," including the reasoning behind the different horizons. The reaction of the chefs to the nudges in the first horizon, the less radical nudges, was perceived as very positive. However, the nudges in the second and third horizons, which were slightly more extreme, were perceived less positively. The chefs did not initially believe these would help the athletes because they reviewed the nudges based on their current thoughts and behaviour. After explaining that the athletes were then probably in a different phase of the behavioral model, things became a little

clearer. However, it was clear from the chefs' responses that they also needed to develop and increase their awareness and understanding of the transition and this topic. Something that I will pay attention to at the beginning of the delivery phase, by giving a clear and motivating presentation and explaining to the staff the steps and thoughts behind my project.

Deliver



Deliver

In the delivery phase, the final designs are presented. In this phase, a presentation is also made to the staff of Papendal, to increase their enthusiasm and motivation to use the designed roadmaps and nudges in the future. The report shows a final version of the visualized organizational roadmap and the roadmap with the nudges for athletes. Followed by the two nudges designed in detail, the deck of playing cards and the cube. Finally, this phase closes with a conclusion, discussion, and recommendations.

Presenting my project to the staff of Papendal

Goal of my presentation

Creating support among the employees at Papendal to ensure that my designed strategy has the best chance of success. To contribute to this, I have given a presentation and convincingly communicated the roadmaps to the employees at Papendal. In the presentation, I motivated the employees to use the roadmaps and showed them that I had paved the road well. The program expert, chefs, dietitians, communication staff, sports scientists, and staff working behind the service desk were present at my presentation. The purpose of my presentation was to slightly change the employee's view on vegetarian and plant-based nutrition, to make them enthusiastic about this transition, which they can then spread throughout the organization. That they will actually take action to realize this transition. With this presentation, I also contribute to several steps of the Kotters change model. Namely, creating urgency and communicating the established vision and strategy.

Emphasizing the "Why"

A crucial step in the change process that emerges from the Kotters change model is that the employees know why this is such an important topic and why it makes sense to develop towards a more plant-based diet. All subsequent steps come from a good and clear foundation of why this transition is important. Throughout this project, I have had many conversations about this topic. With athletes, staff, and dietitians outside Papendal, but also with family and friends. By trying out many different approaches during a conversation and learning from experts in this field, I have found a way that works best for me to enthuse people and help them shift towards a more vegetarian or vegan diet. I then incorporated this way into my presentation to the staff. On the next page, I will elaborate on what this way looks like to me and which points are important for this.

The reaction of staff after the presentation

The presentation was scheduled for 20 minutes, followed by 10 minutes for questions. More than an hour after the start of my presentation, most people left the room. This was because people were immediately talking about the next steps the staff could take. The chefs started talking to the dietitians, and brainstorming took place on the spot. A very positive response from the employees.

After my presentation, chefs who were somewhat skeptical beforehand and had doubts about this change were completely convinced. I quote, "my ears are flapping from enthusiasm. You have completely convinced me". Or "you should give this presentation to all athletes. You will have them on board in no time".

Other employees approached me two weeks after my presentation to proudly tell me that because of my talk, they were already eating less meat and were striving to eat no meat for several days themselves.

Personal list for the “right” conversation

Earlier in the define phase, several factors have been mentioned that can be important when conversing about this topic. The way that works very well for me personally is as follows. I often keep the following points in mind during the conversation. This takes time and experience to get used to. It took me personally over a year to get used to this way.

The dynamics of the conversation

The dynamics of the conversation are more important than all the facts mentioned (Mulder, 2020).

Motivator "health" is the least threatening

Conversations around the motivator "health" are generally perceived as least threatening (Leenaert & Hall-Bailey, 2017). That does not mean you should lie about your primary motivation. Remember that people may feel attacked if you start talking about sustainability or animal welfare. So please do not make it seem like they do not care about sustainability and animal welfare.

Show empathy

Throughout the conversation, show empathy, that you understand that he or she is not yet eating vegetarian and that you, too, struggled with many questions beforehand. Make them feel understood. Make clear that these questions are perfectly normal because it is a behaviour you have had all your life.

Listen, where do people stand on the behaviour change model?

Try to understand where people are positioned on the behaviour change model and respond accordingly. For example, if they do not yet recognize that their behaviour is problematic, then they are at the very beginning of the model and are not yet open to change. In that case, tips or tricks to try vegetarian meals are useless because the foundation (the "why") is not there yet. However, if you recognize that people realize that something has to change, but they do not know how yet, then, tips and tricks on how to start can be helpful.

Make it personal

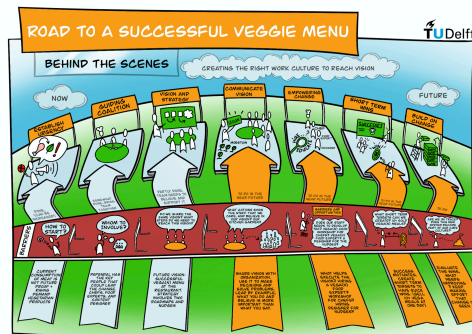
Make it personal and show what this change has brought you, rather than what everyone else should do. What has motivated you, and how has it changed the way you feel. Inspire them by passionately sharing what the switch has meant to you.

Give them something practical

Give them something practical that they can take with them after the talk. Some kind of action they can take. Depending on where they are in the behaviour model. If they are not yet motivated but are open to change, you can tell or show them what helped you increase your motivation. This could be a podcast you listened to or a documentary. But suppose they really want to implement the behaviour. In that case, you can show nice places to eat vegetarian, what meals you have tried lately that were easy to make, or what helped you perform the behaviour.

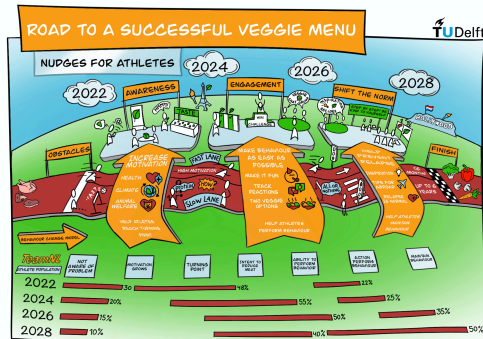
Final Designs

Organizational Roadmap



The visual roadmap is presented in this chapter. The different steps are described in the develop phase, under the section "organizational roadmap"

Nudges for athletes roadmap



The deliver phase also showcases the visual roadmap of the type of nudges. The descriptions per horizon are described earlier in the develop phase. For the description of the proposed nudges and horizons see appendix chapter 15 up to and including 18.

Deck of Playing Cards



A number of cards are shown in this chapter. For the design of all 52 playing cards see appendix chapter 20.

The Playful Cube

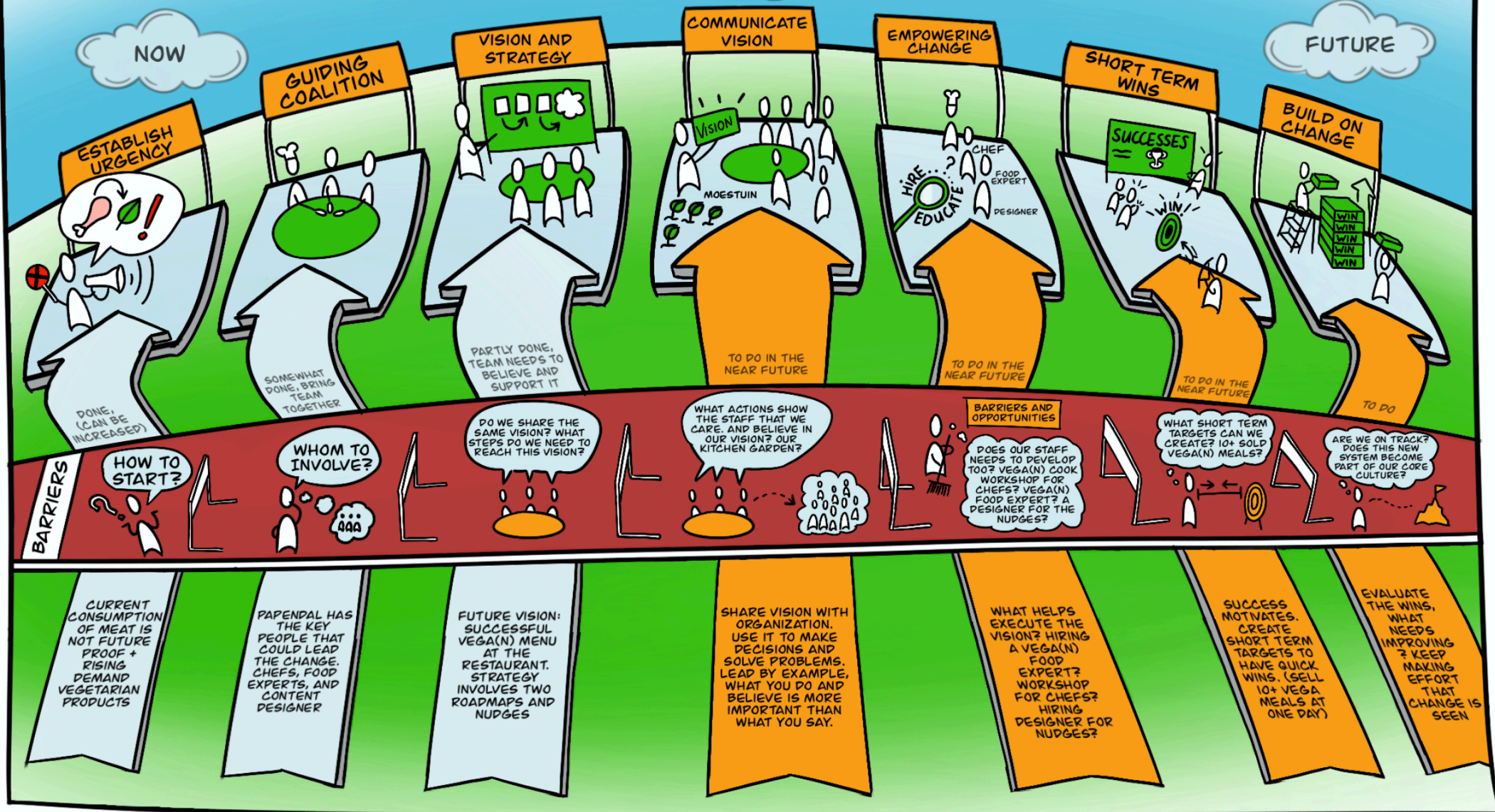


The final design of the cube is also shown in this chapter. For the description of each side, see the develop phase under the heading "the playful cube".

ROAD TO A SUCCESSFUL VEGGIE MENU

BEHIND THE SCENES

CREATING THE RIGHT WORK CULTURE TO REACH VISION



ROAD TO A SUCCESSFUL VEGGIE MENU

NUDGES FOR ATHLETES

2024

2026

2028

2022

AWARENESS

ENGAGEMENT

SHIFT THE NORM

HOLLYWOOD

FINISH

OBSTACLES

INCREASE MOTIVATION

FAST LANE

MAKE BEHAVIOUR AS EASY AS POSSIBLE

HELP PREVENT RELAPSE

HEALTH

CLIMATE

ANIMAL WELFARE

HELP ATHLETES REACH TURNING POINT

PROTEIN

HOW?

SLOW LANE

MAKE IT FUN

TRACK REACTIONS

TWO VEGGIE OPTIONS

HELP ATHLETES PERFORM BEHAVIOUR

INSPIRATION

TIPS FOR ABROAD

RELAPSE IS NORMAL

HELP ATHLETES MAINTAIN BEHAVIOUR

6 MONTHS

UP TO 6 YEARS

BEHAVIOUR CHANGE MODEL

TeamNL

ATHLETE POPULATION

NOT AWARE OF PROBLEM

MOTIVATION GROWS

TURNING POINT

INTENT TO REDUCE MEAT

ABILITY TO PERFORM BEHAVIOUR

ACTION PERFORM BEHAVIOUR

MAINTAIN BEHAVIOUR

2022

30

48%

22%

2024

20%

55%

25%

2026

15%

50%

35%

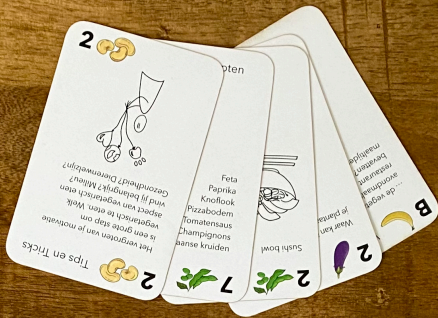
2028

10%

40%

50%







Tips & Tricks!

Wees lief voor jezelf. Ben je van plan meer vegetarisch te gaan eten? Doe dit dan stapje voor stapje. Begin misschien met 1 avondmaaltijd per week? Lukt het even niet? Helemaal niet erg, dit gebeurt bij iedereen! Behoud je motivatie en pak het weer op wanneer je er aan toe bent.

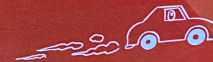
Gun jezelf de tijd. Het aanpassen van je eetgewoonte die je al je hele leven hebt kost simpelweg tijd om te veranderen. Leg de lat niet te hoog voor jezelf.

TeamNL

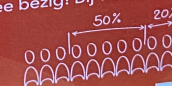


Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 1,4 kg CO2 bespaart? Als 120 sporters op Papendal de helft van de week vegetarisch zouden eten zou er 572 kg CO2 worden bespaard. Dat is 4800 km rijden aan uitstoot per week!



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Bron:
Environmental impact of omnivorous, vegetarian, and
vegan diets. Scientific Reports (Neal et al., 2017)

TeamNL

Vraag & Antwoord

1. Kan jij vijf gezonde plantaardige producten bedenken die je op je brood kan doen?
2. Waar kan je je eiwitten uithalen als je plantaardig eet?
3. Wat de drie voornaamste redenen zijn om minder vlees te eten?



1 2 3

Antwoord
1. Bijvoorbeeld: avocado, hummus, pindakaas, gegripte groente, tofube, tempeh, sojamek of
2. O.a. noten, bonen, peulvruchten, graanproducten, tofube, tempeh, sojamek of
3. Gezondheid, milieu & dierenwelzijn

TeamNL

Implementation

The many conversations with different departments about my project and the final roadmaps excited the staff of Papendal to start the transition to a successful vegetarian menu in the restaurant.

My presentation helped the staff increase their understanding and motivation of why this transition is important and how it can be accomplished. As a result, the chefs asked if I could do this presentation again for a group of athletes and the Papendal management team. They believed my enthusiasm and the clear story would help bring athletes and more employees within Papendal along in this transition. The chefs said, "Your enthusiasm is already 60%", a great compliment. I clarified that I would be happy to give this presentation a few more times to increase people's awareness, understanding, and motivation for this transition.

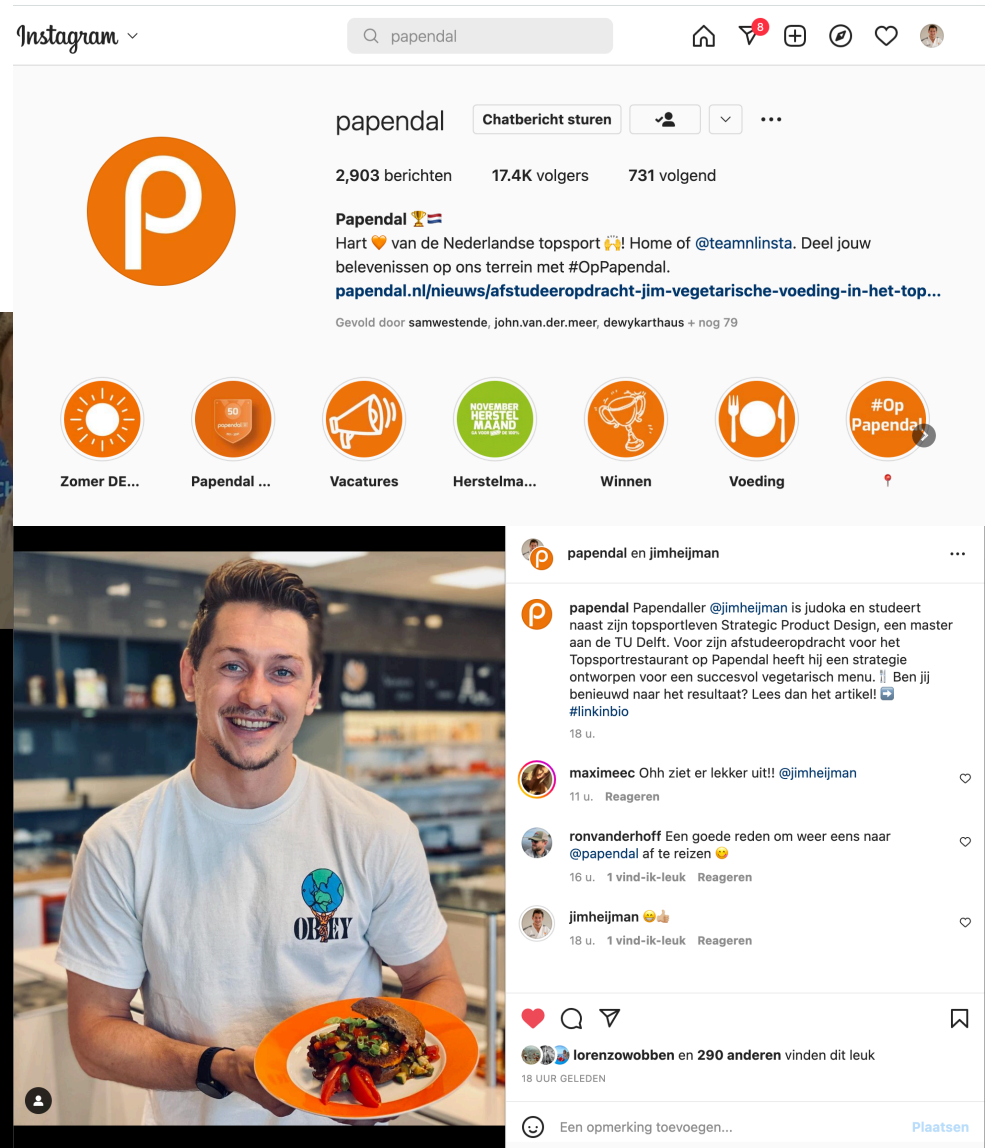
The program expert on innovation and nutrition and the manager of the sports restaurant were already discussing who would take the lead in implementing this project. Whether the manager of the

sports restaurant will lead the project himself or someone else who could lead the implementation. Although there are multiple departments involved in this project, they agree that there should be one person in charge of the implementation of this project. A person in charge that others can reach out to with questions or thoughts about this transition.



