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Research Design for Plantiga's Market Entry into France

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EXECUTIVE SUMMARY

In light of the upcoming 2024 Olympics event in France, Plantiga company has made the strategic decision to leverage this global event to introduce their latest smart shoe insoles to a wider audience. This initiative aims to extend beyond their existing customer base in the United States and Canada, which primarily consists of professional athletes and medical professionals.[1] This document corresponds to a marketing research report that revolves around three marketing management problems, who should the company target as early adopters, who are Plantiga's current competitors and offerings and what would be the potential size market for the smart insoles in France. First, specific objectives are derived from the three problems, then a multi-stage research design is proposed. The first phase corresponds to a competitor analysis by means of qualitative exploratory design. The second phase addresses specific hypotheses generated during the exploratory phase by using both secondary quantitative analysis and primary quantitative analysis by means of a survey. Key insights obtained from the research include showing that most of the competitors haven't entered a wider market, and their product is on prototype stage. Identifying that there is a relationship between sports practiced and willingness to pay, where it is recommended to Plantiga to focus on heavy lifters and runners, specifically using Amazon as their main channel and prioritizing advertisement efforts in TikTok and Instagram.

[1] This goal is an assumption made for the academic purposes of this document based on the objectives of the Module outline.

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1 ASSUMPTIONS

- Plantiga wants to venture in the Broader market and wants to leverage France Olympics to begin targeting early adopters.

- This study assumes Plantiga early adopters' price will be 1000 EUR subscription per year. At the moment of this project, no information of actual price for broader market has been established in Plantiga official sources.

- Given the investment in systems and personnel costs, a brand-personal website will only be introduced if more than 40% of the users are interested.

- Plantiga is willing to spend 1 million EUR in marketing for the first 3 years of launch. This assumption will help us define a Service Obtainable Market for the first 3 years of launch. Assuming the customer acquisition cost for Plantiga product to be 600 EUR as the industry customer acquisition cost for technology hardware is 182 $.

2 BACKGROUND

2.1 Introduction

Plantiga - is a smart insole system for monitoring athlete health and performance by capturing real-time movement data and analyzing it. In June 2023 it launched the fifth generation of its sensor pod, Arc5. Plantiga smart soles are currently introduced to the Canadian and U.S. market and serve around 90 customers, including famous elite sports teams and several militaries (Plantiga, 2023).

The aim of this marketing campaign is to introduce Plantiga's smart soles to the French market, strategically choosing the Olympics period during summer 2024 as an optimal time frame, during which the sports attitude will be the highest. By equipping amateur athletes and their coaches with real-time, personalized biomechanical insights, the Arc5 system empowers a proactive approach to injury prevention and performance tracking. This proactive approach promotes healthier training practices and supports sustainable, long-term involvement in sports.

2.2 Situation Analysis

Based on past sales data during previous Olympic events (Guardian, 2008), it was observed that a significant increase happened in the purchase of sports merchandise in that period. During 2021 Tokyo Olympic Games there was a 430% increase in units sold between March and July for sports goods on online platforms (Glenday J., 2021).
This historical trend suggests that the upcoming Olympics in 2024 will likely result in high demand for Plantiga Smart soles product and management want to seize the opportunity to launch their product to a broader market.

2.3 Product characterization

More than 35 million people in France take part in a physical or athletic activity at least once a week (Campus France, 2022). All of them are doing sports for some reason: stay healthy, lose weight/gain muscles or as a hobby. But not only tracking the speed and calories burnt metrics are important. Plantiga smart soles help people see the effect of training, recovery, understand fatigue or injury with the help of smart sensors that measure various metrics while the person is training. They can help monitor athlete load, step-by-step stride asymmetries and ground contact times (example shown on figure 1).

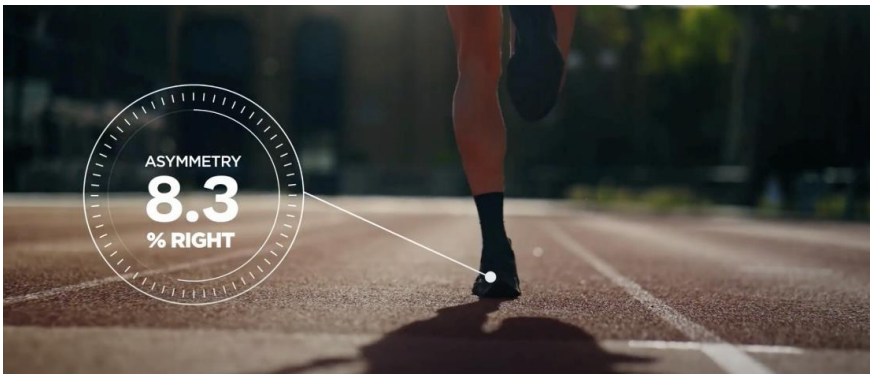

Figure 1. Example how Plantiga Smart soles check individual asymmetry.

By proving feedback and graphics after each training session users can optimize their technique, tracking performance over time can help set goals and monitor the progress. Special metrics that soles collect can highlight potential gait problems or body imbalance. Overall, they help amateurs train by themselves, reduce the risk of injuries and improving overall performance.

Plantiga smart soles come in a box with 2 insoles, 2 pods that are inserted inside the soles, 1 dock station to charge the pods, and 1 power cord as shown on figure 2.

Figure 2. Plantiga Smart soles set

Soles can be inserted in any type of shoes either above or instead of existing sole. As soon as shoes are put on the feet, movement data is being collected. Plantiga offers a mobile and web app, where all collected results are stored, analyzed and shown (figure 3).

Figure 3. Plantiga's analytics dashboards showing individual metrics, that smart soles collected.

The app can show trends over time with progression and regression, step-by-step biomechanics with changings in movement patterns and have customizable data views with the running feed of daily activities with a quick summary of relevant metrics for each activity type. Each activity can be viewed as a report with the metrics shown on table 1 (Plantiga, 2024).