From left to right: Thomas Westgeest (chef), Jim Heijman (graduate candidate), Erik te Velthuis (manager sports restaurant) and Jeroen Wouters (program expert innovation and nutrition)

The communications department wrote a document about my graduation project on Papendal's website. This link is in the biography of Papendal's Instagram, on which Papendal has 17.4 thousand followers. In addition, they also posted a message on their Instagram and Facebook about my graduation project. This shows that they are supporting the development and implementation of this project and have already started promoting it.



Conclusion

Our current food system is a major contributor to climate change, with the consumption and production of animal products having the largest impact. This project focuses on transitioning to a more vegetarian and plant-based diet among athletes who eat at the sports restaurant at Papendal, to reduce the impact of our food system. The goal is that possibly in six years, half of the number of meals sold will be vegetarian. At the moment, only three out of 120 meals sold are vegetarian.

The staff of Papendal currently has no clear idea how they could effectively facilitate this transition. In addition, they have no idea to what extent athletes are open to vegetarian and plant-based food. One hundred athletes completed a questionnaire, and 25 were interviewed to gather insight into the barriers and attitudes of athletes at Papendal towards vegetarian food. This research has shown that the largest group of athletes at Papendal is open to reducing their intake of meat and fish. A small part is already doing so. Research into behavioral change has shown a big difference between the step when people are open

to something and when they actually intend to change the behaviour. The motivation technique nudging was explored to motivate people to change their behaviour. A motivational technique that tends to cost not much but can be very effective. Designing and implementing nudges could motivate athletes to change their behaviour, and start eating more vegetarian or plant-based foods. Several scientific articles show that designing and implementing nudges is a multidisciplinary, project-based, and experimental process. Papendal, except for some qualities, does not yet have an optimal workplace for the design and implementation of nudges.

An organizational roadmap was designed to create a work culture that supports the qualities needed for designing and implementing nudges. This roadmap contains different steps Papendal can take to create a suitable workplace. In addition, a roadmap was designed with what type of nudges Papendal can implement over the years to achieve the defined goal. This roadmap contains a global plan for the next six years, divided into three horizons. Each horizon focuses

on a different part of the behaviour change model, with matching proposed nudges per phase.

Two nudges from the first phase were designed in detail to inspire Papendal about what these nudges can look like. A deck of playing cards with information about vegetarian and plant-based food. This allows athletes to get in touch with this topic in a playful and accessible way. In addition, a playful cube was designed to be placed on the tables in the restaurant, with similar information as on the deck of cards.

All designs combined, the organizational roadmap, the roadmap with nudges for athletes, and the two nudges worked out in detail offer Papendal the knowledge, inspiration, and tools needed to work towards a successful vegetarian menu in the sports restaurant at Papendal. This allows Papendal to take a sustainable step towards reducing the impact of our food system while the health and performances of professional athletes can be ensured.

Discussion

One point of discussion, which may also have been a strength, is my personal perspective on this topic. Over the years, I have had many personal experiences about this topic, which may have caused me to approach this project from my own perspective sometimes. Despite conducting literature reviews, setting up my own study, and talking to experts, my personal experiences influenced my final design. For example, certain tips may have helped me tremendously in my transition to a vegetarian diet, which comes forward in my design, tips other athletes may not benefit from as much as I did.

An area that may have affected the validity of my conducted research is that some athletes who were part of this study knew me in person. However, they did not know the purpose of this study. Additionally, this research is difficult to generalize. Because I am part of TeamNL and also train at Papendal. However, because I am already part of the athletes at Papendal, I have had the opportunity to have many conversations with athletes, chefs, dietitians, manager of the sports restaurant, and the communications staff.

Something that would have been practically impossible for someone not in this circle.

Another aspect is that the employees of Papendal will ultimately implement the nudges to the athletes to help them change their behaviour. However, the Papendal staff are also people positioned on this behavioral change model and may also have to develop themselves to communicate this transition better. I did consider this aspect partly with the design of the organizational roadmap and my presentation to all employees at Papendal. However, the focus in this project was mainly on the barriers and attitudes towards vegetarian food of athletes, rather than the employees. These may differ from the motivations of the athletes.

The roadmap for organizational change is based on the change model of Kotter. A widely used and acknowledged model, but only one model. There are several models for change management within an organization, which might have offered different insights with additional information.

As the next point for discussion, the staff at Papendal themselves have limited understanding of the motivation technique nudging. I have immersed myself in this technique and clarified the purpose of the proposed nudges per horizon to the different departments. A possible limitation is that Papendal employees implement a nudge meant for the next phase too early, making it less compatible with where the athletes are at that moment on the behavioral change model. Making this nudge less effective than what it could have been.

Finally, for clarification, the terms vegetarian and plant-based are used alternately in this project. Which can be confusing. This is because the meat substitutes in the restaurant are primarily plant-based. However, dairy in the dish often makes the meal vegetarian in its totality. Resulting in that plant-based meat substitutes are promoted as a vegetarian meal. Which is experienced more positive than when it will be promoted as a plant-based meat replacement in a vegetarian meal.

Recommendations

In the near future, the staff members can evaluate whether the provided roadmaps and tools are valuable enough to realize the food transition. They can reflect on how the staff of Papendal uses these tools and guidelines in practice and whether the tools are used in a way for which they are intended. A possible way to do this is to meet and discuss this with me as the designer of the strategy and tools. Whether more explanation is needed or whether the staff has picked it up as intended.

This project focuses mainly on designing for the athletes, with their barriers and attitudes towards vegetarian eating, not the ones from the employees. The employees must be aware that they, too, can move through the next stages of the behaviour model. If the employees are still at the beginning of the behaviour change model, it may be more challenging to implement nudges for athletes at a much further stage of the model. Because the employees themselves do not know what you might be up against at this stage. It can help the implementation process if employees are aware that they, too, can still develop.

When this is difficult to realize, hiring a designer or someone who can guide this project can be of added value. A designer with design experience can guide this project with a helicopter view.

In designing the card game, many tips and tricks, questions and answers, fun facts, and recipes were created. This information was generated with a combination of literature reviews, conversations with experts, and personal experience. If the deck were to be printed in a larger number for athletes, it would be important for dietitians and chefs to review the information on the cards. If they question some statements, something may need to be changed before the deck is delivered to the athletes.

The manager of the sports restaurant has enough authority to make changes in the restaurant, such as changes towards more vegetarian and vegan food. However, the sports restaurant at Papendal is also part of NOC*NSF and follows its guidelines. Asker Jeukendrup, the performance manager of TeamNL, supervises the dietitians who work at

Papendal. During this project, I talked with the dietitians at Papendal, but I could not talk to the man who supervises these dietitians. If his opinion deviates strongly from the developments towards a more plant-based diet, it will be more difficult for the dietitians to implement developments in this area.

When Asker Jeukendrup can be included in the steps that Papendal is making in the field of vegetable nutrition, he may be able to see what this can mean for athletes and how much Papendal is contributing to a more sustainable future. Furthermore, if Asker Jeukendrup also stands behind this transition, it may be easier to implement significant changes.



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References

- A.T. Kearney Analysis. (2019, June). *How will cultured meat disrupt the food industry?* TABLE Debates. Retrieved January 26, 2022, from <https://www.tabledebates.org/research-library/how-will-cultured-meat-disrupt-food-industry>
- Baboumian, P. (2021). *Patrik*. A Better Plant-Based Future. Retrieved April 9, 2022, from <https://www.abetterplantbasedfuture.com/nl/patrik>
- Barnard, N., Goldman, D., Loomis, J., Kahleova, H., Levin, S., Neabore, S., & Batts, T. (2019). Plant-Based Diets for Cardiovascular Safety and Performance in Endurance Sports. *Nutrients*, 11(1), 1–11. <https://doi.org/10.3390/nu11010130>
- Bezat-Jarzębowska, A., & Rembisz, W. (2013). Efficiency-focused economic modeling of competitiveness in the Agri-Food Sector. *Procedia - Social and Behavioral Sciences*, 81, 359–365. <https://doi.org/10.1016/j.sbspro.2013.06.443>
- Bødker, M., Pisinger, C., Toft, U., Jørgensen, T. (2015) The Danish fat tax-effects on consumption patterns and risk of ischaemic heart disease. *Prev. Med.*, 77 (2015), pp. 200–203, [10.1016/j.ypmed.2015.03.031](https://doi.org/10.1016/j.ypmed.2015.03.031)
- Diepeveen, S., Ling, T., Suhrcke, M., Roland, M., Marteau, T.M. (2013). Public acceptability of government intervention to change health-related Behaviours: a systematic review and narrative synthesis *BMC Public Health*, 13 (1) (2013), [10.1186/1471-2458-13-756](https://doi.org/10.1186/1471-2458-13-756)
- Faasen, L. (2021, July 8). *Plant based diëtist: Vegan*. Lobke Faasen. Retrieved March 2, 2022, from <https://lobkefaasen.nl/>
- Flynn, M.M., Reinert, S., Schiff, A.R. (2013). A six-week cooking program of plant-based recipes improves food security, body weight, and food purchases for food pantry clients. *Journal of Hunger & Environmental Nutrition*, 8 (1) (2013), pp. 73–84, [10.1080/19320248.2012.758066](https://doi.org/10.1080/19320248.2012.758066)
- Fogg, B. J. (2019). Fogg behavior model. Behav. Des. Lab., Stanford Univ., Stanford, CA, USA, Tech. Rep.
- Fuhrman, J., & Ferreri, D. M. (2010). Fueling the Vegetarian (Vegan) Athlete. *Current Sports Medicine Reports*, 9(4), 233–241. <https://doi.org/10.1249/jsr.0b013e3181e93a6f>
- Guo, F. Y., Shamdassani, S., & Randall, B. (2011). Creating effective personas for product design: Insights from a case study. *Lecture Notes in Computer Science*, 37–46. https://doi.org/10.1007/978-3-642-21660-2_5
- Hansen, P. G., Schilling, M and Maltheisen, M. S. (2019). “Nudging healthy and sustainable food choices: three randomized controlled field experiments using a vegetarian lunch-default as a normative signal.” *J. Public Health*, [doi.org/https://doi.org/10.1093/pubmed/fdz154](https://doi.org/10.1093/pubmed/fdz154).
- Harwatt, H., Sabaté, J., Eshel, G., Soret, S., Ripple, W. (2017) Substituting beans for beef as a contribution toward US climate change targets *Clim. Chang.*, 143 (1–2) (2017), pp. 261–270, [10.1007/s10584-017-1969-1](https://doi.org/10.1007/s10584-017-1969-1)
- Hevia-Larraín, V., Gualano, B., Longobardi, I., Gil, S., Fernandes, A. L., Costa, L. A. R., . . . Roschel, H. (2021). High-Protein Plant-Based Diet Versus a Protein-Matched Omnivorous Diet to Support Resistance Training Adaptations: A Comparison Between Habitual Vegans and Omnivores. *Sports Medicine*, 51(6), 1317–1330. <https://doi.org/10.1007/s40279-021-01434-9>

- Huang, T., Yang, B., Zheng, J., Li, G., Wahlqvist, M. L., & Li, D. (2012). Cardiovascular Disease Mortality and Cancer Incidence in Vegetarians: A Meta-Analysis and Systematic Review. *Annals of Nutrition and Metabolism*, 60(4), 233–240. <https://doi.org/10.1159/000337301>
- Ingraham, C. (2021, November 24). *Analysis | what's a urinal fly, and what does it have to with winning A nobel prize?* The Washington Post. Retrieved March 20, 2022, from <https://www.washingtonpost.com/news/wonk/wp/2017/10/09/whats-a-urinal-fly-and-what-does-it-have-to-with-winning-a-nobel-prize/>
- Kotter, J. P. (2012). *Leading change*. Harvard business press.
- LaBarre, S. (2020, February 3). *Why those cards about reusing hotel towels are so effective*. Fast Company. Retrieved February 4, 2022, from <https://www.fastcompany.com/90458523/why-those-cards-about-reusing-hotel-towels-are-so-effective>
- Lee, K. W., Loh, H. C., Ching, S. M., Devaraj, N. K., & Hoo, F. K. (2020). Effects of Vegetarian Diets on Blood Pressure Lowering: A Systematic Review with Meta-Analysis and Trial Sequential Analysis. *Nutrients*, 12(6), 1604. <https://doi.org/10.3390/nu12061604>
- Leenaert, T., & Hall-Bailey, A. (2017). How to create a vegan world a pragmatic approach. Lantern.
- Ly, K., Mazar, N., Zhao, M., & Soman, D. (2013). A practitioner's guide to nudging. *Rotman School of Management Working Paper*, (2609347).
- Lombardini, C., Lankoski, L (2013). (Forced choice restriction in promoting sustainable food consumption: intended and unintended effects of the mandatory vegetarian day in Helsinki schools J. *Consum. Policy*, 36 (2013), pp. 159-178, 10.1007/s10603-013-9221-5
- Mulder, S., Lobke, F. (Host). (2020, august). Zo krijg je mensen in de duurzame startblokken [audio episode podcast]. <https://open.spotify.com/episode/6QN4t61sTslPxc6PIGmxDp?si=338bd9e6929048dd>
- Mahamuni, R., Khambete, P., & Puneekar, R.-M. (2019). Behaviour progression framework for designing sustained behaviour change. *Smart Innovation, Systems and Technologies*, 39–50. https://doi.org/10.1007/978-981-13-5974-3_4
- Nielsen MarketTrack. (2021, July 7). *Plant-based foods in Europe: How big is the market?* Smart Protein Project. Retrieved January 22, 2022, from <https://smartproteinproject.eu/plant-based-food-sector-report/>
- Nutrition, P. (2020, November 30). *Vegetarische en veganistische voeding*. FoodFacts. Retrieved December 9, 2021, from <https://www.foodfacts.online/post/vegetarische-en-veganistische-voeding>
- Prochaska, J. O., & Prochaska, J. M. (2019). Transtheoretical model. In *Lifestyle Medicine* (pp. 219-228). CRC Press.
- Poore, J., & Nemecek, T. (2018). Reducing Food's environmental impacts through producers and consumers. *Science*, 360(6392), 987–992. <https://doi.org/10.1126/science.aag0216>
- Ritchie, H. (2019, November 11). *Half of the world's habitable land is used for Agriculture*. Our World in Data. Retrieved March 9, 2022, from <https://ourworldindata.org/global-land-for-agriculture>

- Ritchie, H. (2020, January 24). *You want to reduce the carbon footprint of your food? focus on what you eat, not whether your food is local*. Our World in Data. Retrieved November 9, 2021, from <https://ourworldindata.org/food-choice-vs-eating-local>
- Ritchie, H. (2017, October 3). How much of the world's land would we need in order to feed the global population with the average diet of a given country? Our World in Data. Retrieved September 8, 2022, from <https://ourworldindata.org/agricultural-land-by-global-diets>
- Ritchie, H., & Roser, M. (2020, January 15). *Environmental impacts of food production*. Our World in Data. Retrieved February 9, 2022, from <https://ourworldindata.org/environmental-impacts-of-food>
- Rust, N. A., Ridding, L., Ward, C., Clark, B., Kehoe, L., Dora, M., . . . West, N. (2020). How to transition to reduced-meat diets that benefit people and the planet. *Science of The Total Environment*, 718, 137208. <https://doi.org/10.1016/j.scitotenv.2020.137208>
- Stikstof. RIVM. (2020). Retrieved December 9, 2021, from <https://www.rivm.nl/stikstof>
- Stein, R. (2019, October 22). *How the rise of "Flexitarians" is powering plant-based sales*. FMI. Retrieved January 9, 2022, from <https://www.fmi.org/blog/view/fmi-blog/2019/10/22/how-the-rise-of-flexitarians-is-powering-plant-based-sales>
- Straková, E., Suchý, P., ŠUgerková, M., & Macháček, O. (2007). Positive Effect of Plant-Based Diet on the Performance and Health of Laying Hens. *Acta Veterinaria Brno*, 76(8), S31–S37. <https://doi.org/10.2754/avb200776s8s031>
- Stubbs, R. J., Scott, S. E., & Duarte, C. (2018). Responding to food, environment and health challenges by changing meat consumption behaviours in consumers. *Nutrition Bulletin*, 43(2), 125–134. <https://doi.org/10.1111/nbu.12318>
- Sunstein, C. R. (2014). Nudging: A Very Short Guide. SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.2499658>
- van Veen, V., Krug, M. K., Schooler, J. W., & Carter, C. S. (2009). Neural activity predicts attitude change in cognitive dissonance. *Nature Neuroscience*, 12(11), 1469–1474. <https://doi.org/10.1038/nn.2413>
- Vink, D. (2022). *Powered by plants*. Plantbased Dennis. Retrieved September 9, 2022, from <https://plantbaseddennis.nl/nl/>

Appendix

1. Papendal Reports

The goal of diving into the previously made reports of Papendal is to prevent me from performing research on something Papendal already has an answer for. Papendal has made four reports containing different questionnaires and interviews over the years regarding meat replacements.

Takeaways Papendal reports

First, the athletes voluntarily are willing to try out the meals and fill in questionnaires. Athletes voluntarily sign up to join the voedingspanel, which means that it is likely that they already have some affirmation with this topic. The athletes know for which they sign up. A person that only likes the taste of a couple of dishes and disapproves a lot would probably not sign up for the panel. The same goes for the restaurant sessions. People who are not open to trying out new or different meals are not likely to taste and give their feedback, resulting in only reaching the people that are open to trying out other meals.

This might explain why some of the results seem in contrast with the current situation. Namely, the meals are rated

positive, and participants mentioned that they find vegetarian diets important because of sustainability. However, this is not what the current situation is showing. Is this due to the selection of participants, or might supply and demand not be in balance?

The so-called participation bias can also affect the research findings. Participation bias is a theory that participants will change their response to what they think the researcher is after. For example, the pulled oats panel session in 2017. Ten athletes participated. Eight of them never consume a vegetarian meal for dinner (or less than once a month). However, over half of the athletes answered that vegetarian food products are important to them. Do they really find this important, or are they filling in what the researcher is looking for?

The reports are predominantly based on feedback on specific meals about taste, texture, smell, and color. In contrast, I focus more on broader perception and behaviour towards vegetarian and vegan products.

The protein level appears to be the essential aspect of meat replacements, followed by taste. Reasons against meat replacements seem to be taste and missing critical nutrients (according to the athletes).

Takeaway questions for own study

- The athletes reached in the reports are already open to trying vegetarian and vegan products. What about the people that are not willing to try other meals? How large is this group?
- What is the demand for vegetarian products among all athletes?
- A reason to eat vegetarian and plant-based food is mainly sustainability. Is this the case, or do they fill this in because of the participation bias?
- What is the bottleneck? Although people state that they find it important to eat vegetarian, they are still not eating it.
- What are the main barriers to vegetarian and vegan products?

2. Real-life examples of failing to have a vegetarian dinner

1. An athlete stands in front of all the different bowls to choose dinner and sees one bowl with a vegetarian meat replacement that looks delicious. The athlete would like to have that dish for dinner and asks if he could take that vegetarian bowl. However, he is not allowed to take it since he did not ask up front if they could make this for him. So they did not prepare an extra vegetarian meal.

2. An athlete that usually asks upfront if they can make a vegetarian meal forgot that day to go into the kitchen and ask this question. After his evening training, he walks into the restaurant and would like to have dinner. However, since he did not let the chefs know that he wanted to have a vegetarian meal that evening, he now has to choose between a meat and a fish dish to get all the essential nutrients still.

I want to make sure that these two described situations will never have to happen again after I have finished my graduation project.

3. Food “facts”

On the TeamNL Food Facts website (Nutrition, 2020), the following “facts” about vegetarian and vegan diets are shown in the figure next to this paragraph.

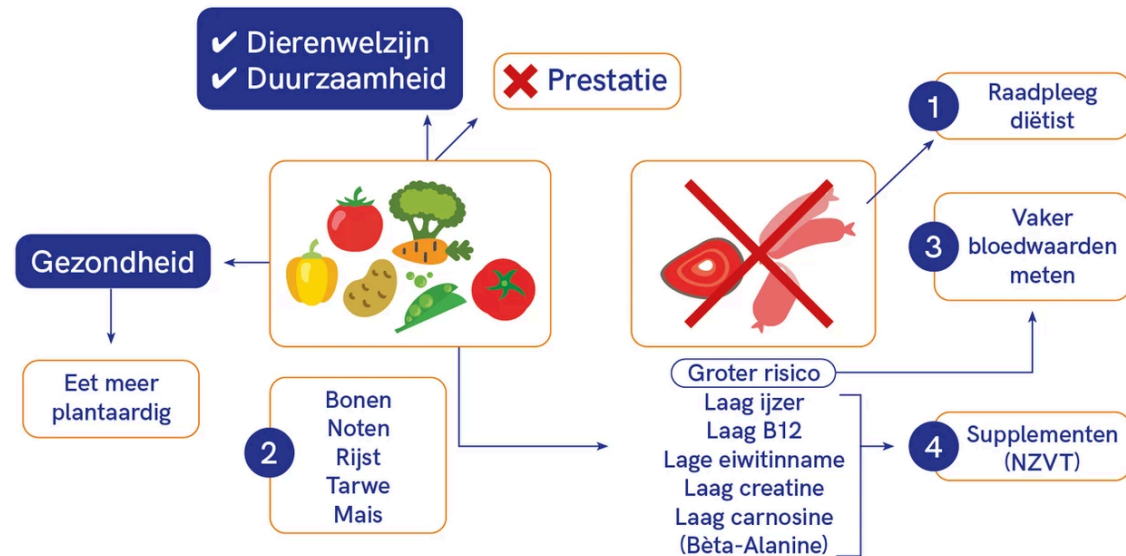
The overview suggests that you should not eat vegetarian and vegan for performance, because then you have a higher risk of developing deficiencies.

It is very contradictory that there is an arrow to the left to health from the vegetarian box (with the vegetables). Containing the phrase: “Eat more vegetables.” Indicating that it would be better for personal health but affect performance negatively.

The shown visual pushes athletes away from choosing to eat more vegetarian. Next to that, it is also not true. It would be the case only if you left out the meat and left the rest of your diet exactly the same, instead of replacing it. Not when the meal is replaced with a meal that contains several whole plant foods.

TeamNL Food Facts

Vegetarische en veganistische voeding



Deze infographic is onderdeel van de TeamNL Food Facts en is een beknopte weergave van het thema Vegetarische en veganistische voeding.



TeamNL Food Facts visual vegetarian and vegan food

4. Key takeaways no-meat diets and health literature study

It is clear that we should eat more plant-based in terms of the environment and animal welfare. But what about your health? The question many people have is whether a plant-based food diet is healthy. For athletes, missing out on important nutrients would also mean reducing their performance, which must be avoided at all costs.

One of the most mentioned reasons to eat meat is for personal health. However, this is also one of the most mentioned reasons why people do not eat meat.

- Brandmanager Livekindly collective.

Half of the meat the Dutch eat is processed meat. Processed meat is carcinogenic and increases the risk of stroke and diabetes (World health organization). A meta-analysis showed that vegetarians have a 29% less chance of dying from cardiovascular diseases (Huang et al., 2012). Another meta-analysis (Lee et al., 2020) showed that

diets without meat and fish were linked to lower blood pressure. In addition, people experience excessively high levels of cholesterol and saturated fats while eating many animal products.

Most people currently get essential nutrients such as iron, protein, calcium, omega-3, zinc, and B12 from animal products. Simply leaving out the animal products would mean creating deficiencies of the above nutrients. Thus, one needs to get these nutrients via other food.

The most important thing is with *what* is the animal product replaced. Barnard et al. (2019) point out that vegetables, fruits, and other plant-based foods are rich in antioxidants and help reduce stress. Diets that emphasize these foods will thus present safety and performance advantages. Moreover, plant-based diets are low in saturated fats and free of cholesterol, which improves blood flow and helps oxygen reach the muscles. This increases the performance of athletes. In contrast, meat consumption and high cholesterol levels cause inflammation, resulting in pain and holding back

performance and recovery (Barnard et al., 2019). Lynch et al. (2018) concluded that plant-based diets are a viable option for supporting athletic performance while contributing to overall physical and environmental health and typically reduces the risk of numerous chronic diseases.

The source of protein seems not to affect muscle strength (Hevia-Larrain et al., 2021). Strakova et al. (2007) found that plant-based protein can replace animal protein without negatively affecting people's performance and health. Also, Hevia-Larrain et al. (2021) concluded that exclusively plant-based diets support muscle strength and mass accrual as diets consisting of whey protein supplementation.

Fuhrman and Ferreri (2010) note that the associated benefits of vegetarian diets are not explained by the avoidance of meat and other animal products. But because of the benefits of eating more whole plant foods. These products are associated with beneficial nutrients, fibers, antioxidants, vitamins, minerals, and phytochemicals.

5. What do the dietitians say?

It is important to include dietitians in the transition to more vegetarian diets. After all, they advise athletes regarding their food choices. I have spoken with two dietitians at Papendal about vegetarian nutrition and their view on this. Next to that, I contacted a dietitian with expertise in plant-based nutrition, Lobke Faasen.

There are two main differences between the dietitians who work at Papendal and the dietitian with expertise in plant-based nutrition. First, the dietitians at Papendal do not currently promote a dietary pattern without meat and fish and doubt that a plant-based diet can be better for personal health. However, the dietitian with expertise in plant-based nutrition promotes this diet and is convinced that it improves personal health and performance.

All dietitians agree that a health improvement is not explained by leaving something out but mainly by adding something to the diet. This means that possible health benefits are not explained by removing meat or fish but mainly by what the meat or fish is replaced with.

However, the dietitians agree that when the meat meal is replaced with a meal consisting mainly of whole plant foods for a few days a week, this would be better for personal health.

The dietitians at Papendal are more likely to make the link with possible shortages that need to be monitored closely. For example, an iron deficiency or protein or creatine levels. The dietitian with plant-based expertise, on the other hand, shows the adverse effects that eating meat can have on personal health and why a plant-based diet is better for everyone's health.

A couple of reasons why this dietitian (with plant-based experience) believes it is better for personal health are:

- You eat more fibers
- It is better for your intestines
- Better for weight management because it saturates better
- You have a lower risk of cardiovascular disease because you eat less saturated fats and trans fats
- You get more phytonutrients and antioxidants
- Plant-based food improves your recovery better than animal products
- You get less cholesterol from food

The dietitians are not all on the same page. Even among the two dietitians at Papendal there are still differences of opinion. Even though the dietitian with plant-based expertise would like to see everyone eating plant-based, the Papendal dietitians believe that alternating days with meat and days without meat can be good for personal health. As long as the substitute meal contains enough different whole plant foods.

6. Personal performance experience

Over the years, I have done strength and conditioning tests several times. A sports scientist working on Papendal has different equipment to measure my strength and condition accurately. A commonly used strength test is when a bar has to be pulled as hard as possible from a half deadlift position. This same test is repeated after a certain period to see if the athlete has progressed, or if it has declined, or has remained the same. A commonly used condition test is the so-called wingate test. Here, as much power as possible must be supplied to a

hand bike installation with resistance for 30 seconds.

Both my strength and condition kept on improving over the years. Over all of the TeamNL judoka's, I had the best results in relative average power with the conditioning test and lifted the most kilograms for my bodyweight during the strength test.

What to take away from these results?

There are a lot of different factors influencing the results besides the diet.

For example, with the same diet and more training hours, I might have also shown an improvement on the tests. Besides, the test is done at a specific time, and the result could be different a week later or sooner. I do not want to use these results to show that a vegetarian diet makes athletes stronger. I want to show with these results that an athlete does not have to compromise on strength and condition with diet without meat and fish. I achieved my best results with a diet without meat and fish and little animal protein.

Date	Diet	Avarage power output	Relative average power	Peak power	Max RPM	Total Work
06 - 2022	Vegetarian and reducing diary	720.87	8.5	1159.37	174.50	21.6
05 - 2021	Completely vegetarian	712.09	8.5	1142.68	165.00	21.4
02 - 2021	Predominantly vegetarian	710.23	8.4	1064.73	161.00	21.3
09 - 2020	Predominantly omnivorous	653.63	7.7	853.06	147.00	19.6

Wingate conditioning test personal results

"I want to show that an athlete does not have to compromise on strength or conditioning when meat and fish are left out. In my case, strength and condition even increased significantly."

- Jim Heijman

7. Sportsmen and women praising a plant based diet



Patrik Baboumian, strongman and promoting veganism

Patrik Baboumian has several world records and became Germany's strongest man several times. He achieved these titles all on a vegan diet. Among other things, he is the face of an animal rights campaign that promotes a vegan diet. He has proven that you can literally be the strongest man without eating meat (Baboumian, 2021).



Jeremy Reijnders, two times fittest man of the Netherlands

Jeremy Reijnders made the switch to a completely vegan diet in 2015. After this, he was twice named the Fittest Man of the Netherlands. Furthermore, he became second at the European Team Championships with Crossfit and participated in the World Crossfit Championships. His mission is to spread the word and show that you can live a healthy life and achieve top performance with a plant-based diet.



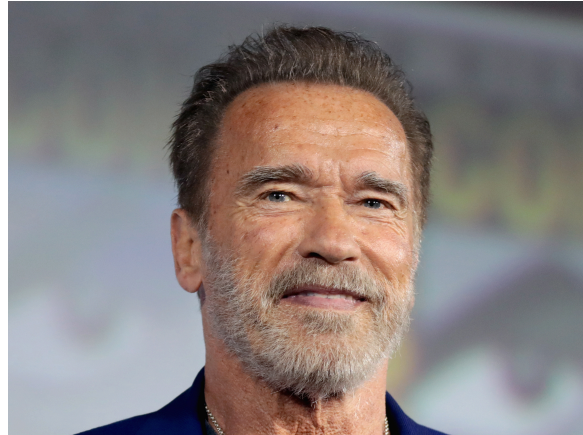
Lewis Hamilton, seven times World champion F1

Lewis Hamilton is one of the most successful F1 drivers and has several records to his name, including most victories at a Grand Prix. Hamilton says that with his vegan diet, he is stronger than ever. His primary motivation is that it is better for the climate and animals.



Novak Djokovic, tennis player and current number one of the world.

Since 2020, Novak Djokovic has been allowed to call himself "Big Titles King," having won 62 titles from the four most prestigious tournament categories. Djokovic is reluctant to be labeled "vegan." Nevertheless, he has had a plant-based diet for five and a half years. There has been much criticism from people around him who thought he could not go vegan. It is more than a performance reason for Djokovic. He is doing it for animal welfare and the climate just as much. He hopes to inspire other athletes that it is possible to eat plant-based and perform at their best.



Arnold Schwarzenegger, ex-bodybuilder

Arnold Schwarzenegger is one of the most famous bodybuilders of all time. However, because he has been eating red meat for a great part of his life, his doctors recommended that he would switch to a vegan diet for his health. Arnold mentions it is clear that what we used to think about meat, that people need it to get strong, is purely marketing. Furthermore, that protein are easily found elsewhere. There is no "need" to eat meat for health reasoning.



Venus Williams, professional tennis player

Venus Williams has won Wimbledon five times, the US Open twice, and is a four-time Olympic champion. Williams ate much meat before she made the switch to a vegan diet. She gives a tip to people who want to switch to a vegan diet to take it slowly. To find out what works and what does not work for them. One option she points out is to start with one meal that you make vegan, rather than throwing everything over.

8. Questionnaire

Side note:

The style of the questionnaire was different digitally. The questions were exported into a PDF which resulted in the following style that is shown on the right.

Voedingspatronen sporters en coaches op Papendal

Welkom!

Dit onderzoek maakt deel uit van een Master Thesis van een student aan de TU Delft. Deze vragenlijst dient om inzichten te bieden in verschillende voedingspatronen onder sporters en coaches op Papendal.

Alle gegevens zullen anoniem worden geanalyseerd. Er zijn geen goede of foute antwoorden. Probeer de vragen zo oprecht mogelijk te beantwoorden.

Het invullen van deze vragenlijst duurt ongeveer 5 minuten.

Tip: kantel je scherm een kwartslag voor een optimaal overzicht van de vragen.

***Vereist**

1. Geslacht: *

Markeer slechts één ovaal.

- ☐ Man
- ☐ Vrouw
- ☐ Wil ik niet zeggen
- ☐ Anders: _____

2. Leeftijd: *

Markeer slechts één ovaal.

- ☐ Jonger dan 16
- ☐ 16 - 18
- ☐ 19 - 21
- ☐ 22 - 24
- ☐ 25 - 27
- ☐ 28 - 30
- ☐ 31 - 50
- ☐ Ouder dan 50

3. Beroep: *

Markeer slechts één ovaal.

☐ Sporter

☐ Coach

☐ Anders: _____

4. In welke sport ben je actief? *

5. Ben je lid van het Papendal voedingspanel? *

Markeer slechts één ovaal.

☐ Ja

☐ Nee

Huidig voedingspatroon

6. In hoeverre ga je bewust om met je voeding? *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet bewust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel bewust

7. (Indien je een 5 of hoger hebt aangevinkt in de bovenstaande vraag)

Kan je een voorbeeld noemen waarom je vindt dat je bewust met je voeding omgaat?

8. Mijn huidige voedingspatroon bestaat voornamelijk uit: *

Markeer slechts één ovaal.

☐ Vlees en/of vis

☐ Flexitarisch (vlees/vis afwisselen met dagen zonder vlees/vis)

☐ Vegetarisch (geen vlees/vis) Ga naar vraag 15

☐ Veganistisch (geen dierlijke producten) Ga naar vraag 15

Vlees & vis consumptie

9. Bij welke maaltijden consumeer je vlees en/of vis? (meerdere antwoorden mogelijk) *

Vink alle toepasselijke opties aan.

☐ Ontbijt

☐ Lunch

☐ Avondeten

☐ Tussendoortjes

10. Wat is voor jou de voornaamste reden om geen (of in meerdere mate) vegetarisch voedingspatroon aan te nemen? (meerdere antwoorden mogelijk) *

Vink alle toepasselijke opties aan.