Table 1. Key metrics for each activity group

Walking	Running	Jumping
• Gait Speed	• Speed (CoM)	• Jump Height
• Cadence	• Cadence	• Jump Distance
• Distance Travelled	• Flight Time	• Reactive Strength (RSI)
• Stance & Swing Time	• Ground Contact Time	• Air Time
• Swing Time Variability	• Flight Ratio	• Ground Contact Time
• Single & Double Support Time	• Vertical Takeoff & Landing Accelerations	• Vertical Takeoff & Landing Accelerations
• Vertical Takeoff & Landing Accelerations	• Peak Acceleration	• Total Load & Intensity
• Gait Asymmetries	• Gait Asymmetries	• Jumping Asymmetries
• Total Load & Intensity	• Total Load & Intensity	
• Step Count	• Activity Duration	
• Number of Rests	• Load Asymmetry	
• Activity Duration		
• Load Asymmetry		

All raw data and computed metrics can be downloaded in a csv format for further analysis with a doctor, for example.

2.4 Target audience

Right now, Plantiga company has customers from health, sports and military spheres. Many clients are elite athletes in sport teams like NBA, MLB and others (Plantiga, 2024). By analyzing the sport wearable technology market, it was found that sport enthusiasts are highly interested in tracking their performance using the smart devices (Cogniteq, 2023), in our case – smart soles. It is decided to target the audience, who are amateur sport players. They might be engaged in local sport teams or clubs, go to gym or run/cycle/walk as a hobby. They are interested in tracking the effect of their training, keep track of recovery after an injury with a smart device.

To target the desired group of audience, the sales team first requires to understand their needs. The following factors such as age, gender, sport involvement, possibility of past injuries, chronical pains and purchasing behaviour needs to be researched to identify their sport lifestyles, desired tracking metrics and determine the most effectives channels to reach them.

2.5 Barriers

By introducing Plantiga's smart soles to a new market of France, it is important to consider possible barriers the company might come across and how they can be overcome.

Customer awareness is the first barrier that should be investigated. Potential customers would not be aware of the new product until the marketing campaigns will be organised and users will be reached through the appropriate and most used social media channels.

The second barrier is the high product cost. Consumers should be informed about the full range of product capabilities, it's software products and customer support.

And lastly are the privacy concerns. It should be ensured, that all data that was collected from users complies with Data Protection Regulations, especially when dealing with health data. The European Union General Data Protection Regulations (GDPR) sets the standards in data protection. These measures are essential for building trustworthy relationships with users.

3 PROBLEM STATEMENT

Qualitative exploration of the French market shows that currently there are only a few competitors that produce a high-quality product to both measure user's gait posture, analyse movement data and build movement patterns in only 4-5 training sessions. Without tailored, data-driven insights, amateur athletes may unknowingly adopt training patterns that incrementally increase their vulnerability to injuries. These injuries, ranging from strains to acute traumas, can have significant consequences. They can stop training progress, trouble competitive performance, and ultimately limit an athlete's ability to participate in the sports they love. Both performance improvement and injury prevention make Plantiga's smart insoles a good fit in the market and bring more revenue in future to the company.

This document will outline Plantiga's marketing market entry strategy for their early adopters during the summer 2024 Olympics, concentrating on product positioning, understanding potential customer's profile, their willingness to pay and ways to target them.

4 RESEARCH OBJECTIVES

In order to determine the research objectives, the framework suggested by D'Alessandro et al. (2017) is applied, where first the marketing problem is defined, then the research questions are asked and finally the research objectives are identified.

Table 2. Marketing Management problems translated into research objectives.

Marketing Management Problem/Questions	Research Question	Research Objectives
Who are Plantiga's competitors and their offerings?	What is the price of the competitors' products?	▪ To characterize the competitors current offering
	Are the competitors focusing on specific sports?	▪ To identify how Plantiga's insoles differentiate in the market
	What channels are currently used by the competitors?	
What could be the size market for Plantiga's insoles in France?	What market is similar to Plantiga's insoles? What are the drivers for growth in this market?	▪ To obtain using a Top-Down approach a potential market size for Plantiga's product in France
What should be the profile of the early adopters to target?	Who are the best prospects? Should certain sports be prioritized? What channels should be prioritized? Should sales be on Amazon or on a brand specific on-line store? What social media platforms should be used?	▪ To measure whether there is a relation between the sport practiced and willingness to pay or not. ▪ To measure if more than 40% of the potential users would buy in amazon and/or Brand specific online store ▪ To compare - using cross-tabulations - purchase intention of different levels of social media, presence of injuries, age, news source, type of usage, etc.

5 RESEARCH DESIGN

5.1 Multi-stage research

D'Alessandro et al. (2017) define a research design as a master plan that specifies the methods and procedures for collecting and analysing the needed information; it is a framework for the research plan of action. Malhotra et al. (2017) explain that even though typically research design classifications are not combined since their objectives are different (exploratory to understand and conductive to measure), these classifications are not absolute, and a marketing research project may require more than one type of research design and hence attend various purposes.

Such a design is proposed for this marketing research. On the one hand there is an exploratory nature required as Plantiga wants to enter a broader market instead of their current U.S. and Canada customers composed of major leagues athletes, hospitals and sports clinics, but on the other hand since there is already a decision in place that they'll be selling their product in France for six months, some hypotheses need to be further tested prior to launching the product in the new market. The next figure details the research design:

Stage 1	**Type**	**Exploratory Design - To understand**
	Objectives	To characterize the competitors' current offerings. To identify how Plantiga's insoles differentiate in the market.
	Methods	Qualitative Secondary Data
	Tasks	Websites, Magazines, Newspapers to generate a competitor analysis

Stage 2	**Type**	**Conclusive Design - To measure** Descriptive Research - Cross-sectional design - Single Cross - Sectional
	Objectives	To obtain using a Top-Down approach a potential market size for Plantiga's product in France To measure whether there is a relation between the sport practiced and willingness to pay or not. To measure if more than 40% of the potential users would buy in amazon and/or Brand specific online store To compare - using cross-tabulations - purchase intention of different levels of social media, presence of injuries, age, news source, type of usage, etc
	Methods	Quantitative Secondary Data Quantitative Primary Data
	Tasks	Customer-focused publications Academic studies Business publications Government data sources
		Survey Results

Figure 4. Two stage Research Design. Source: Own depiction based on Malhotra et al. (2017), Kolb (2008) and D'Alessandro et al. (2017)

5.2 Exploratory research

Early adopters are defined as the first customers to adopt a new product before the majority does. They play a key role as feedback providers but also have a strong influence on the success of the product, their word-of-mouth is crucial for building reputation and subsequently helping the company acquire more customers (Chi, 2020). Exploratory research is conducted first as it can provide valuable information for correctly selecting the target audience. Background information can help achieving the research objectives and if necessary, formulate hypotheses for further investigation and quantification.