☐ Ik vind het niet (of minder) lekker

☐ Ik mis dan belangrijke voedingsstoffen

☐ Ik zou niet weten wat ik dan moet eten

☐ Ik heb er nog nooit echt over nagedacht

☐ Ik wil anderen niet lastig vallen met mijn specifieke dieetwensen

☐ Ik vind het te duur

☐ Het is niet overal gemakkelijk te verkrijgen

☐ Anders: _____

11. Probeer je op dit moment te letten op het verminderen van je vlees of vis consumptie? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee, ik eet al minder vlees dan eerst
☐ Nee, maar ik sta er wel voor open
☐ Nee, dit ben ik ook niet van plan

12. Waarom wel/niet? *

13. Heb je wel eens een positieve smaakervaring gehad met een vegetarisch en/of veganistisch product? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee Ga naar vraag 15

14. Weet je nog wat voor vegetarisch of veganistisch product dit was? (Zo ja, wat was het?) *

Voedingsaspecten

15. In hoeverre vind je de gezondheidsaspecten van je voeding belangrijk? *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet belangrijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel belangrijk

16. In hoeverre vind je de milieuaspecten van je voeding belangrijk? *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet belangrijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel belangrijk

17. In hoeverre vind je de diervriendelijkheid van je voeding belangrijk? *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet belangrijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel belangrijk

18. In hoeverre vind je de kosten van je voeding belangrijk?

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet belangrijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel belangrijk

Wat voor associatie heb je met de volgende termen?

19. Vegetarisch *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet aantrekkelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel aantrekkelijk

20. Vleesvervanger *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet aantrekkelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel aantrekkelijk

21. Plant-based *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet aantrekkelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel aantrekkelijk

22. Vegan *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet aantrekkelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel aantrekkelijk

23. Proteïnerijk *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet aantrekkelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel aantrekkelijk

24. Superfood *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet aantrekkelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel aantrekkelijk

Mening van anderen

25. In hoeverre vind je het belangrijk wat anderen om je heen vinden van je voedingskeuze? *

Markeer slechts één ovaal.

	1	2	3	4	5	6	7	
Helemaal niet belangrijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Heel belangrijk

26. Denk je dat het feit wat anderen van je voedingskeuze vinden effect kan hebben op het wel of niet kiezen voor deze voeding? *

Markeer slechts één ovaal.

☐ Ja

☐ Nee Ga naar vraag 29

Mening van anderen

27. Puur gericht op wat anderen van je voedingskeuze vinden, welke van onderstaande antwoorden zou voor jou mogelijk een reden zijn om GEEN vegetarische keuze te maken? (meerdere antwoorden mogelijk)

Vink alle toepasselijke opties aan.

- ☐ Ik wil anderen niet tot last zijn met mijn specifieke dieet wensen
- ☐ Ik wil niet dat anderen mij raar of anders vinden
- ☐ Het past niet bij mijn cultuur en/of religie
- ☐ Ik wil niet gelabeld worden met de stereotypes van vegetariërs
- ☐ Ik wil geen mogelijke negatieve reacties van anderen krijgen
- ☐ Geen van bovenstaande antwoorden zouden invloed hebben op mijn voedingskeuze

28. In welke situatie(s) zou wat anderen van jouw voedingskeuze vinden mogelijk een rol kunnen spelen om GEEN vegetarische voedingskeuze te maken? (meerdere antwoorden mogelijk) *

Vink alle toepasselijke opties aan.

- ☐ Uit eten in een restaurant
☐ Eten bij vrienden/familie
☐ Eten in het topsport restaurant, alleen
☐ Eten in het topsport restaurant, met mede sporters/coaches
☐ Thuis eten, alleen
☐ Thuis eten, met vrienden/familie
☐ Thuis eten, met partner (en mogelijk kinderen)
☐ Anders: _____

Vegetarische maaltijden topsport restaurant

29. Wist je dat ze in het topsport restaurant vegetarische avondmaaltijden voor je kunnen maken? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee

30. In hoeverre zou je bereid zijn een vegetarische avondmaaltijd te pakken in het topsport restaurant? *

Markeer slechts één ovaal.

- ☐ Niet bereid
☐ 1x per week
☐ 2x per week
☐ 3x per week
☐ 4x per week
☐ Altijd

31. Vegetarische voeding zou aantrekkelijker worden als: (meerdere antwoorden mogelijk) *

Vink alle toepasselijke opties aan.

- ☐ Het beter voor mijn gezondheid zou zijn
☐ Het lekkerder zou zijn
☐ Het goedkoper zou zijn
☐ Het meer in de norm zou passen
☐ Het toegankelijker zou zijn
☐ Als andere sporters het ook zouden eten
☐ Anders: _____

32. Als de punten die je in de vorige vraag hebt aangevinkt verbeterd zouden worden, in hoeverre zou je dan bereid zijn een vegetarische avondmaaltijd te pakken in het topsport restaurant? *

Markeer slechts één ovaal.

- ☐ Niet bereid
☐ 1x per week
☐ 2x per week
☐ 3x per week
☐ 4x per week
☐ Altijd

Deze content is niet gemaakt of goedgekeurd door Google.

Google Formulieren

9. Cognitive Dissonance

When people's actions conflict with their prior attitudes, they often change their attitudes to be more consistent with their actions. This phenomenon, known as cognitive dissonance, is considered one of the most influential theories in psychology (van Veen, V. 2009).

Psychologists found that people feel at their best when they act in a way that is in line with their values and beliefs. However, we experience this so-called cognitive dissonance when this is not in line. This happens when our actions are not in line with our beliefs and values, which can cause unpleasant, confusing feelings.

Cognitive dissonance happens a lot when people think about eating meat. It is generally known that the animals we eat do not have the best lives and that the meat industry causes an enormous amount of pollution. However, people are so used to eating meat. So despite that, many of us know somewhere in the back of our minds that we should stop or eat less meat. However, many keep coming up with reasons that make it okay to keep eating

the amounts of meat they always have done.

When people experience this unpleasant feeling, they have three options.

- You adapt your values to make them in line with your behaviour.
- You adapt your behaviour's perception to make it seem like it aligns with your values. (buying biological meat and thinking that this animal had a good life).
- You adapt your behaviour to make them in line with your values.

Most often, people choose option one. They adapt their values. However, this may sound simple, but with this option, people "trick" their perceptions by coming up with reasons that justify their behaviour. With this option, people may still feel deep down that their actions are not in line with their values.

Examples

"If I do not choose this meat option in the grocery store, someone else will, so it does not matter" - Therefore, they act like it is okay to choose the meat option.

"Everyone I know is eating meat, so it must be okay to keep eating meat" - justifies their behaviour.

Link to project

When athletes give all kinds of different reasons for continuing to eat meat, it does not mean that, deep down, they do not know it is better to leave the meat out of their diet. It is just easier to change their attitude rather than their behaviour. However, this unpleasant feeling will not go away because of this. So it will really have to be the behaviour they have to change to get rid of this unpleasant feeling.

10. Time spawn of the TTM behaviour model

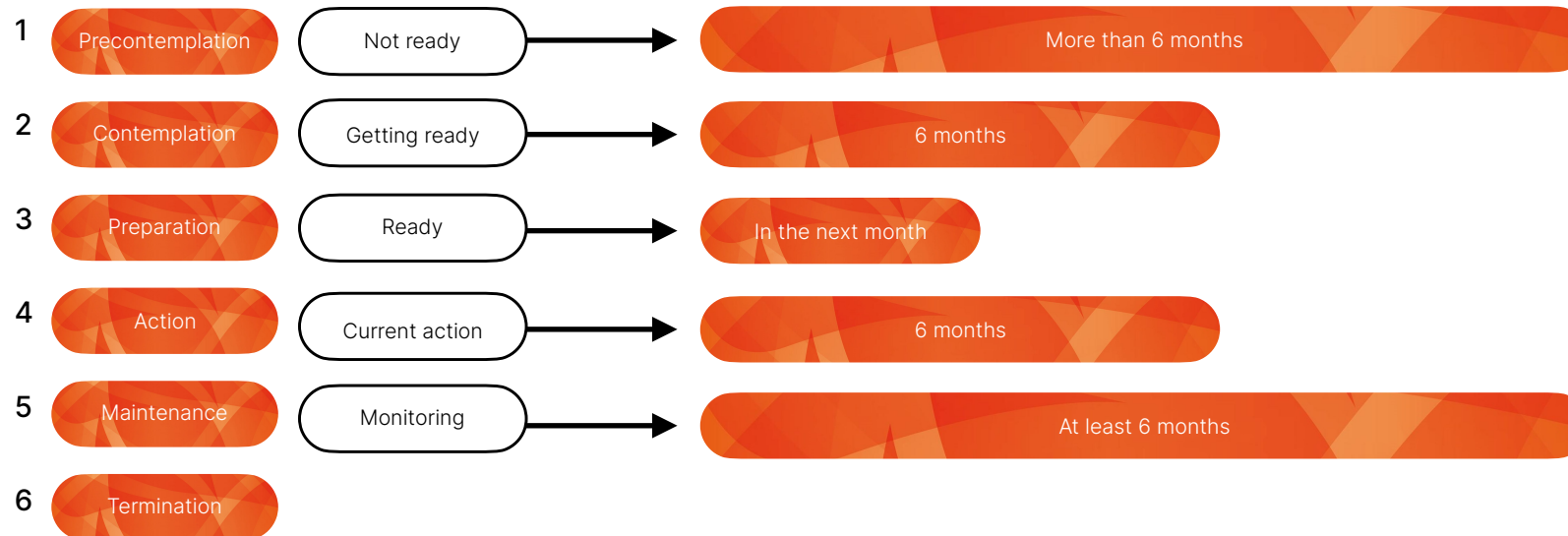
Time spent at each stage

People's time spent in each phase was estimated. People spend the most time in the precontemplation phase, more than six months. Depending on the extent to which people are aware that their behaviour is problematic. It is estimated that the preparation and contemplation phases take at least six months.

In the preparation phase, they are ready to take action within the next 30 days. Then, for the next six months, people work on implementing different behaviour. Finally, as this behaviour is consistently performed, people have sustained their new behaviour for at least six months.

Side note

The TTM is based on behaviours that are widely known to be bad for personal health. For example, smoking and alcohol. This is not the case with meat eating. Opinions still differ on this topic. Also, the time people spend in a particular phase is estimated based on the assumption that people go through these phases under much guidance.



Different phases of the Transtheoretical Model and the average time people spend in each phase.

11. Graph with different type of nudges

		Mindful		Mindless	
		Encourage	Discourage	Encourage	Discourage
Activating desired behaviour	Externally imposed	Consciously help people perform behaviour when they not consider what the right behaviour should be.	Consciously help people perform behaviour when they not consider what the right behaviour should be.	Unconsciously help people perform behaviour when they not consider what the right behaviour should be.	Unconsciously help people perform behaviour when they not consider what the right behaviour should be.
Boosting self control	Externally imposed	Conscious, externally imposed to help people follow through with desired behaviour.	Conscious, externally imposed to help follow through to on not performing undesired behaviour.	Unconsciousle, externally imposed to help people follow through with desired behaviour.	Unconsciously, externally imposed to help follow through to on not performing undesired behaviour.
	Self imposed	Precommitted strategies	Precommitted strategies	Precommitted strategies	Precommitted strategies

Different type of nudges (Ly et al., 2013)

12. Promising nudging strategies

Default rules

Not asking for an active decision but setting a default option, which they can change at any time.

Minimize disruption

For example, it is adding an affordable plant-based option that is recognizable.

Simplification. Avoiding complexity.

Use of social norms. (most people do this...) One of the most effective nudges is to inform people what others are choosing. In the end, most people eat meat because most people eat meat.

Increase in ease and convenience and sell a compelling benefit.

"If the easy choice is also fun, people are likelier to make it."

Disclosure

For example, costs associated with energy use.

Warnings, graphics, or otherwise

For example, smoking causes cancer.

Pre-commitment strategies

When people follow a certain course of action. For example, a course to help people stop drinking. Committing to a specific action at a precise future moment in time better motivates action and reduces procrastination.

Reminders

This can be a text message or email (for example, with overdue bills). For reminders, timing greatly matters. Furthermore, making sure people can act on the information immediately is crucial.

Eliciting implementation intentions.

Do you plan to vote? Emphasizing people's identities can also be effective.

Informing people of the nature and consequences of their own past choices.

The problem is that people often lack information about their own past choices.

Promising nudging strategies from Rust et al., (2020) and Sunstein (2014).

13. Process of designing nudges



1. Map the context.
Understand the decision-making process. Identify existing choices that are presented. Where do they get their information, and what factors prevent athletes follow through with their intentions?

- *Is the individual aware of what they need to do but unable to accomplish it, or do they need to trigger a desired behavior/action?*
- *Are they motivated enough to give themselves a boost?*
- *Is the action more likely to be taken with more cognition, or does cognitive overload currently hamper individuals?*
- *Is the desired action not taken because of a competing action? Consequently, should we discourage the competing action or encourage the desired action?*
- *Introduce an automatic enrollment process.*

2. Select the nudge.
Bottlenecks are a good starting point to select a nudge. Ly et al., (2013) selected a couple of questions that the designer can ask in order to think of a solution for the bottlenecks.



- *Offer a default option or change the current default option.*
- *Change or modify the current choices available to the individual.*
- *Simplifying the process to facilitate the decision-making process.*
- *Using technology to reduce costs (per individual) or improve scalability.*

3. Identify constraints, such as costs and availability, as well as potential levers for nudging. Even though it strongly depends on what type of nudge is selected, Ly et al., (2013) advises to check whether the following options are available to implement:



- *What are the operational costs when implemented?*
- *What bottlenecks do the nudges address. Choose nudges that address bottlenecks further upstream in the decision-making process.*
- *Relative reach. Self-imposed nudges may not reach as many people as standard rules.*
- *Long-term effectiveness.*

4. Prioritizing the selected nudges and testing for effectiveness after the nudges have been implemented. Steps to go through when prioritizing nudges:



Ly et al., 2013 *A practitioner's guide to nudging.*

Other guidelines for designing nudges

When designing nudges, it is important to consider the following three guidelines (Sunstein, 2014).

1. Nudges preserve freedom of choice. Even though nudges aim to steer people gently in specific directions, they should retain the freedom to choose another direction. Influencing people's choices is appropriate. They can make choosing another direction more difficult, but it should never be completely excluded.
2. Transparency. Nudges should be transparent and open rather than hidden. People must be able to judge the nudge. Otherwise, it may take the form of manipulation or deception.
3. Testing for effectiveness. To measure the result of the implemented nudge, the nudge must be tested and evaluated to see if behaviour was indeed affected.

14. Not chosen design direction

This design direction looks at the athlete's journey when getting dinner. The usual tools Papendal uses to promote events can be used to promote vegetarian food. Namely Papendal's Instagram page, banners, TV screens and chalkboards in the restaurant. Besides these usual tools, I can work out a more creative tool in detail. Something different than a flyer on the table, which the athletes are already familiar with.

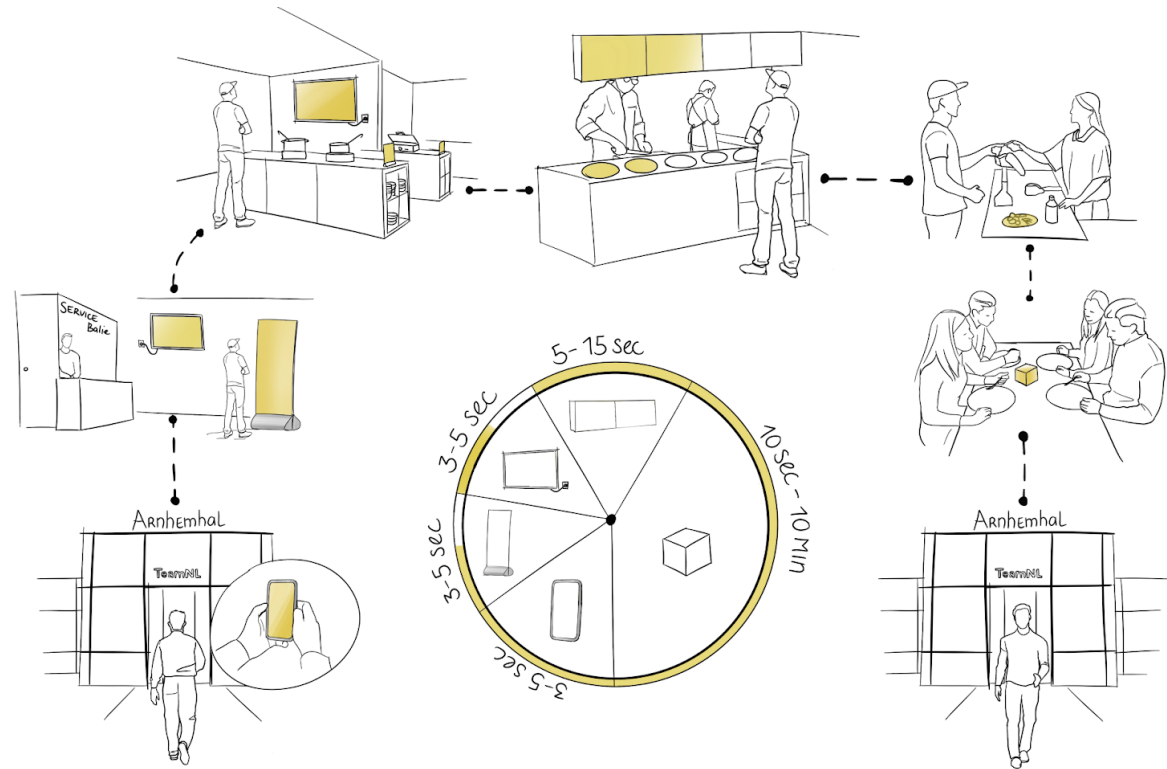
How long an athlete looks at a certain tool on average can be examined. Depending on how long an athlete looks at this information, it can be determined what kind of information could be on it.

Before entering the restaurant, the athlete could already see the vegetarian option for that evening on their Instagram page of Papendal. So make them aware of this before they enter the restaurant. On the banners and TV screens, quotes can be placed with fun facts. At the end of their journey, a tool can be placed on the table with more detailed information. Here they have more time to look at the tool.

Limitations

Papendal is already familiar with making a design for banners and TV screens. They also currently promote something on Instagram. With this design direction, only the information would be really new for Papendal. Only the creative tool on the table would be something completely new for Papendal.