5.2.1 Qualitative Secondary Research

Four main areas of exploration can be inferred from the research objectives: 1) Identify a target early adopter profile, 2) Sport(s) with more likelihood to incorporate smart training devices, 3) Price and 4) Channels to engage with the customer. A competitor analysis is an appropriate approach to investigate all of them. Daly (2020) defines competitor analysis as the process of researching, categorising, and evaluating the strengths and weaknesses of brands that you deem to be a potential threat to your business. Among its benefits are gaining an understanding of the market in which the company will operate, target audience, competitor products and pricing structures which is exactly what the exploration intends in this case. Finally, since this is a novel product finding statistical data for competitors is challenging. In these cases, Kolb (2008) recommends using qualitative secondary data that are not statistical can be gathered from sources such as websites, magazines, and newspapers that can be found online specifically when researching consumer preferences and competitors.

5.3 Descriptive Research

5.3.1 Quantitative Secondary Research

For the purpose of this research, the objective for conducting quantitative secondary research is to estimate potential growth and profits in the region. According to HubSpot, a leading CRM software provider, the market sizing can be approached through two methods (Chi, 2023).

Top-Down Approach

The approach is to start by looking at the market, then refine it to get an accurate market size. That would look like starting from the total addressable market and filtering from there. To refine the market, a segmentation using filters will be conducted. Filters can include demographics, product use cases etc. The first step is looking at the total population in the geography followed by the sales or

potential market estimated in this industry. Sources for this data will include industry standard and credible market research companies like euromonitor, statista etc.

The product of Plantiga is a niche in the wearable technology industry. Refining the industry size is critical. This will require to look at popular products in this industry and remove the sales from these products from the market size. As per research studies, products like smart watches, smart rings, smart fabric products have considerable market share and hence are very popular.

Bottom-Up Approach

A bottom-up approach is the exact opposite – starting small and working your way outward.
This looks like first identifying the number of units that can be expected to be sold, then considering how many sales should be anticipated from each buyer and finally the average price per unit. Since there is no first-hand data in this region, the sales data of direct competitors and indirect competitors can be analysed. Then a potential market size can be estimated by using own company pricing and marketing strategies. Indirect competitors are those selling products with similar use cases. For example, in the case of Plantiga, it would be companies that sell performance sports shoes which are used for running, walking, hiking with some smart functionality. And further noting that direct competitors' data is not available, estimates will be done using secondary sources like website visitors per month for their site, the investment the company has raised etc.

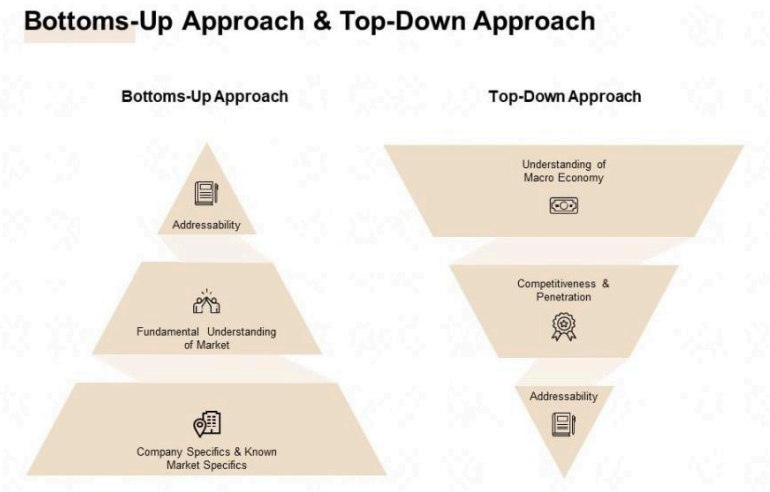

Figure 5. Distinct approaches to compute market size. Source: Chi, C. (2023)

5.3.2 Survey Design

When designing the survey, our team followed three best practices rules described by D'Alessandro et al. (2017):

- Making the survey questions structural and easy to understand, with unambiguous words, so the participants can answer them.
- Making the participants motivated and encouraged to be involved, by asking them about their valuable experience, explaining why we need their honest results which will bring social value to the market of available health devices.
- Creating the survey in such a way, that minimizes response errors by ensuring that no double-barrelled or open-ended questions were asked. The survey has predefined options and does not have empty fields for users to write their own thoughts, for the answers to be on a specific topic to reduce possible confusion by misunderstanding the questions.

When specifying what information will be needed, the rightmost column was created where the 'Goal' was defined to understand why each question was asked and what result do we need to get in an answer. This helped stay on the topic and use only specific questions that will help answer the research objectives. Most dichotomous questions were supplemented by neutral alternatives (like "Not applicable").

The survey was designed in a simple way, without bright colours and in a formal writing style to be appropriate to present to all groups of people. Time questions included only a week period so that the participants don't have to perform complex calculations for a bigger period like a month or a year, if talking about visits to the gym/sports club.

No sensitive information, like the household income, was asked to ensure people do not abandon the survey because of them or to be seen as an invasion of privacy.

5.3.3 Sample Planning

The sampling techniques selected were convenience sampling for relatively easy approach and quota sampling that will reduces bias and looks at different subgroups of population.
Below are the steps recommended by D'Alessandro et al. (2017)

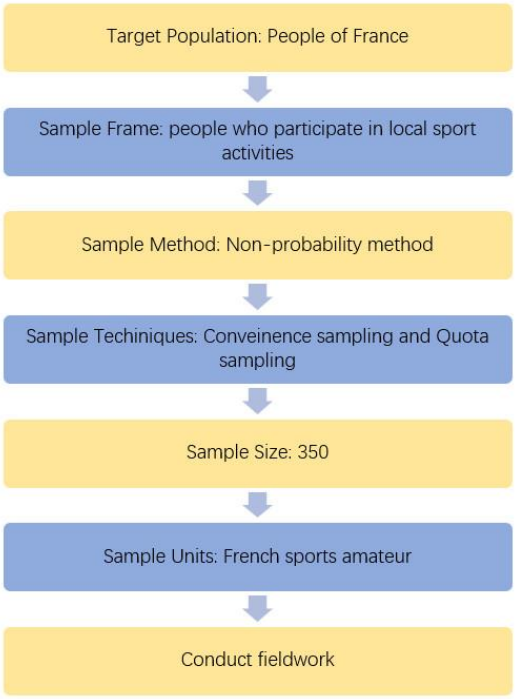

Figure 6. Sample planning process. Source: Own depiction based on D'Alessandro et al. (2017)

- Define target population:
  The French sports market is large and covers many types of sports. First defining French people, and then concentrating more on French sport amateur players as the target population in this research, will help better understand their needs and preferences and implement more targeted marketing strategies.