Therefore, the amount of added value of a designer is limited in this design direction. In addition, this direction only helps Papendal in the first next phase but does not give them any guidelines for the future.



15. Notes prior to guidelines of the horizons

Multiple roads lead to Los Angeles

There is not one right way to achieve this transition. Different approaches all contribute in their own way to this shift. The guidelines described in the horizons are based on scientific research, interviews with athletes and dietitians, tips from plant-based food experts, and designing with behaviour change models. These represent one (or some) possible ways to contribute to this transition. This is not to say that divergent ways can not contribute to this shift. Therefore, in addition to the recommended nudges, I recommend to the staff to be creative and stimulate different ways athletes can be inspired to eat more vegetarian.

Nothing is fixed, be flexible

Thinking in advance about what steps might be taken and when can be helpful. However, this does not mean that these steps are fixed and can not be realized at another time. It is essential to keep an eye on the reactions of athletes. If these reactions are mainly positive, the staff can consider possibly initiating a follow-up step earlier. If the reactions are predominantly negative, the athletes are not quite ready, and a choice can be

made to delay the next nudge forward or perhaps take a step back.

Beware of radical steps

It is risky to take a radical step too quickly. This can cause athletes to resent this nudge and experience it negatively. This causes lower motivation and negative associations with the transition towards eating less meat. This can cause them to only sink back into the old behaviour, and thus it only takes longer for them to adopt the desired behaviour.

Patience

There are times when people are (too) eager to convince a group and expect to see immediate results. However, a behaviour like meat-eating that has often been the norm for people all their lives simply takes time to adapt.

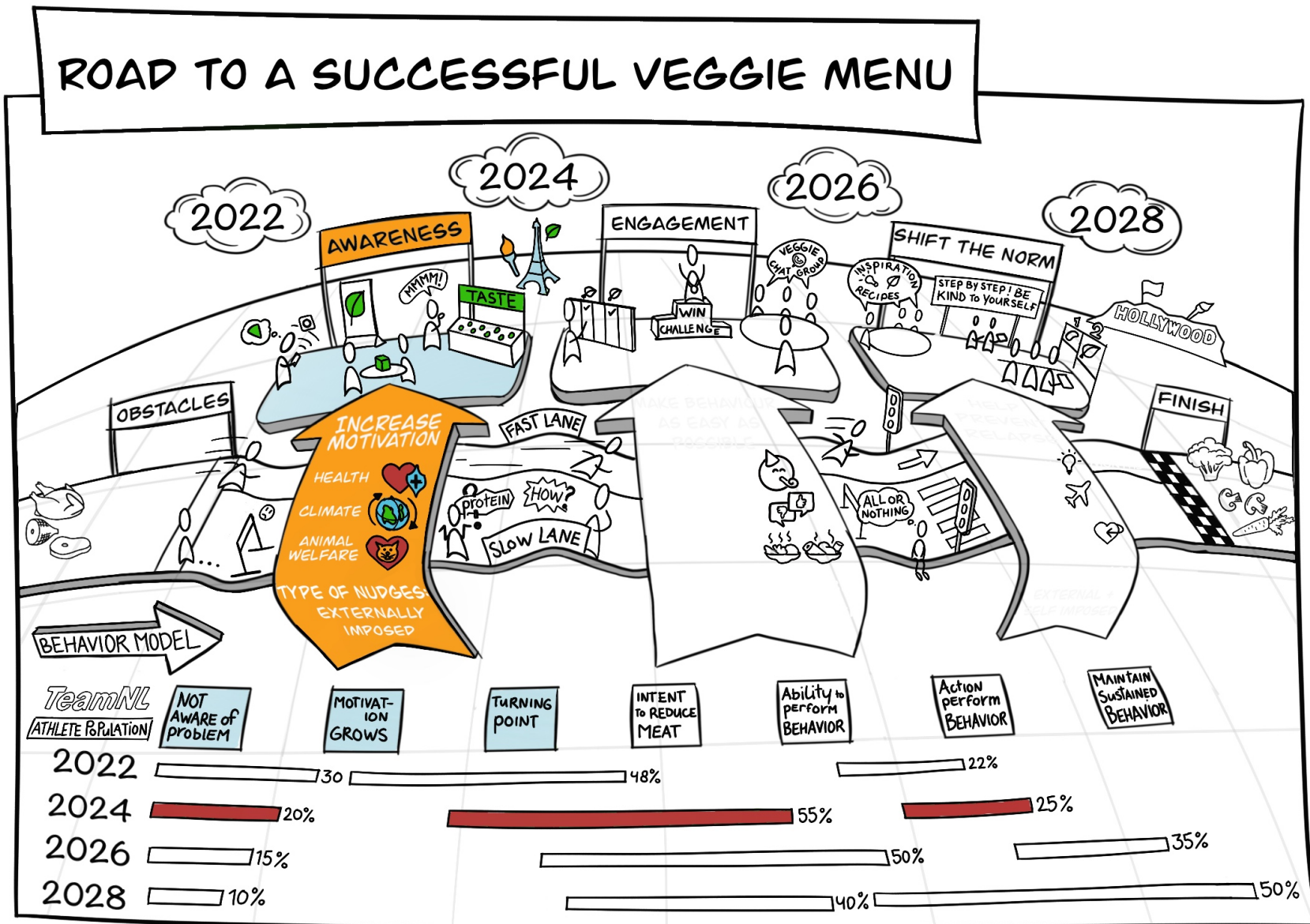
Focus on the group that is open to change

It is most efficient to put energy into the people who are already somewhat open to change. Do not focus on the group with their heels in the sand; this takes too much energy and produces limited results.

Do not bombard athletes with facts

Facts can be quite helpful, and these will certainly be used to increase motivation. However, do this in moderation and give the athletes time to let these facts sink in. Otherwise, you will only push people further away from the goal.

16. Horizon I



Nudges for Horizon I



The decision-making process of the athletes is shown earlier in the define phase. In this horizon, the largest group of athletes has not reached the phase yet where they intend to reduce their meat consumption. Therefore, this horizon aims to get the group that is open to reducing their meat consumption to the phase where they intend to reduce their meat consumption. The nudges are designed to increase motivation and awareness around this topic.



The main bottlenecks are unawareness of this topic, not liking its taste, and the missing motivational factors. Athletes are more likely to perform desired behaviour with increased cognition. Therefore, there should be aimed to encourage the target action rather than discourage the old behavior. The athletes' motivation in horizon I is most likely too low to implement self-imposed nudges.

		Mindful		Mindless	
		Encourage	Discourage	Encourage	Discourage
Activating desired behaviour	Externally imposed				
Boosting self control	Externally imposed				
	Self imposed				

Icons for:

Kitchen

Communication department

Food experts



Nudges

Make visually attractive	 
Vegetarian option on top	
Taste experiences	
Make behaviour fun	
Instagram stories	
Use of social norms	 
Combo veggie deal	 
Recognizable veggie style	
Use of role models	
Start veggie whatsapp group	 
Involve dietitians	
Special spot with promotion	
Show its the cheapest option	
Deck of cards	
Playful cube	

Identify
the levers

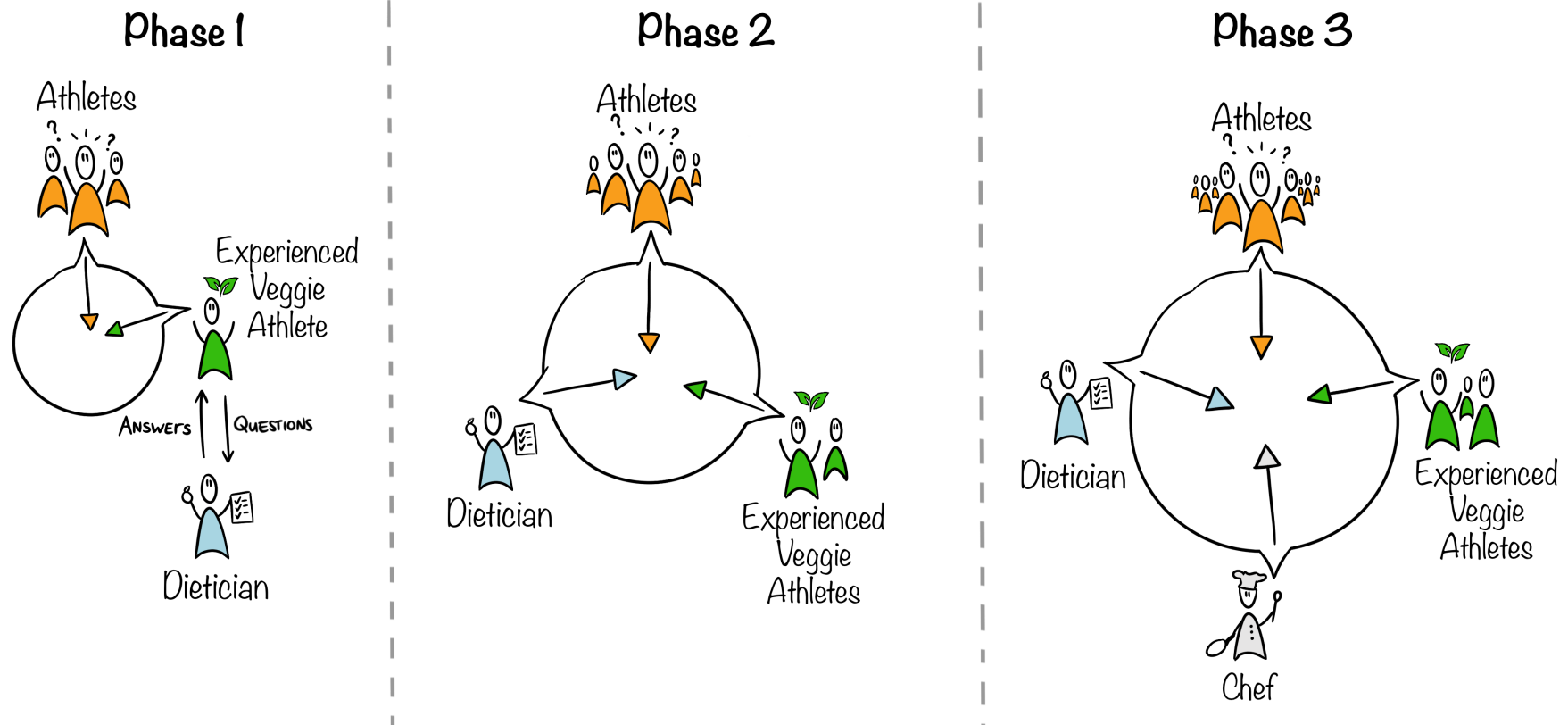
Make visually attractive	What does it tackle: Currently, the vegetarian option is not placed next to the other dishes. Because not enough people choose this meal yet, so the vegetarian option may get cold. However, most athletes just walk up to the food corner, grab some food and go. Even though the barrier to getting a vegetarian meal got less, choosing the vegetarian option should be as easy (if not more accessible) as choosing a meat option. At least one vegetarian option should be placed next to the other meals, so the athletes can visually see how the meal is looking. Instead that it is only written down at the bottom of a chalkboard. When the chefs do not want that this meal is chosen because it is cold, a small wooden skewer can be used with the text "I'm cold, if you want me hot, the chefs will give one to you!"
Vegetarian option on top	What does it tackle: People can look over the vegetarian option when it is mentioned as last. Simply putting the vegetarian option on top of the chalkboard will draw more attention to this option.
Taste experiences	What does it tackle: This way, it becomes very accessible for athletes to taste a vegetarian option. Instead of having to choose this option to taste it, they can simply taste one bite. Then, if they like it, they could still choose the vegetarian option after tasting it. This is an opportunity to give more athletes a positive taste experience. A positive taste experience is essential in changing people's attitudes toward vegetarian food (Leeneart, 2017).
The playful cube	What will be addressed: Different ways to show athletes information that addresses barriers, such as protein intake, and increase their motivation by showing what benefits vegetarian products can have for climate and personal health. A puzzle and game can be placed on the cube, encouraging athletes to think about this topic. (This nudge will be selected for detailed development later in this project).
Instagram stories	What does it tackle: the Instagram story will serve as a reminder where timing is important. For example, on the Papendal Instagram, a story can be posted (that is visible for 24 hours) with a photo of the vegetarian option that day with some texts that elicit athletes' intentions. This story can be posted just an hour before the athletes have dinner.
Make behaviour fun	Rust et al., (2020) showed that when you sell a compelling benefit, the behaviour will be more attractive to perform. Such as making the behaviour more fun to perform. This can be something small that is added when athletes choose the vegetarian option. For example, something athletes can win or save points when they choose the vegetarian option.

























































Identify
the levers

Use of social norms	What does it tackle: This nudge will emphasize what most people do. For example: "Did you know 8 out of 10 people in the Netherlands eat at least one-day vegetarian a week?" Quotes can be used on the tv screens and banners with this information. More of these quotes or fun facts will be shown on the deck of playing cards which will be developed later in this project (see appendix 19 for various quotes and information to potentially show on banners or TV screens)
Combo veggie deal	What does it tackle: To stimulate that the vegetarian option is chosen in combination with a bowl of vegetables. A combo veggie deal can be implemented, where an athlete gets a small discount if he picks this combination. It can be promoted as a green, healthy choice.
Recognizable veggie style	What does it tackle: When the vegetarian promotions on the TV screen, banner, chalkboard, cube, and Instagram all contain the same style or logo, the athletes will quickly link that it has something to do with vegetarian products. If new promotions contain this logo, the athlete will already know it is about vegetarian food.
Use of role models	What does it tackle: This can tackle barriers athletes have, such as not believing that a vegetarian or plant-based diet can provide all the essential nutrients to perform at the highest level. At first, maybe international athletes have to be used (Hamilton, Djokovic). When some athletes make the switch on Papendal and have positive experiences with it, a video or short interview can be done with them. To seek the role models close by.
Special spot with promotion	A corner or a particular spot in the restaurant could be chosen where new vegetarian options could be promoted. A spot that stands out in the restaurant. A place that is only used for promoting new vegetarian dishes. So that when something new is placed at this spot, the athletes know right away that there is another new vegetarian option.
Involve dieticians	What does it tackle: Dietitians can make it more part of their workshops and address the vegetarian options more in their private talks with the athletes. Constraints: the athlete should not get the feeling that he or she is forced to eat vegetarian. However, the dietitians can inform the athletes that they can choose the vegetarian option in the restaurant without worrying that they miss essential nutrients.
Show it is the cheapest option	At the moment, the meat options vary between 2,85 and 3,50 euros. The vegetarian option is always 2,85. Therefore, Papendal can show that choosing the vegetarian option on some days is also the cheapest option. They do not have to make it cheaper to promote this since it is already the cheapest option. This way, they could sell a compelling benefit to the vegetarian option.

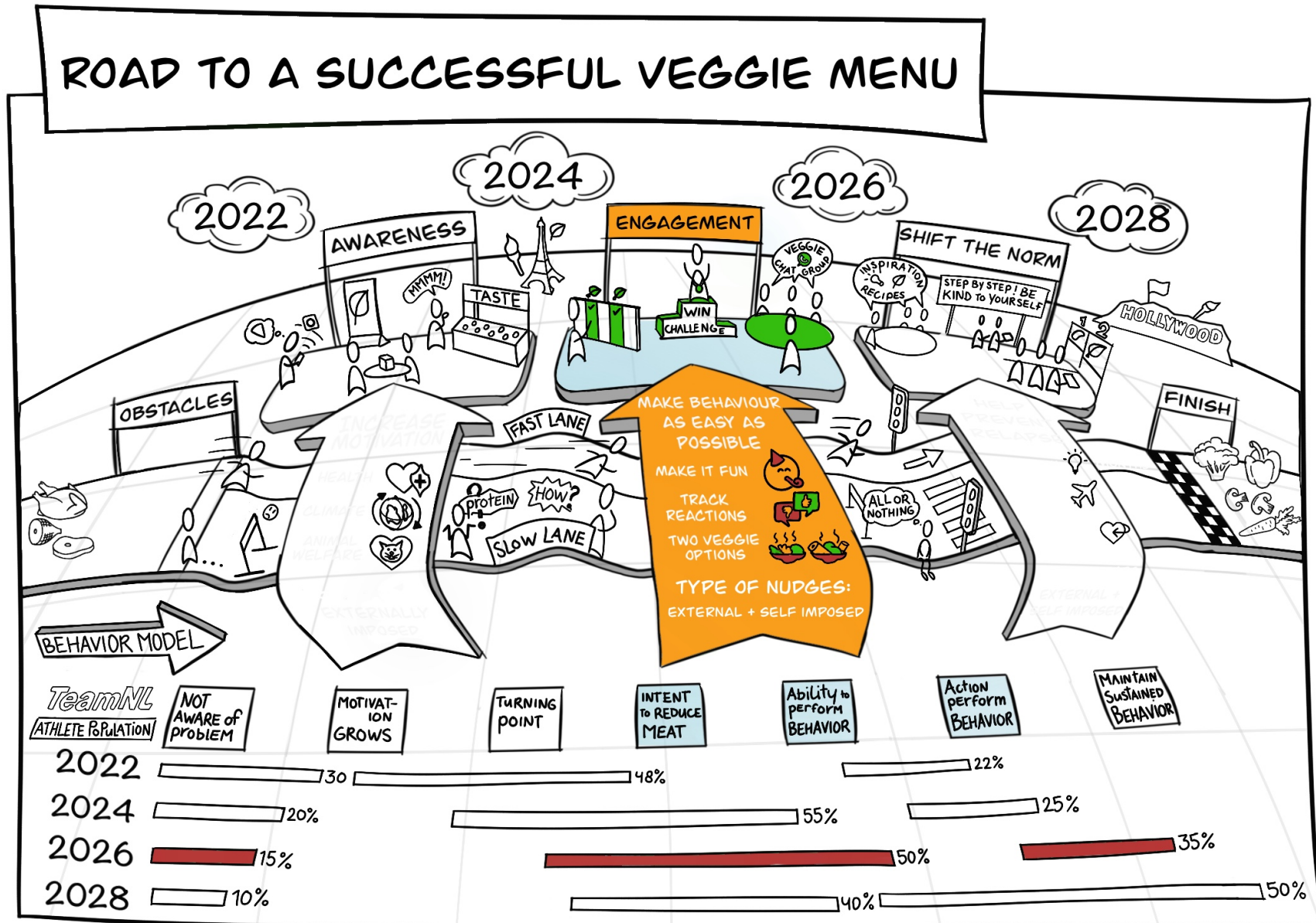
Deck of playing cards	A deck of playing cards can be designed to introduce athletes to this topic in a fun, accessible way, with all the different information on the cards, such as tips and tricks, fun facts, questions and answers, and recipes.
Start veggie whatsapp group	A veggie WhatsApp group can be created to which athletes can easily add themselves. This WhatsApp group makes it possible for athletes to ask questions easily and get answers to them from a dietitian and athlete who already has experience with vegetarian nutrition. Also, the dietitian and athlete with experience can share tips and tricks. In a later phase, a chef can also join this group to share new developments and dishes with the interested athletes. The group can grow bigger, and a platform can be created for athletes wanting more information about vegetarian food. Recipes, tips, tricks, and questions can be shared within the group.