- Selecting a sample frame:
  When selecting the sample frame, it is necessary to ensure that the frame has sufficient coverage and representation. In this case, the sample frame would a be lists of French amateur players, who participate in local sport activities.

- Define the methods:
  In this case, the target groups, mentioned above are difficult to reach, so a more practical method known as nonprobability sampling should be selected. This method does not rely on random selection of samples but is based on the judgment of the available resources. Although the

nonprobability sampling method may have some bias, in this case it is cheaper, less time-consuming and easier to implement, thus is the best option for us to conduct research and obtain data (D'Alessandro et al., 2017).

- Select sampling technique:

  Convenience sampling and quota sampling will be combined to use in this case. Quota Sampling ensures that the sample includes samples with a variety of specific characteristics, help reach relevant group directly through social media, sports clubs, then collect data. And ensures that subgroups of population are represented.

  Convenience sampling provides large number of completed survey results quickly and economically. Different quotas need to be set based on the characteristics (age, gender, etc...) of the French sports fan community. (D'Alessandro et al.,2017).

- Determine the sample size:

  1. Sample size calculation formula:

  Depending on the nature of the questionnaire, the sample size can be calculated using the percentage confidence interval formula as follows:

  n = z^2 * p * (100 – p) / E^2

  Where **n** is the sample size, **z** represents the confidence level, **p** is the estimated proportion of an attribute, and **E** is the margin of error.

  2. Setting of parameters:

  Z is for confidence level: Generally, it is set at 95% hence the corresponding z value of 1.96.

  P is for estimated percentage: in our survey a reasonable estimation should be set. In this survey, through statistical analysis, the percentage of most respondents that would possibly use the health monitoring devices was found to be 69%. Acceptable error (E): it is the usual range of error taken at 5%.

  3. Sample calculating:

  n = 1.96^2 * 69 * (100-69)/ 5^2

  n $\approx$ 350 respondents

- Select actual sampling units:

  In this case, the sample unit can be described as a French sports amateur who engages in sports activities. Sample units may include members of sports clubs, people who regularly participate in sports competitions, individuals who share experiences of sports activities on social media, etc. In the study, the sample units will be the subject of data collection and analysis to learn about their background, sports preferences.

- Conduct fieldwork:

  Convenience sampling was used at the first stage. People were interviewed at sports clubs and gyms in France. Those clubs and gyms are distributed in different cities and regions of France, which ensures a certain degree of universality.

  Quota sampling was used to identify subgroups using different characteristics, like age and gender. The surveys were sent to the active members of the clubs and the people who bought membership at gym in every subgroup through official websites and social media. In this way, the results about the prospects can be as accurately as possible.

6 RESULTS

6.1 Exploratory Research

6.1.1 Competitor Analysis

Below are the results of the exploratory research using secondary qualitative data. Background information for each competitor about their offering, current customers, sports related channels, price and type of competitor was summarized in the following table.

Table 3. Competitor Analysis

Competitor	Offering	Customers	Sports related	How to they sell their product? (channels)	Price	Competitor Type
Walk With Path	Develops innovative medical devices to improve mobility and wellbeing, including a device for Parkinson's disease symptoms, and smart insoles for foot health. Their products comprise an insole for shoes, Path Feel, which helps the wearer to feel the floor better, through providing active feedback, Path Finder, a shoe that provides visual cues for the wearer to follow to help with the foot movement and gait, and Floave, a wearable fitness device.	Individuals with mobility challenges Fitness enthusiasts	N/A	direct sales online	Path Finder: €1.195,95	direct competitor
Orpyx Medical Technologies	They offer the Orpyx Sensory Insole System, designed to prevent diabetic foot ulcers (DFUs) by monitoring plantar pressure, adherence, step count, and temperature data for at-risk patients.	Individuals living with diabetes, especially those at higher risk for diabetic foot ulcers (DFUs)	N/A	direct sales online business-to-business (B2B) sales channel	N/A	direct competitor
NURVV	NURVV Run Smart Insoles are award-winning wearables for runners, featuring trackers in insoles to analyze stride impact.	Runners looking to enhance their technique, performance, and running health	Running	direct sales online	NURVV Run Smart Insoles： $299.95	direct competitor
boogio	Boogio is a smart insole wearable that fits perfectly in your shoe. It's packed with sensors that give you real-time feedback about sports performance and your overall health.	Athletes in golf, baseball, and running Individuals in healthcare settings	Golfing Baseball Running Basketball	N/A	N/A	direct competitor
Tekscan	Tekscan offers pressure mapping, force measurement, and tactile sensors, catering to a diverse range of applications across healthcare, dental, industrial, and research fields. Tekscan's Human Gait Analysis system is designed to provide comprehensive insights into an individual's walking pattern.	Professionals and organizations in the healthcare, dental, industrial, and research sectors	N/A	direct sales online	N/A	direct competitor
voxelcare	Voxelcare offers a range of footcare products, including custom orthotics and insoles, CAD/CAM software for design, 3D foot scanning systems for accurate measurement, and manufacturing equipment like CNC milling machines and 3D printers.	Professionals in the footcare industry	N/A	through agents and distributors	N/A	direct competitor
Apple	Apple offers a range of smartwatches primarily aimed at fulfilling customers' needs for fitness, health monitoring, and communication.	Individuals focused on health and fitness Users seeking to stay connected and enhance productivity through wearable technology Consumers interested in fashion and personalization with their gadgets	running, swimming, and cycling, etc	Apple's official website, Apple Retail Stores, and authorized third-party retailers and electronics stores	$249 - $1249	indirect competitor

The following key insights were obtained:

- Current competitors mainly focus on specific health or sports performance areas, such as improving mobility for individuals with walking difficulties (e.g., Walk With Path), providing solutions for diabetic patients (e.g., Orpyx Medical Technologies), or focusing on athletes (e.g., NURVV and boogio). This indicates a broader market opportunity for Plantiga to become the first company to offer a comprehensive health (gait position, movement patterns, overall health results) and performance monitoring solution to a wider audience.
- Competitors' main current customers are professionals in healthcare, health clinics and people living with some sort of diseases. This again further suggests a potential to capture a wider audience such as fitness enthusiasts.