Veggie WhatsApp group



Nudges	Operational Costs	At the end of decision making process	Relative Reach	Long term effectiveness
Make visually attractive				
Vegetarian option on top				
Taste experiences				
Make behaviour fun				
Instagram stories				
Use of social norms				
Combo deal				
Recognizable veggie style				
Use of roll models				
Start veggie whatsapp group				
Special spot with promotion				
Show it's the cheapest option				
Deck of cards				
Playful cube				

17. Horizon II



Nudges for Horizon II



It is expected that a large group has reached the tipping point by this time. They have the intention to reduce their meat consumption. In horizon II, the nudges aim to help athletes perform the desired behaviour.














Similar to horizon I, the focus will be on encouraging desired behaviour and not yet discouraging meat-eating. However, from this horizon onward, self-imposed nudges can be implemented since the motivation for doing so will be high enough for some.



		Mindful		Mindless	
		Encourage	Discourage	Encourage	Discourage
Activating desired behaviour	Externally imposed				
Boosting self control	Externally imposed				
	Self imposed				

Nudges

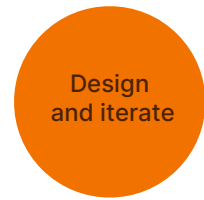
Let people taste new meals	
Make behaviour Fun "The Green Ticket"	
Work towards self set goals	
Organise gather group with dietician	
Build on veggie whatsappgroup	
Inform about past choices	
Use of social norms and eliciting intentions	
Differences in prepared meat options	
Workshops	
Plant based BBQ	
Two veggie options	



Let people taste new meals	What does it tackle: Although many athletes will already have tried some vegetarian meals by this time, tasting can still be an effective nudge when new vegetarian recipes are introduced. This meal can be added to the options when the reactions are positive. Positive taste experiences will keep playing an important role in athletes' attitudes towards vegetarian food.
Make behaviour Fun "The Green Ticket"	What does it tackle: When the desired behaviour is also fun to perform, it will be more attractive to actually perform. Linking a win action or challenge to the desired behaviour may cause this behavior to be more attractive to perform. Think about what athletes like to win. Free food is always appealing. Maybe they could win a Veggie or Plant-Based BBQ Box with all kinds of tasty meat substitutes they can eat at home. Athletes can win this box when their vegetarian meal includes "The Green Ticket". If possible, "The Green Ticket" could be visible at the bottom of the vegetarian food bowl so that when the athlete finishes their meal, they see if they have won the prize. Of course, other fun win promotions could be considered to make the desired behaviour more fun.
Work towards self set goals	What does it tackle: When athletes intend to eat less meat but find it challenging to stick to it, it can help if the athletes can set a goal for themselves. For example, they want to choose the vegetarian option at least four times this month. If they have set a goal in advance, they are more likely to stick to it. They could fill this in at the Papendal voedingsapp, and see their progress towards their goal. In general, athletes like to work towards a goal.
Organise gather group with dietician	What does it tackle: There will still be plenty of questions among athletes at this stage about what to pay attention to when they start eating more vegetarian. Perhaps there is demand around this time for a physical group meeting where athletes with the same intention can come together to get answers to their questions from a dietician. This reoccurring physical meeting can tackle health barriers athletes experience.
Build on veggie whatsappgroup	What does it tackle: More and more athletes will have heard of the veggie WhatsApp group. The group can be further developed by adding a dietician to whom athletes can ask questions. In addition, a record can be kept in a document of the questions and answers. This way, athletes that are new to this group can see what questions are already asked and answered.

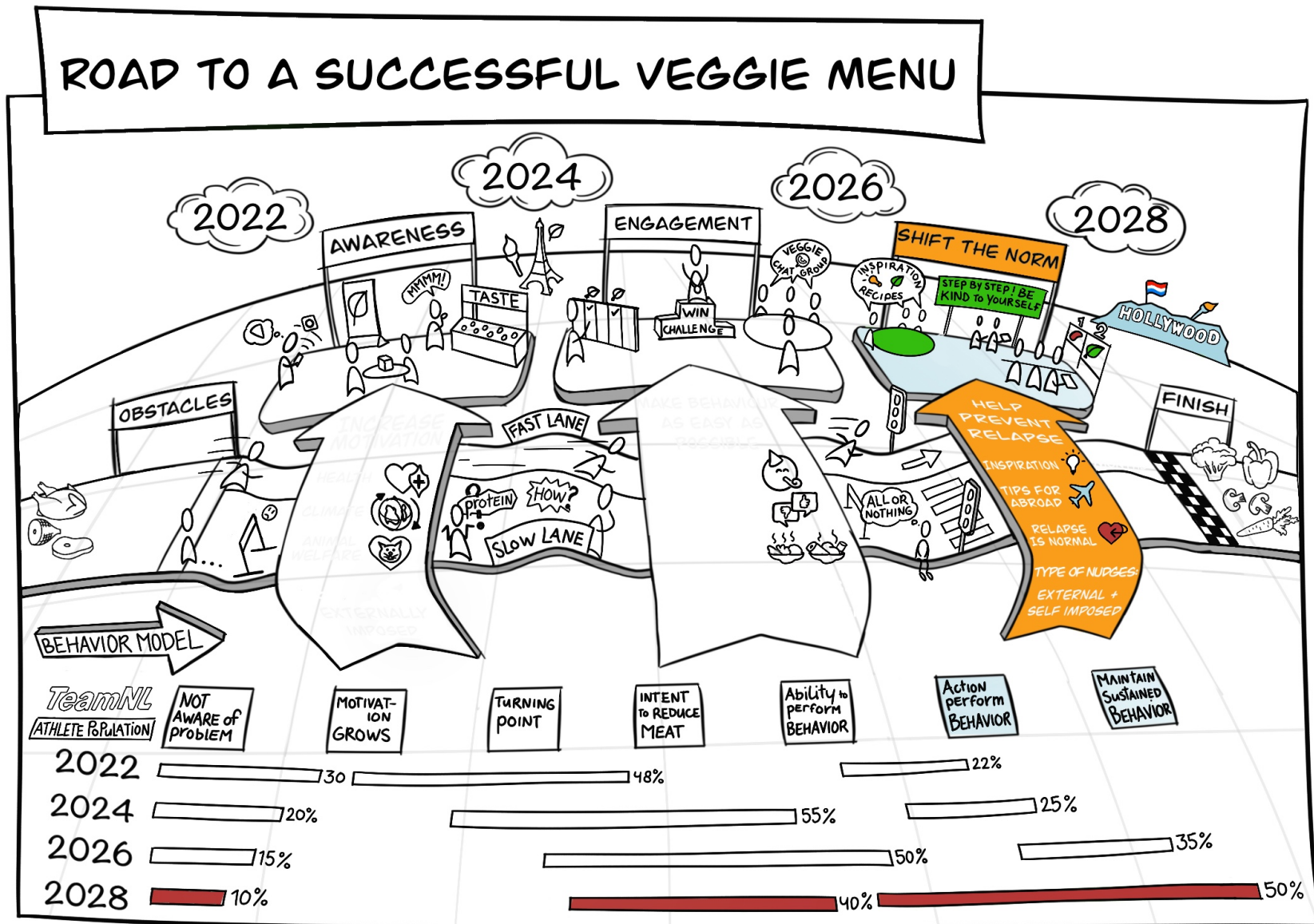


Inform about past choices	What does it tackle: Often, people lack information about their past choices. When athletes are informed about their past choices and its effect, they are more likely to stick with this behaviour. The Papendal voedingsapp can be used for this nudge. For example: "Last month you had four vegetarian meals! One more than the month before. This way, you saved "X" amount of water, good work! Constraints: Do not remind people too often. Since then, it loses its value. Furthermore, it can be set as a default setting, but athletes need to be able to switch this off at any time.
Use of social norms and eliciting intentions	What does it tackle: The checkout register system can accurately track how many athletes choose the vegetarian option at this time. If this number grows, social norms can be used again. The social norms indicate what most people do. So, for example, it can be said: that more and more athletes are choosing the vegetarian option. Followed by eliciting intentions: have you tried it already? Eliciting intentions are one of the promising nudging strategies of Rust et al., (2020).
Differences in prepared meat options	What does it tackle: Choosing the type of meat that has the least impact on the climate more often makes a difference, even though athletes still choose the meat option. Chefs can choose beef and lamb a little less often and replace them with chicken.
Workshops	What does it tackle: Chefs can provide a workshop on vegetarian cooking for the athletes. To show the athletes how certain meals are made and what ingredients are needed. The workshops help athletes overcome barriers such as not knowing what to eat or how to make it.
Plant based BBQ	What does it tackle: Athletes can experience what can be prepared on the BBQ without eating meat. Many will not know in advance how they can make delicious vegetarian BBQs. The plant-based BBQ is also a way to provide a positive taste experience for many athletes, which helps to change their attitude toward vegetarian and plant-based products.
Two veggie options	What does it tackle: Providing an extra vegetarian option gives the athletes more choice. Athletes can now choose from two meat options and only one vegetarian option. In the questionnaire, the athletes responded that it would be nice if they had more options to choose from. It is also possible that if only one vegetarian option is prepared, the athlete may not like this. However, if they can choose between two vegetarian options, the chance is bigger that an athlete finds one of the two options attractive.



	At the end of decision making process				
Nudges	Operational Costs	Relative Reach	Long term effectiveness		
Let people taste new meals	● ○ ○ ○	● ● ● ●	● ● ● ●	● ● ● ○	
Make behaviour Fun "The Green Ticket"	● ● ○ ○	● ● ● ●	● ● ● ○	● ● ○ ○	
Work towards self set goals	● ○ ○ ○	● ● ● ○	● ● ○ ○	● ● ● ○	
Organise gather group with dietician	● ○ ○ ○	● ○ ○ ○	● ● ○ ○	● ● ● ○	
Build on veggie whatsappgroup	● ○ ○ ○	○ ○ ○ ○	● ● ○ ○	● ● ● ●	
Inform about past choices	● ○ ○ ○	● ● ● ○	● ● ○ ○	● ● ● ○	
Use of social norms and eliciting intentions	● ○ ○ ○	● ● ○ ○	● ● ● ●	● ● ● ○	
Differences in prepared meat options	○ ○ ○ ○	● ● ● ●	● ● ● ●	● ● ● ○	
Workshops	● ○ ○ ○	○ ○ ○ ○	● ● ○ ○	● ● ● ●	
Plant based BBQ	● ● ○ ○	○ ○ ○ ○	● ● ● ○	● ● ● ○	
Two veggie options	● ● ○ ○	● ● ● ●	● ● ● ●	● ● ● ●	

18. Horizon III



Nudges for Horizon III



In horizon III, the last phase of the behaviour change model, the nudges will help athletes maintain the desired behaviour. It is expected that this topic (vegetarian and plant-based food) will play a more significant role in society, and the athletes will also be a lot more in touch with it outside Papendal around this time.





















In this phase, there will also be nudges that discourage undesirable behaviour for the first time. So not only nudges that stimulate consuming vegetarian food, but also some nudges that discourage meat-eating. The self-imposed nudges still play an essential role in this phase. Bottlenecks in this horizons unrealistic expectations and goals, that cause relapse into old behaviour.



		Mindful		Mindless	
		Encourage	Discourage	Encourage	Discourage
Activating desired behaviour	Externally imposed				
Boosting self control	Externally imposed				
	Self imposed				

Nudges

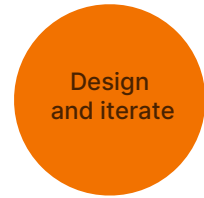
Build on veggie whatsappgroup	  
Communication around how to maintain veggie behaviour	
Informing people about negative effects of meat	
Workshops veggie abroad	 
Use of social norms	
Two veggie one meat option	
Pricing	 
Buddy Up!	 
Challenge yourself!	
Organize veggie events	 
Ready to cook plant based boxes for at home	 

Identify
the levers

Build on veggie whatsappgroup	What does it tackle: The WhatsApp group can be used to share tips and tricks to maintain desired behaviour. Athletes can easily indicate with what they are struggling. What keeps them from maintaining the desired behaviour. Other athletes that may already have maintained this behaviour can share their experiences with struggling people.
Communication around how to maintain veggie behaviour	What does it tackle: There are many different reasons why people can not stick with their intentions and maintain the desired behaviour. Communicating that it is perfectly normal when athletes relapse into old patterns and communicating what the athletes can do best at this time when they experience a relapse can help them maintain the desired behaviour. For example, lowering the bar for themselves can help they can still perform the desired behaviour. For some, this means eating four times vegetarian a week, whereas another person eats vegetarian one or two days a week. The most important factor is that they can stick to it. To repeat the quote of Anne Marie Bonneau, "We do not need one person doing it perfectly. We need a hundred doing it the best they can". Information that helps athletes can be shared on banners, TV screens, workshops, WhatsApp group, and in personal conversations.
Informing people about negative effects of meat	What does it tackle: The consequences of our current meat consumption can be shown. The effects are on the climate, animal welfare, and not to forget health. Health information may feel less threatening to athletes than the environment and animal welfare. The meat options in the restaurant are not bad for people's health, but when they eat a lot of processed meat outside Papendal (which some athletes do), is bad for their health.
Workshops veggie abroad	What does it tackle: When athletes can perform the new behaviour at Papendal but find it challenging to maintain this at home or abroad, workshops can be given where athletes learn how to tackle this at home or abroad. With easy healthy recipes containing ingredients nearly every supermarket has, also internationally.
Use of social norms	What does it tackle: Both information that most people experience a relapse into old behavior and information about the last statistics of vegetarian food consumption at the restaurant can be shared. It can help athletes feel understood or that they can relate to and know that their behaviour is perfectly normal. Providing information about what most people do is again a promising nudging strategy of Rust et al., (2020).