- Pricing information in general is not available. Most of the competitors are in development stage where anyone interested needs to ask for a quote. At this point the current price for a Plantiga set cannot be lower than 1000 EUR per year, hence a quantitative approach is required to analyse the customers willingness to pay.
- It seems that a common sport denominator in all solutions is running. As discussed before, having success with early adopters is crucial, hence that team wants to explore further if there would be a difference in willingness to pay based on the type of sport conducted.

Comparisons between Plantiga and its competitors in terms of similarities and differences are also drawn:

Similarities:

- Health and Exercise Monitoring: Plantiga shares a core function with other smart insoles or health tracking devices, which is to monitor and analyze the user's movement data. These devices collect key metrics such as stride length and ground contact time during walking, running, or other activities, aiming to improve the user's physical health and athletic performance.
- Data-Driven Feedback: Most smart insole products provide the capability to give users feedback based on the analysis of collected data, allowing users to adjust their training habits, improve their gait, or prevent injuries.
- Smart Sensing Technology: Similar to Plantiga, many competitors (such as NURVV Run Smart Insoles and Orpyx Sensory Insole System) also utilize smart sensors to collect movement data, monitoring the user's health and athletic performance.

Differences:

- Focus Scope: A major aspect that distinguishes Plantiga smart insoles from other products is its focus scope. It is designed not only for athletes or patients but also aims to support a wide range of users, including those in recovery training, individuals looking to improve their gait, and general fitness enthusiasts concerned about reducing the risk of injury.
- Technology and Application: Compared to other smart insoles on the market, Plantiga offers more in-depth biomechanical analysis and insights into movement patterns. With advanced sensor technology and sophisticated data analysis, Plantiga can reveal subtle differences in a user's gait, thereby helping to identify potential imbalances and gait issues, which are not commonly found in other products.

A SWOT Analysis was also conducted:

- **Strengths:** Plantiga has an advantage in offering comprehensive health and performance monitoring solutions.
- **Weaknesses:** As a newcomer, Plantiga may face challenges in brand recognition and market acceptance, especially when compared to established competitors like indirect competitor Apple.
- **Opportunities:** Expand the target market, not only serving professional athletes and individuals with specific health conditions but also a broader range of health-conscious consumers.
- **Threats:** Existing competitors may quickly adjust their strategies to cover a broader market or consolidate their market position through innovation.

6.1.2 Hypotheses derived from exploratory research

Plantiga management already know that they cannot price less than 1000 USD yearly for early adopters and direct competitors don't have yet their product available for direct sales. Additionally, the exploratory analysis suggest that runners are a common denominator among the customers of the competitors. Furthermore, the majority conduct their sales using online sales channel; this by previous company knowledge, is typically in the form of Amazon sales or a dedicated online store. Finally, improving health because of an injury is present in the competitors offering. As choosing a correct target for early adopters is critical some hypotheses need to be further tested. Specifically:

Hypothesis #1: Relationship between sport practiced and willingness to pay.

$$H_o: \textit{There is no link between sport practiced and willingness to pay current price.}$$
$$H_1: \textit{There is a link between sport practiced and willigness to pay current price.}$$

Hypothesis # 2: To measure if more than 40% of the potential users would buy in amazon and/or brand specific online store.

For each type of brand, check if the proportion of users is higher than 40%.

$$H_o: p \leq 0.40$$
$$H_1: p > 0.40$$

Then additional comparisons can be done following a similar approach - using cross-tabulations - purchase intention of different levels of social media, presence of injuries, age, news source, type of usage, etc. These hypotheses then can be tested conducting the descriptive research.

6.2 Descriptive Research

6.2.1 Market potential/size

Globally the Smart Wearable Fitness and Sports Devices Market is expected to witness substantial growth from 2023 to 2032. Industry experts predict a CAGR of approximately 5% during this period. In 2023, the global market is projected to be valued at USD 83.28 Billion, and it is estimated to reach USD 106.47 Billion by 2032. From the global market figure looking to drill down to France, the company requires a number which will indicate the percentage of market share in France. This data is not available from the source. Hence, the approach needs to be different.

Researching further the Smart Wearable Fitness industry cannot be compared to a similar industry. Due to the unique product use case, the desire and motivation to use this product is not like any other existing industry. So, the investigation of secondary sources specific to the Europe market has to be carried out.

The market for our niche product will be significantly less. To calculate the market size, assumptions will need to be made to refine the industry size in France.

- Starting with Potential Addressable Market as 180 million EUR *Lifesciences, C. (2024)* as projected for the year 2024.
- Considering 5% of 180 million EUR as the Total Addressable Market which is 9 million EUR. 5% because after removing the market size of USA, UK, Germany and other countries it falls at this figure. Given that France is the third biggest athletic shoe market in Europe.
- For the Service Addressable Market considering 20% of 9 million, removing all the use cases related to rehabilitation due to severe injury and other medical causes. This leaves 2 million EUR.
- For launching this product in a new geography given the marketing spend and strategy of the users that the company will be targeting it is safe to assume that our Service Obtainable Market will be 25% of 2 million EUR which 500 k EUR.

The figure below shows an accurate understanding of how much market the company can expect to service in France when the product is launched.

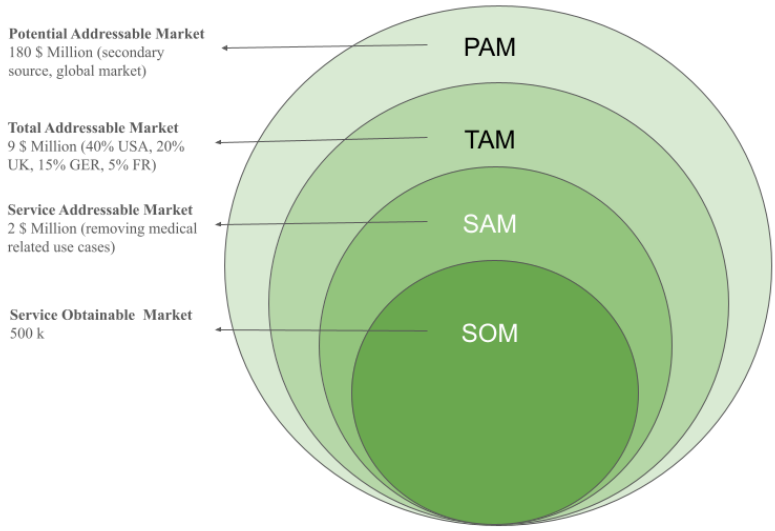

Figure 7. Top - Down approach Market sizing

The **primary drivers** of this market's growth include the following:

- Health and Fitness Awareness: People are becoming more health-conscious, leading to an increased demand for devices that can help them track their physical activity, monitor their health, and set fitness goals.
- Technological Advancements: Continuous advancements in wearable technology, such as improved sensors, longer battery life, and more accurate data tracking, have made these devices more appealing to consumers. The integration of advanced sensors, like heart rate monitors, GPS, and accelerometers, enhances the functionality of these devices.
- Convenience and Accessibility: Smart wearables offer users the convenience of tracking their fitness and health data in real time.
- Lifestyle Integration: Many smart wearables have evolved to seamlessly integrate into users' daily lives. They are not just fitness trackers but also fashion accessories.
- Health and Wellness Trends: Consumers are increasingly looking for ways to take control of their health and well-being, and these devices provide tools for self-improvement.
- Sports and Athlete Adoption: Athletes and sports enthusiasts are using smart wearables for training, performance analysis, and injury prevention. These devices provide valuable insights into training regimens, recovery, and overall performance, which is a key driver in the sports industry.

- Connected Ecosystems: Many wearable device manufacturers have created connected ecosystems where data from the device is integrated into various health and fitness apps and platforms. This ecosystem approach enhances the value proposition of these devices.
- Rising Chronic Health Conditions: The prevalence of chronic health conditions such as obesity, diabetes, and heart disease has spurred the demand for wearable devices that can help individuals manage their health more effectively.
- Affordable Options: As technology advances and economies of scale come into play, the cost of these devices has become more affordable, making them accessible to a broader range of consumers.

Smart Wearable Fitness and Sports Devices Market – **Mergers and Acquisitions**

- Google's Acquisition of Fitbit: Google announced its acquisition of Fitbit in November 2019. This acquisition was aimed at enhancing Google's presence in the wearable market, especially in the health and fitness sector.
- Garmin's Acquisition of Firstbeat Technologies: Garmin, a well-known company in the GPS and fitness tracking market, acquired Firstbeat Technologies in June 2020. Firstbeat is known for its physiological analytics and metrics for wearable devices and sports equipment.
- Apple's Acquisition of Beddit: Apple acquired Beddit, a sleep tracking technology company, in 2017. Although not a merger or acquisition in the traditional sense, this move allowed Apple to integrate sleep tracking capabilities into its ecosystem, including the Apple Watch.
- Fossil Group's Sale of Smartwatch Technology to Google: In a strategic partnership, Fossil Group sold its smartwatch technology to Google in 2019. This included intellectual property related to smartwatch technology, which Google aimed to use in its Wear OS platform.
- MyFitnessPal's Acquisition by Under Armour: While Under Armour is not primarily a technology company, it made a significant move in the health and fitness market by acquiring MyFitnessPal in 2015. MyFitnessPal is a popular fitness and nutrition tracking app.
- Whoop's Acquisition of PUSH: Whoop, a wearable fitness tracking company, acquired PUSH, a company specializing in sports performance measurement technology, in 2018. This allowed Whoop to enhance its offerings for athletes and sports enthusiasts.

6.2.2 Survey Results

A descriptive analysis based on the survey results is conducted to identify the early adopters who will be targeted. Below is the analysis result about the early adopters' profile. To better understand the target audience, people who answered no to the question "interested in tracking" were excluded, leaving 254 people of the total results. The demographic of potential customers can be seen below in Figure 8.

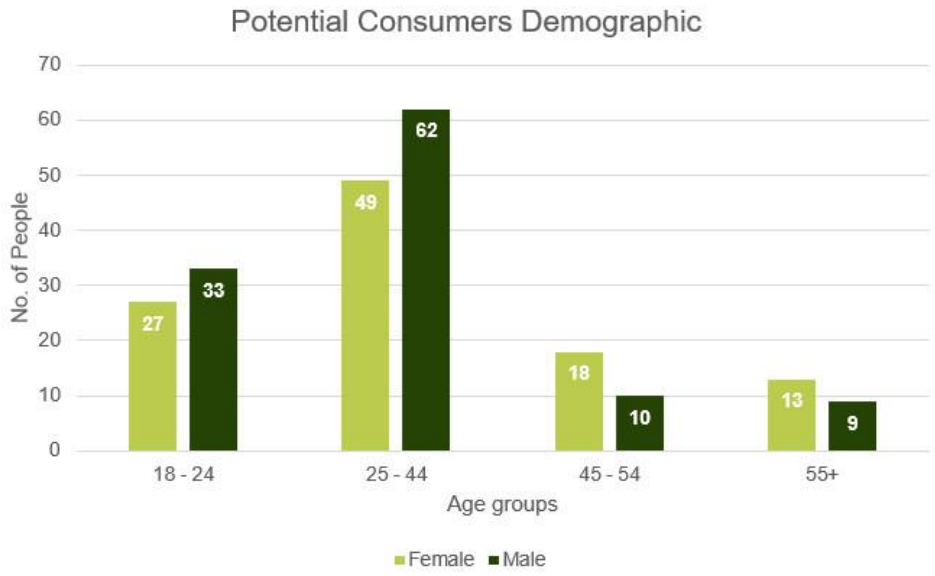

Figure 8. Potential Consumers Demographic.

For the first hypothesis test relationship between sport practiced and willingness to pay a cross-tabulation analysis is needed.