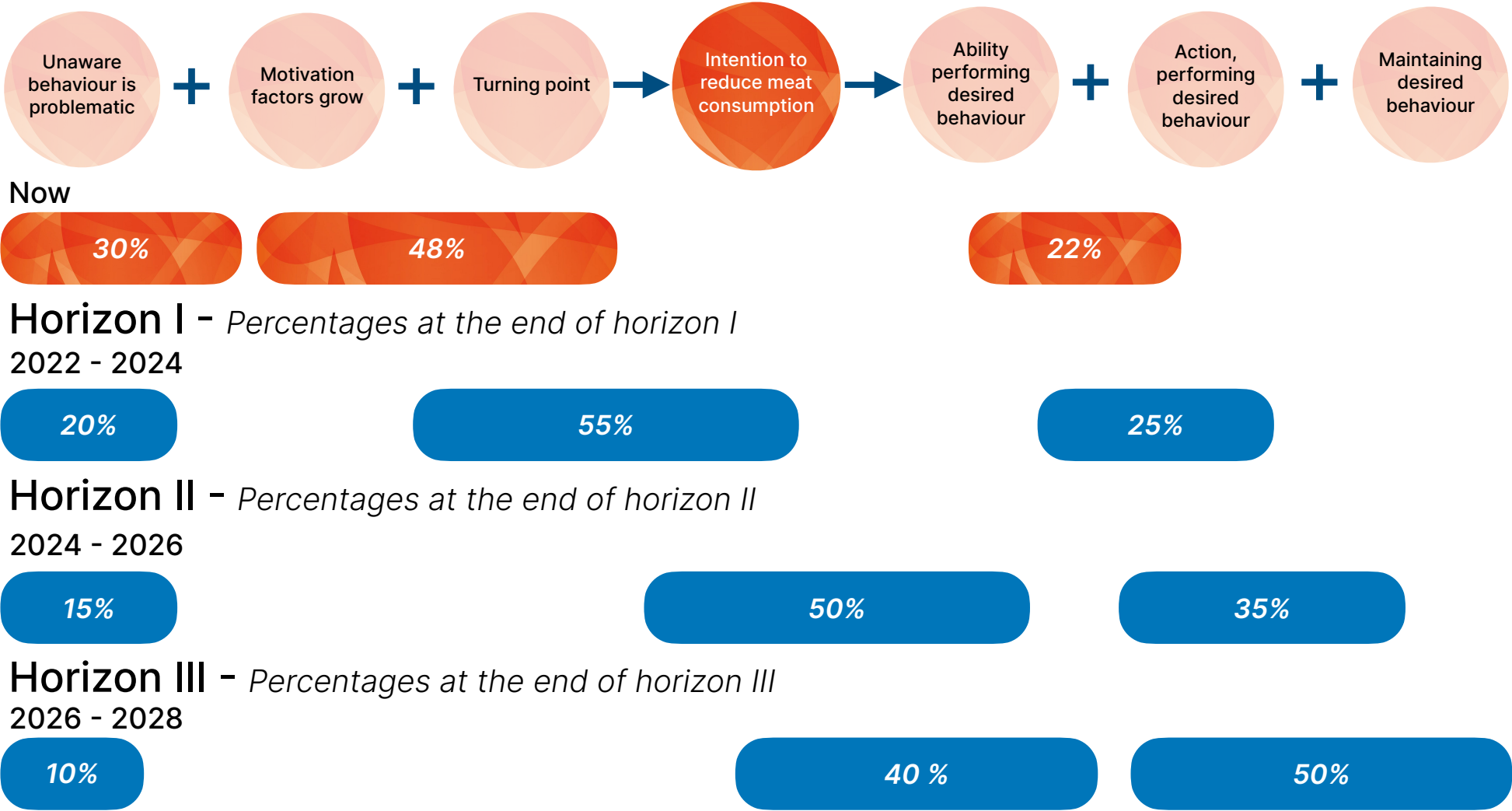
Identify
the levers

Two veggie one meat option	What does it tackle: Just as some athletes dislike a specific meat dish, athletes will experience the same with vegetarian options. They dislike certain vegetarian meals. Providing the athletes with an extra vegetarian option and limiting their meat options will most likely increase the possibility of athletes choosing a vegetarian option. Currently, there are two meat options and one vegetarian option. In this horizon, that could be shifted around to make choosing the vegetarian option the new norm.
Pricing	What does it tackle: It will be more attractive for athletes to choose the vegetarian option when the meat options are more expensive. It does not have to be much. At the moment, vegetarian options are often already the cheapest option (2.85). Provide a small gap between the vegetarian and meat option by making the vegetarian option a little cheaper, or increasing the price of meat.
Buddy Up!	What does it tackle: When an athlete intends to adopt this new behaviour but finds it very difficult to maintain, this athlete can be paired with someone who has already adopted it. This experienced person can help athletes who want to adopt this behavior more intensively. Two athletes can also buddy up who both want to maintain the new behaviour. This may also help reduce their meat consumption since they know the other person is also working on this. They can set goals together in advance to work towards.
Challenge yourself! (try out periode)	What does it tackle: People often do not maintain changed behaviour because they think they could not stick with it for an indefinite time. People are more likely to stick to the changed behaviour when it is clear they can do this for a predetermined time. What can happen is that it turns out that it was not such a big deal at all as they had thought beforehand, and therefore stick to this behaviour. For example, athletes can determine to try vegetarian meals for a month and then reflect on their performed behaviour.
Organize veggie events	What does it tackle: When people have seen much negative information on the news, such as the climate or how animals are treated, they can sometimes start to doubt and think, "what I am doing is pointless". What can help is to get a group together with the same intentions and focus on the positive. Veggie events can bring this group together and put more emphasis on positive events.
Ready to cook plant based boxes for at home	What does it tackle: Even though there are certain services where people can order meals, this is not set up in such a flexible way. With current services, you must indicate in advance how many dishes you want to receive for which days. When Papendal organizes this flexibly, athletes could indicate if they would like to take a box home before the weekend. So they can easily cook vegetarian meals at home. Papendal already has the required ingredients for healthy vegetarian meals. However, the meat substitutes in the supermarket are not as healthy as those from Papendal. It would be more accessible and healthy if Papendal could provide the athletes with a healthy plant-based box to prepare at home.



		At the end of decision making process		
Nudges	Operational Costs		Relative Reach	Long term effectiveness
Build on veggie whatsappgroup				
Communication around how to maintain veggie behaviour				
Informing people about negative effects of meat				
Workshops veggie abroad				
Use of social norms				
Two veggie one meat option				
Pricing				
Buddy Up!				
Challenge yourself!				
Organize veggie events				
Ready to cook plant based boxes for at home				

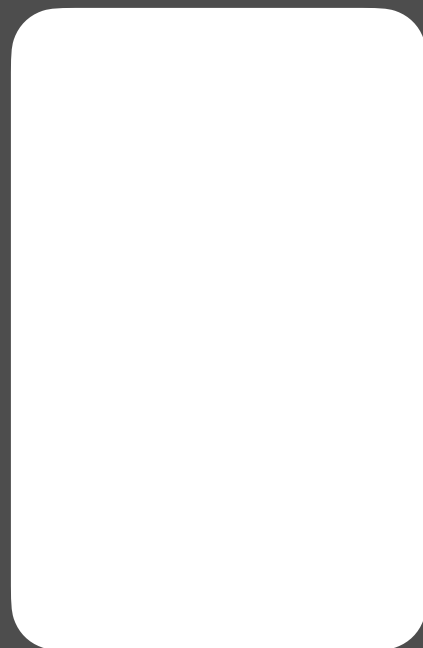
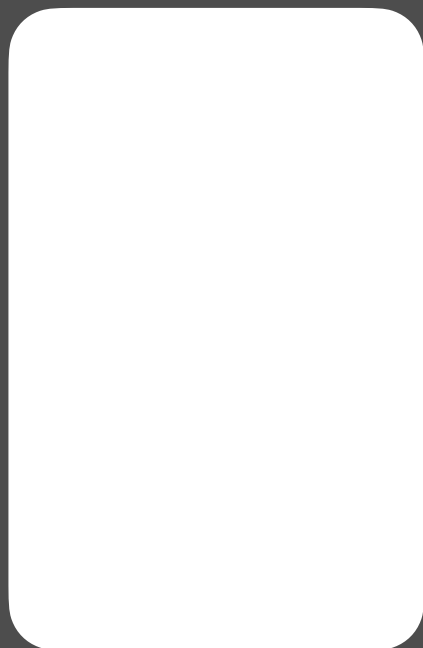
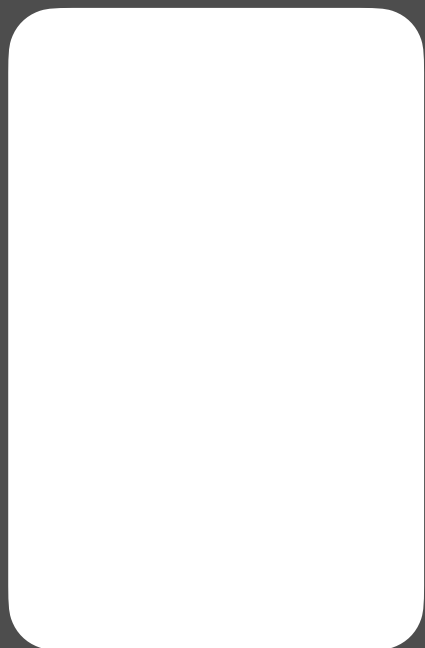
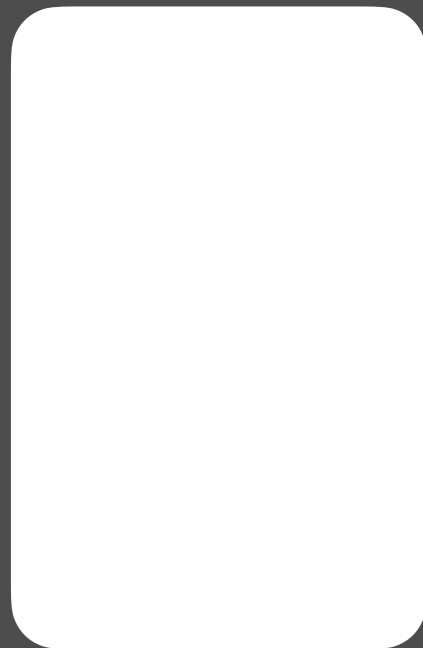
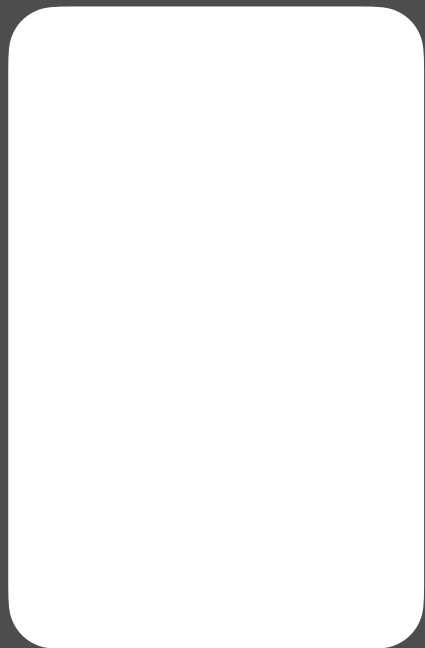
Potential shift over the behaviour change model among athletes



19. How to get feedback

Checkout registration system	The checkout registration system keeps track of how many vegetarian dishes are sold. The system also keeps track of which ones are sold more than others. The number of vegetarian dishes sold indicates whether more and more athletes are choosing this option and which meals are more favorable than others.
Papendal voedingspanel	Even though the nutrition panel consists of athletes who register themselves for this, they can be asked what they think of the developments in vegetarian food in the restaurant, what the athletes think is good, and where they see possible improvements. They can also be asked if they know how their fellow athletes react to these developments. Many athletes have dinner together. When new things are introduced in the restaurant, this is often a topic at the table. Perhaps the athletes on the nutrition panel could indicate whether these are primarily negative, neutral, or positive reactions.
Word of mouth	The chefs who make the dishes always catch reactions from the athletes who come to eat. What do they like or what athletes do not like. The danger here is that some athletes shout and let their opinions known clearly, but this does not mean many athletes share this opinion. Still, the chefs can get some feedback on whether the vegetarian dishes are liked or not.
Happy or Not and/or foursmileys	Happy or not and foursmileys are designed feedback systems that make it accessible and possibly even fun to provide feedback. The athletes can quickly provide feedback on, for example, the taste of the vegetarian meal, what was good, and what they would like to improve. https://foursmileys.com/ https://www.happy-or-not.com/en/
Instagram story with open question	On Instagram, a story can be posted which is visible for 24 hours. This provides a platform for chefs and dieticians to ask different questions. For example, a poll, a closed question where people can click one of the options, or an open question. Every month, a story could be posted with questions that the chefs or dietitians would like to have answered for these developments.
Question measuring which phase population is on the behaviour model	Even though the other feedback systems already indicate whether the developments are perceived positively or negatively, it can be helpful to ask the athletes a question once every six months that clarifies where most athletes are in the behaviour change model. (maybe the athletes will get one free meal if they respond to this question to reach a large group of athletes).
Veggie WhatsApp group	Especially if the WhatsApp group contains a bigger number of athletes and grows, this group can also be used to ask questions about dishes or developments. Providing a lot of feedback on implemented changes.

20. Deck of playing cards, all 52



TeamNL 

TeamNL 

TeamNL 

TeamNL 

TeamNL 

TeamNL 

TeamNL 

TeamNL 

2 Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 1,4 kg CO2 bespaard? Als 120 sporters die op Papendal de helft van de week vegetarisch zouden eten zou er 572 kg CO2 worden bespaard, dat is 4800 km rijden aan uitstoot per week!

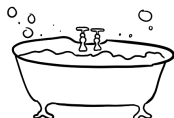


Bron:
Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)



3 Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 840 liter water bespaard? Dat zijn wel zeven badkuipen vol. (als 120 sporters van Papendal de helft van de week vegetarisch zouden eten zou er zo'n 350.000 liter water worden bespaard per week!)



Bron:
Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)



4 Wist je dat...?

... als je vegetarisch eet je per dag gemiddeld zo'n 10 m2 land bespaard? (als 120 sporters de helft van de week vegetarisch zouden eten wordt er wel 4100 m2 land per week bespaard!)



Bron:
Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)



5 Wist je dat...?

... het eten van meer groente, fruit en andere onbewerkte plantaardige producten zorgt voor veel antioxidanten die helpen stres te verminderen?

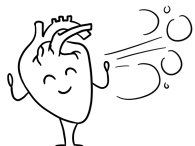


Bron:
Plant-Based Diets for Cardiovascular Safety and Performance in Endurance Sports. (Barnard et al., 2019)



6 Wist je dat...?

... meer onbewerkte plantaardige producten eten helpt om minder verzadigde vetten en cholesterol binnen te krijgen? Dit helpt je bloedsomloop, waardoor het zuurstof makkelijker naar je spieren kan!



Bron:
Environmental impact of omnivorous, vegetarian, and vegan diet. Scientific Reports (Rosi et al., 2017)



7 Wist je dat...?

... als je dierlijke eiwitten vervangt met een mix van verschillende plantaardige eiwitten dit minstens evengoed is voor je gezondheid en prestaties?



Bron:
Positive Effect of Plant-Based Diet on the Performance and Health of Laying Hens. (Straková et al., 2007)



8 Wist je dat...?

... om voordelen op je gezondheid te ervaren het belangrijkste is door **wat** je het vlees vervangt? Bij het samenstellen van de vegetarische avondmaaltijden in het restaurant is hier nauwkeurig op gelet!



9 Wist je dat...?

... het eten van meer onbewerkte plantaardige producten de kans op hart en vaat ziekte aanzienlijk vermindert?

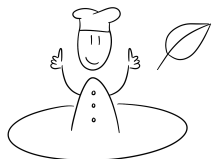


Bron:
Plant-Based Diets: Considerations for Environmental Impact, Protein Quality, and Exercise Performance. (Lynch et al., 2018).



10  Wist je dat...?

... de koks vanaf nu in het restaurant iedere avond vegetarische avondmaaltijden klaarmaken? Heb jij het al eens geproefd?



 **10**

B  Wist je dat...?

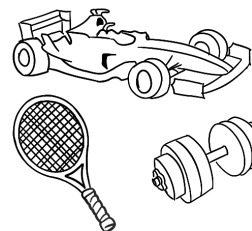
... de vegetarische avondmaaltijden in het restaurant genoeg eiwitten bevatten? Je kunt deze maaltijden dus zorgeloos eten!



 **B**

V  Wist je dat...?

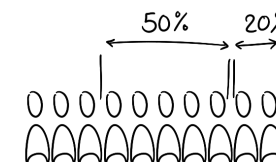
... Lewis Hamilton, Novak Djokovic en Arnold Schwarzenegger allemaal voornamelijk een plantaardig voedingspatroon hebben?




 **V**

H  Wist je dat...?

... de helft van de sporters op Papendal open staat om hun vlees en vis inname te verminderen? 20% is hier zelfs al mee bezig! Bij welke groep hoor jij?



 **H**

A  Wist je dat...?

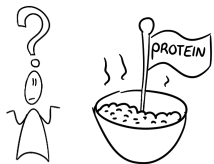
... de grootste groep sporters op Papendal al bereid is om 1 tot 2 keer per week een vegetarische optie te pakken? Ben jij al bereid om dit eens te proberen?



 **A**

2 Vraag en antwoord...

Waar kan je je eiwitten uithalen als je plantaardig eet?

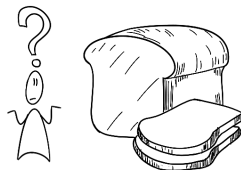


Antwoord:
O.a. noten, bonen, peulvruchten, graanproducten, tofu, tempe, sojameik of plantaardige shakes



3 Vraag en antwoord...

Kan jij vijf gezonde plantaardige producten bedenken die je op je brood kan doen?



Antwoord:
Bijvoorbeeld: avocado, hummus, pindaakaas, gegrilde groente, tapenade



4 Vraag en antwoord...

Weet jij waar je op moet letten als je een vleesvervanger in de supermarkt koopt?



Antwoord:
Het liefst zo min mogelijk bewerkte producten. Over het algemeen, des te korter de lijst van ingrediënten des te gezonder. Je kan kijken hoeveel eiwitten erin zitten en hoeveel verzadigde vetten en zout (deze wil je niet teveel).



5 Vraag en antwoord...

Weet jij wat je meer moet eten als je minder vlees of vis gaat eten?



Antwoord:
peulvruchten, volkoren graanproducten, groente, noten, zaden, pitten, tofu en tempe.



6 Vraag en antwoord...

Weet jij op welke vitamines je wat meer moet letten als je minder vlees en vis eet?



Antwoord:
omega-3, B12. Je zal niet snel een tekort oplopen als je 2 dagen in de week vegetarisch eet. Ben je benieuwd of je wellicht moet suppleren? Laat dan je bloedwaarde checken.



7 Vraag en antwoord...

Weet jij de drie hoofdredenen waarom mensen kiezen om minder vlees en vis te eten?

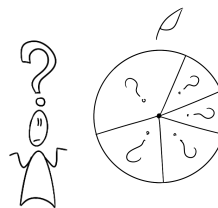


Antwoord:
Gezondheid, Milieu, Dierenwelzijn.



8 Vraag en antwoord...

Welke producten kan jij opnoemen die op de plantaardige schijf van vijf staan?

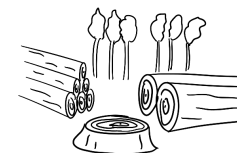


Antwoord:
Fruit, groente, volkoren graan en aardappelen, peulvruchten, tofu en tempe, noten zaden en pitten.



9 Vraag en antwoord...

De productie van soja is toch heel schadelijk voor het regenwoud?

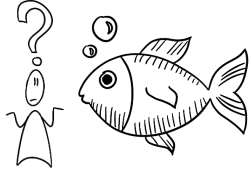


Antwoord:
Het klopt dat niet alle sojaproductie duurzaam is. Alleen wordt driekwart van de sojaproductie gebruikt voor veevoer. Slechts 7% van de sojaproductie wordt gebruikt voor tofu, tempe en sojameik.



10 Vraag en antwoord...

Waarom is het eigenlijk belangrijk om ook te minderen met onze vis consumptie?



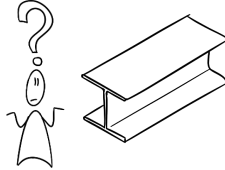
De helft van alle vissoorten wordt overbevist. Als we de huidige visvangst doorzetten hebben we volgens experts de zeeën in 2050 leeggevist. Terwijl het leven in de oceanen meer dan de helft van de zuurstof produceert die wij inademen.