H_o: *There is no link between sport practiced and willingness to pay current price.*

H_1: *There is a link between sport practiced and willigness to pay current price.*

When doing cross-tabulation analyses, Malhotra et al. (2017) suggest the following approach:

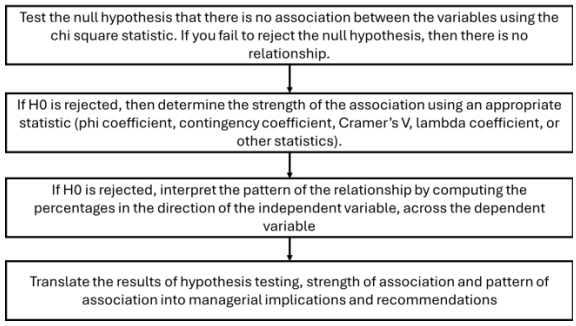

Figure 9. Cross Tabulation Process. Source: Malhotra et al. (2017).

For the two hypotheses to test a significance level α of 0.05 is selected.

To answer the first hypotheses a data transformation is required. The pricing buckets are classified first as yes or no.

Table 4. Pricing buckets transformed to categorical variable yes/no based on a 1500 EUR annual price

Price Bucket	Will pay 1000?
<500€	No
500€ - 1000€	No
1000€ - 1500€	Yes
1500€ - 2000€	Yes
>2000€	Yes

Table 5. Results of willingness to pay by type of Sport.

Sports	No	Yes	Grand Total
Cycling	32	12	**44**
Gym (losing weight)	17	8	**25**
Heavy lifting	22	32	**54**
Running	18	37	**55**
Team sports	22	23	**45**
Walking	14	17	**31**
Grand Total	**125**	**129**	**254**

Since the first hypothesis requires a test for independence and this are categorical variables, a chi-square test of independence is selected. Then the expected frequencies are computed:

Table 6. Expected frequencies.

Sports	No	Yes	Grand Total
Cycling	22	22	**44**
Gym (losing weight)	12	13	**25**
Heavy lifting	27	27	**54**
Running	27	28	**55**
Team sports	22	23	**45**
Walking	15	16	**31**
Grand Total	125	129	**254**

Then (O-E)2 / E for each cell is computed:

Table 7. (O-E)2 / E for each cell

Sports	No	Yes
Cycling	4.94	4.79
Gym (losing weight)	1.79	1.74
Heavy lifting	0.79	0.76
Running	3.04	2.94
Team sports	0.00	0.00

Walking	0.10	0.10

A chi-square statistic of 21 with (6-1)*(2-1) = 5 degrees of freedom is obtained. The critical value of the Chi-square distribution with 5 degrees of freedom and alpha level of 0.05 is 11.07. Since 21 >11.07 the null hypothesis is rejected. **In other words, there is evidence to say that there is an association between sport practiced and willingness to pay.**

For the second hypothesis, to test which channels should be used, a t statistic is computed. As a reminder, the goal is to measure if more than 40% of the potential users would buy in amazon and/or brand specific online store.

For each type of brand, check if the proportion of users is higher than 40%.

$$H_o: \pi \leq 0.40$$

$$H_1: \pi > 0.40$$

The z-statistic can be used:

$$Z = \frac{p - \pi}{\sigma_p} \quad \text{where } \sigma_p = \sqrt{\frac{\pi(1-\pi)}{n}}$$

Once again, a significance level of 0.05 is selected. Below the proportions of each channel:

Table 8. Proportions for each platform

Preferred Platform	No. of People	Percentage
Amazon	123	48%
Brand Specific Online store	97	38%
Grocery Shopping Platforms	22	9%
None	12	5%

Grocery Shopping is immediately disregarded. Then σ is computed for all proportions and their corresponding z value an p value.

Table 9. P-values for both channels

Preferred Platform	Sigma	Z	P value
Amazon	0.031	2.741	0.003
Brand Specific Online store	0.031	-0.589	0.278

As it can be seen, only Amazon has a p-value lower than 0.05 and hence would be the only platform to use in the initial sales stage. With the two hypotheses tested, additional descriptive analysis is done to obtain more information about the early adopters to target. The sample is then divided based on the sport frequency and the sport types.

People who exercise more than twice a week and prefer sport types of running, team sports, heavy lifting and cycling will be considered as "Sports Enthusiasts" while others will be considered as "Non-Athletic People".

After the filter, 198 people are identified as "Sports Enthusiasts" while the rest are "Non-Athletic People".

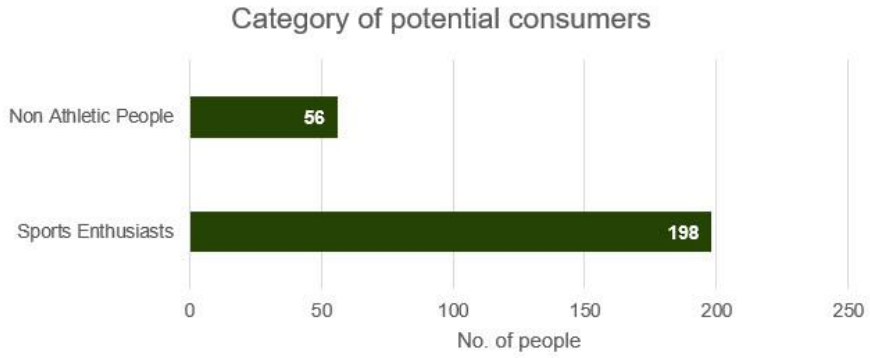

Figure 10. Category of potential consumers

From this, 55% of sports amateurs interested in purchasing the product are runners and heavy lifters. As discussed by Malhotra et al. (2017), after confirming independence, the pattern of the relationship should be analized computing percentages. This is shown in the following table, where 67% and 60% respectively are willing to pay the 1000 EUR price. All further analysis would be done using the sport enthusiasts interested in running and heavy lifting.