Antwoord:



B Vraag en antwoord...

Weet jij in welke vegetarische producten er ijzerrijk zijn?



Noten en zaden, volkoren producten, peulvruchten, aardappelen. Maar ook in fruit zit ijzer. Tip 1: Zorg dat je maaltijd rijk is aan vitamine-C, dan neem je het ijzer beter op. Tip 2: Roosvicee Ferro is een siroop waar extra ijzer aan is toegevoegd, helemaal makkelijk!

Antwoord:



V Vraag en antwoord...

Weet jij het verschil tussen vegetarisch en plantaardig?



Met een vegetarisch voedingspatroon wordt er geen vlees en vis gegeten, maar wel zuivel. Met een plantaardig voedingspatroon worden er geen dierlijke producten geconsumeerd.

Antwoord:



H Vraag en antwoord...

Kost het niet veel meer tijd en moeite om op een gezonde manier vegetarisch te eten?



Als je van plan bent zelf te gaan koken zal je in het begin inderdaad wat extra aandacht moeten besteden aan je vegetarische gerechten uitproberen? Probeer dan de kant en klare gezonde veggie(n) maaltijden in het restaurant!

Antwoord:



A Vraag en antwoord...

Kan ik niet wachten tot na mijn topsportcarrière met het minderen van vlees en vis?



Dat zou kunnen. Echter, we hebben een punt bereikt waarin sommige klimaatveranderingen onomkeerbaar zijn. Het vaker kiezen voor een vegetarische maaltijd helpt enorm je impact op het klimaat te verminderen, en hoeft niet je prestaties in de weg te zitten.

Antwoord:



2 Recepten

Sushi bowl

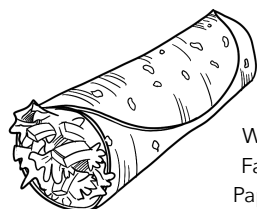


Rijst
Mango
Zeewier
Avocado
Komkommer
Gebakken uitjes
Edamame bonen



3 Recepten

Wraps met falafel



Wraps
Falafel
Paprika
Hummus
Ijsbergsla
Citraensap
Komkommer



4 Recepten

Gezonde kapsalon

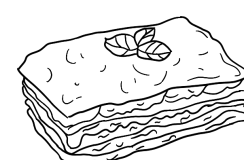


Tomaat
Cheddar
Ijsbergsla
Komkommer
Zoete aardappel
Vega(n) shoarma



5 Recepten

Lasagne

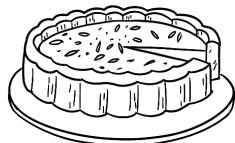


Peen
Kaas
Tomaat
Courgette
Vega(n) gehakt
Volkoren pasta
Tomatenpuree



6 Recepten

Quiche

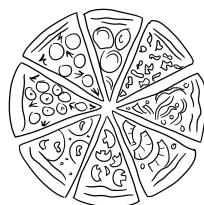


Ei
Prei
Kerrie
Tomaten
Bladerdeeg
Zuivelspread
Champignons



7 Recepten

Pizza



Feta
Paprika
Knoflook
Pizzabodem
Tomatensaus
Champignons
Italiaanse kruiden



8 Recepten

Burgers

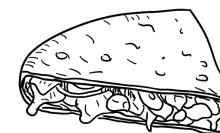


Ui
Tomaat
Cheddar
Ijsbergsla
Komkommer
Vega(n) burger
Hamburger broodjes



9 Recepten

Quesadillas

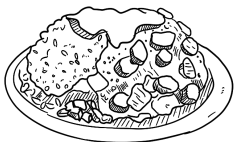


Kaas
Mais
Wraps
Bonen
Tomaat
Paprika
Vega(n) gehakt



10 Recepten

Curry



Rijst
Linzen
Spinazie
Currypasta
Naanbrood
Cashewnoten
Griekse yoghurt



B Recepten

Couscous

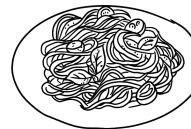


Feta
Rozijnen
Couscous
Courgette
Aubergine
Kikkererwten
Gepelde tomaten



V Recepten

Pasta



Olijfolie
Knoflook
Basilicum
Philadelphia
Volkoren pasta
Snoeptomaatjes



H Recepten

Zoete aardappel bowl

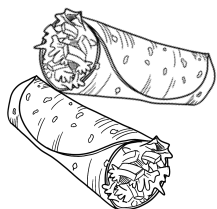


Mais
Peper
Paprika
Tomaat
Avocado
Komkommer
Blokjes zoete aardappel



A Recepten

Fajitas



Ui
Paprika
Tomaat
Tortilla's
Avocado
Ijsbergsla
Fajitas kruiden



2 Tips en Tricks

Het vergroten van je motivatie een grote stap is om vegetarisch te eten. Welk aspect van vegetarisch eten vind jij belangrijk? Milieu? Gezondheid? Dierenwelzijn?



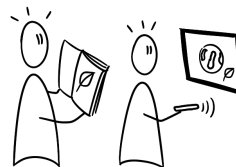
3 Tips en Tricks

Wees lief voor jezelf. Ben je van plan meer vegetarisch te gaan eten? Doe dit dan stapje voor stapje. Begin met 1 avondmaaltijd per week? Lukt het even niet? Niet erg! Dit gebeurt bij iedereen. Behoud je motivatie en pak het weer op wanneer je er aan toe bent.



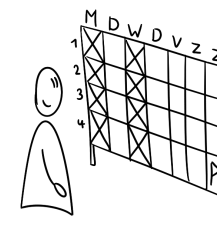
4 Tips en Tricks

Wanneer je in een motivatie dip zit kan het helpen terug te gaan naar wat je in eerste instantie heeft gemotiveerd. Lees of kijk dit wellicht nog eens terug, dit kan helpen je motivatie weer te vergroten!



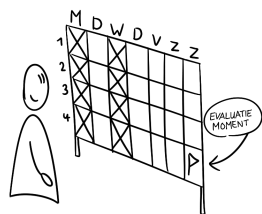
5 Tips en Tricks

Het vooraf voor jezelf bepalen hoe vaak je deze maand de vegetarische optie wil kiezen vergroot de kans om je hier aan te houden!



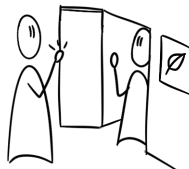
6 Tips en Tricks

Je kan vooraf met jezelf een doel afspreken hoe lang je het wilt gaan proberen om vegetarisch te eten (een week? een maand?). Dan kan je hierna kijken hoe dit is bevallen.



7 Tips en Tricks

Wil je naast een vegetarische avondmaaltijd in het restaurant ook andere maaltijden vegetarisch kiezen, maar twijfel je waar je op moet letten? De deur van de diëtisten staat altijd open en ze helpen je graag verder!



8 Tips en Tricks

Het belangrijkste is dat je doet wat voor jou haalbaar is. Maak kleine haalbare stapjes in plaats van het roer helemaal om te gooien! Ga na wat je al kan vervangen en wen hier eerst aan voordat je de volgende stap neemt. Dit helpt je door de eerste en moeilijkste fase!



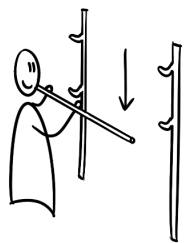
9 Tips en Tricks

Gun jezelf de tijd. Het aanpassen van je eetgewoonte die je al je hele leven hebt kost simpelweg tijd om te veranderen. Leg de lat niet te hoog voor jezelf.



10 Tips en Tricks

Heb je het al even geprobeerd om vegetarisch te eten en vind je het lastig om vol te houden? De lat wat lager leggen kan helpen om het wel vol te houden!



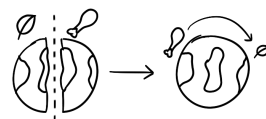
B Tips en Tricks

Wil je wel wat meer vegetarisch eten maar vind je het lastig om dit alleen te doen? Vraag een vriend(in) of medesporter die dit samen met je wilt aangaan!



V Tips en Tricks

Verdeel de wereld niet op in vegans en niet vegans. Onthoud dat iedereen kan opschuiven richting een plantaardig voedingspatroon. De meerderheid van de Nederlanders vindt dat er meer plantaardige producten moeten worden geproduceerd en minder dierlijke.



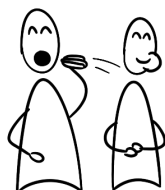
H Tips en Tricks

Ben je benieuwd naar meer tips, tricks en redenen waarom plantaardig eten zo'n belangrijk onderwerp is? Bekijk dan eens de grote gids voor de beginnend veganist op de site van de correspondent.



A Tips en Tricks

Zou je op zich wel willen kiezen voor de vegetarische optie maar twijfel je of je het lekker vindt? Dan kan de vegetarische optie proeven een goed idee zijn! Misschien bevalt het wel?



20. Project brief

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy".

Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !



family name Heijman
initials _____ given name Jim
student number 4351517
street & no. _____
zipcode & city _____
country _____
phone _____
email _____

Your master programme (only select the options that apply to you):

IDE master(s): ☐ IPD ☐ Dfl ☒ SPD

2nd non-IDE master: _____

individual programme: _____ (give date of approval)

honours programme: ☐ Honours Programme Master

specialisation / annotation: ☐ Medisign

☐ Tech. in Sustainable Design

☐ Entrepreneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair Rick Schifferstein dept. / section: HCD/DA
** mentor Maaïke Kleinsmann dept. / section: DOS
2nd mentor Jeroen Wouters
organisation: Papendal
city: Arnhem country: NL

comments
(optional)
:
:
:

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..



! Second mentor only applies in case the assignment is hosted by an external organisation.



! Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Rick Schifferstein date 01 - 10 - 2021 signature Rick Schifferstein

Rick Schifferstein
 Digitally signed by Rick Schifferstein - IO
 Date: 2021.10.01 12:40:56 +02'00'

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 27 ECOf which, taking the conditional requirements into account, can be part of the exam programme 27 EC

List of electives obtained before the third semester without approval of the BoE

☒ YES all 1st year master courses passed

☐ NO missing 1st year master courses are:
name C. van der Bunt date 05 - 10 - 2021 signature C. van der Bunt

C. van der Bunt
 Digitally signed by C. van der Bunt
 Date: 2021.10.05 13:42:33 +02'00'

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

Content: ☒ APPROVED ☐ NOT APPROVEDProcedure: ☒ APPROVED ☐ NOT APPROVED

comments

name Monique von Morgen date 11 - 10 - 2021 signature _____

A strategy towards a successful vegetarian menu on the biggest Olympic training center in the Netherlands. project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 07 - 09 - 2021 29 - 05 - 2021 end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

The client of this project will be the biggest Olympic training center in the Netherlands, namely Papendal. Where many different athletes that practice different sports come together to get the best out of their sports career. Papendal provides all the facilities needed to make this possible, including the topsport restaurant. Which will be the main stakeholder for this project. Papendal states that innovation, reformulating recipes, is the core strength of the team that is working at the restaurant. Where nutrition and science meet.

At the moment the chefs at Papendal have no insights about who is vegetarian, or who prefers to eat less meat. The chefs just prepare meat and fish dishes since there was a failed experiment with meat replacements in the past

In this project, I want to design a strategy that promotes vegetarian nutrition among athletes and makes them more aware and conscious about it, while keeping in mind that it should be as accessible as possible and fitting in their full-time training program.

The foremost reason for this project is that becoming vegetarian is a great step towards sustainability, increasing animal welfare, and potentially increasing personal health. Next to that, there is a rising demand for vegetarian nutrition, and Papendal has all the potential to make a great step towards a more sustainable future.

Possible limitations are the busy schedules of the athletes, for example in times I want to perform interviews or get feedback.

space available for images / figures on next page

introduction (continued): space for images

TO PLACE YOUR IMAGE IN THIS AREA:

- **SAVE THIS DOCUMENT TO YOUR COMPUTER AND OPEN IT IN ADOBE READER**
- **CLICK AREA TO PLACE IMAGE / FIGURE**

PLEASE NOTE:

- **IMAGE WILL SCALE TO FIT AUTOMATICALLY**
- **NATIVE IMAGE RATIO IS 16:10**
- **IF YOU EXPERIENCE PROBLEMS IN UPLOADING, CONVERT IMAGE TO PDF AND TRY AGAIN**

image / figure 1: _____

TO PLACE YOUR IMAGE IN THIS AREA:

- **SAVE THIS DOCUMENT TO YOUR COMPUTER AND OPEN IT IN ADOBE READER**
- **CLICK AREA TO PLACE IMAGE / FIGURE**

PLEASE NOTE:

- **IMAGE WILL SCALE TO FIT AUTOMATICALLY**
- **NATIVE IMAGE RATIO IS 16:10**
- **IF YOU EXPERIENCE PROBLEMS IN UPLOADING, CONVERT IMAGE TO PDF AND TRY AGAIN**

image / figure 2: _____

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

The problem definition of this project:

At the topsport restaurant in Papendal, there is a lack of knowledge about the demand for vegetarian nutrition among athletes. Next to that, it is unclear what the barriers are towards vegetarian nutrition.

In this project, I will work with the double diamond design model. To find out what the barriers are among the athletes and design a strategy that will help overcome these barriers towards vegetarian nutrition. The project will contain four different phases. Discover, define, develop and deliver.

In the discover phase I will explore and research what the demand is for vegetarian nutrition among athletes, and what the main barriers are towards vegetarian nutrition. A clear issue that needs to be addressed too in the discover phase is that athletes need to know whether vegetarian nutrition will not negatively affect their performance. This challenge is key in promoting vegetarian nutrition. The solution space for this issue is a literature analysis and speaking to experts.

In the define phase, I will use the results from the discover phase to create different personas that show the different barriers towards vegetarian nutrition among athletes. A solution space is that athletes may have different reasons behind not eating vegetarian nutrition, and therefore need a different approach when promoting a vegetarian diet. That fits with their reasoning.

The develop phase starts with picking out the persona that represents the barrier that most athletes share. For this persona, I start developing potential solutions. How this persona can be approached best. It will, unfortunately, be not manageable to design multiple approaches for all the created personas.

Lastly, in the deliver phase I will use the most promising solutions to come up with a strategy of what needs to be done and how this can be realized. Next to that, there is one small thing that is addressed in the deliver phase. Both athletes that are part of TeamNL and an organization as Papendal can be seen as role models. In what way can they inspire and encourage everyday people to create a bigger impact. This part will only consist of a brainstorming session. To provide the staff of Papendal with inspiration and possible starting points.

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Design a strategy that promotes vegetarian nutrition among athletes and makes them more aware and conscious about it, while keeping in mind that it should be as accessible as possible and fitting in their full-time training program.

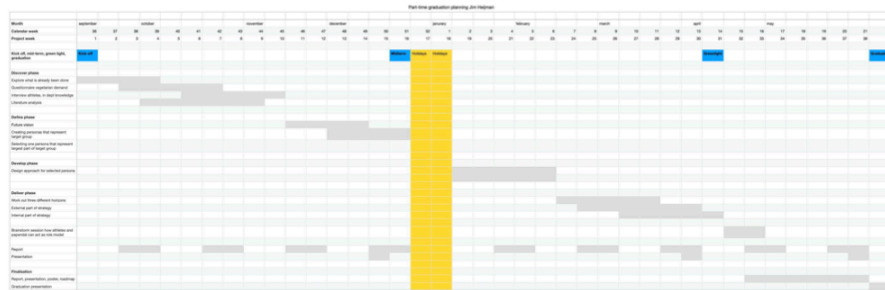
This strategy will help with making a step towards sustainability, meet the needs of the rising demand for vegetarian nutrition and help overcome the barriers towards vegetarian nutrition.

I expect a strategy containing a roadmap to clarify what steps need to be taken when and how these can be realized. The designed strategy will contain an external and internal part. The external part, how to communicate and promote this towards the athletes. Internal part, what needs to be done within the organization to make this possible.

PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 07 - 09 - 2021 29 - 05 - 2022 end date



MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, Stick to no more than five ambitions.

My main motivation for this project is that switching to a vegetarian diet is so much better for the environment. The future of our food industry simply can't be something where we consume as much meat and fish as we do now. Next to that, I have stopped eating meat and fish myself for over a year now, so I am well aware of all the ins and outs you have to pay attention to as a professional athlete. Surprisingly, all the results of my conditioning test and strength tests have increased significantly. I am not saying that this is because of my diet switch. However, if there is a way to show that it doesn't negatively affect your performance, it is already a win. Since this would be much better for the planet and animals.

This project will touch upon different courses I have had during my master's. For example, the Design Strategy Project, where innovation approaches were developed and a lot of customer journeys were made. Of course Design Roadmapping. The course Brand and Product Commercialization also fits with this project. Where we have learned how to launch new services and how to promote new services. Moreover, the elective consumer behavior is fitting perfectly with this project, for making athletes aware and more conscious about their nutrition patterns. Besides the previously mentioned courses, all the visualization courses will come in handy as well. To make it visually appealing.

The competences I want to learn are how to act and design within this large organization where many different people are involved. Athletes, nutritionists, sports scientists, coaches, chefs, innovation manager and manager of the topsport restaurant. Another competence I want to learn/improve is my time management. Sometimes I tend to stay in a certain phase of my project because I want to make it better and better which leads to less time for the next phase.

Competences that I have yet developed are getting people on board with my design direction or concepts. I'm aware of my strength to make people enthusiastic. I'm only able to do this when I truly believe that this idea will benefit the people, the planet, and animals. Which I do in this case. Although getting people on board is one of my developed competences, this will be the biggest challenge during this project. It has to do with behavior change, where people have developed patterns they are sticking to for many years already.

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

Since I am also an athlete of TeamNL, and following the fulltime training program, I am able to work 2.5 days a week on this project. Therefore I will not be doing my graduation project fulltime, but part-time.