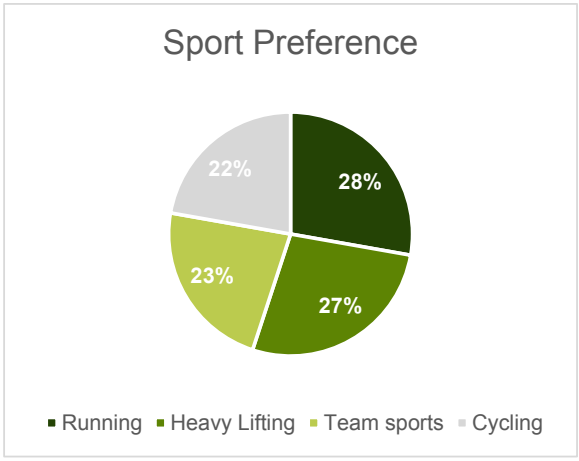

Figure 11. Sport preference of sports enthusiasts

Table 10. Distribution of Sport Enthusiasts

Sport	No. of People	Yes to pay 1000EUR
Running	55	67%
Heavy Lifting	54	59%
Team sports	45	51%
Cycling	44	27%

From this, people are more willing to buy products over 1,000 euros, and whether it is runners or heavy lifters, people prefer to choose products between 1,000 euros and 1,500 euros. This means that most people pay more attention to the quality and durability of the products and want to buy more affordable products.

Figure 12. sports enthusiasts' preferred pricing range

Based on table 11, most of the people use social media app. Some people also use the news app and news channels. Based on that people's preference of social media can be further analysed. The result is shown below in Figure 13. TikTok, Instagram and YouTube are the three most used.

Table 11. Sports enthusiasts' preferred news sources

News Source	No. of People	Percentage
Social Media app	73	47.71%
News app	40	26.14%
News Channels	25	16.34%
Newspapers/Magazines	15	9.80%

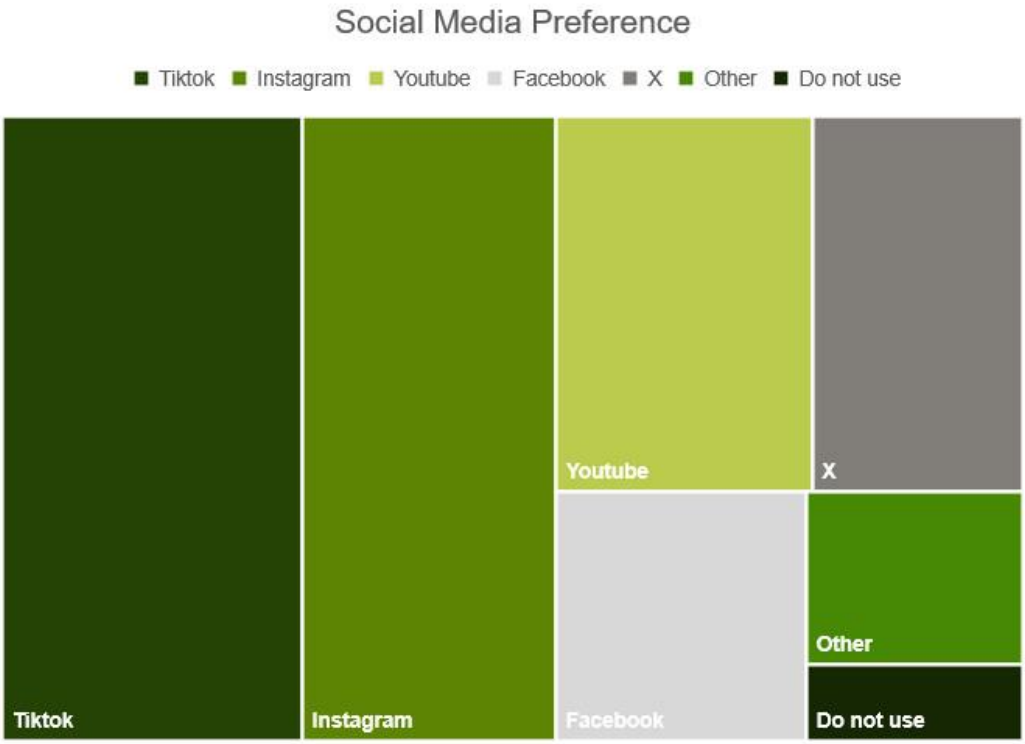

Figure 13. Sports enthusiasts' social media preference

Based on this analysis, the final recommendation out of this marketing report is to target Sport Enthusiasts, specifically runners and heavy lifters, prioritizing advertisements in social media, particularly Tiktok and Instagram.

7 LIMITATIONS

Expanding Plantiga smart soles into the French market presents several limitations that need careful consideration.

Firstly, when defining the target audience, it is hard to include all subgroups of the population from different areas of France. Although lists of people were carefully selected from gyms/sports clubs in different locations, it is also possible that some groups were missed. Also, it is hard to fairly question all age groups, since people of older age groups (45+) go to the gym less often.

Secondly, it is hard to fully evaluate competitors, because the smart technology field is constantly growing. New competitors might emerge quickly, and offer innovative features or improvements to existing products. As well as existing companies might update their products and introduce new models analyzing user's performance and overall health metrics. As a result, Plantiga should remain adaptable to changes and constantly monitor competitors and smart technology health trends and needs.

And lastly, when the marketing campaign, linked to the Olympics Games 2024 concludes, Plantiga might see a decrease in sales. To overcome these limitations, it is required that Plantiga carries out strategic planning and works on customer relationships through personalized communication or loyalty programs.

8 CONCLUSIONS

Seizing the Olympics in France to introduce the smart insoles to a broader market represents a good opportunity for Plantiga to lead the market of Ai driven in-shoe sensors. Presently, competitors primarily target specific health or sports performance niches, such as aiding mobility for individuals with walking difficulties or catering specifically to athletes. This underscores a significant market opportunity for Plantiga to pioneer a comprehensive solution that integrates health (gait position, movement patterns, overall health results) and performance monitoring, appealing to a broader consumer base. Specifically for early adopters, runners and heavy lifters appear as the best choice to engage with. The results of this report suggest that both types of fitness enthusiasts are willing to pay the current price of the product. This report has shown that the company should prioritize selling their product using Amazon with an emphasis in advertising through Tik Tok and Instagram. During the first six months of sales, advertising efforts should highlight Plantiga's benefits on setting fitness goals, the technological advancements and the integration the platform provides to the customers lifestyle as this are key drivers of market growth.

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10 APPENDIX

10.1 Survey Questions

Background information

Plantiga Technologies helps people improve rehabilitation and reduce injury risks through an artificial intelligence-powered monitoring sensor pod that can be embedded into shoes or insoles to analyze users' movement patterns and overall sport performance. The aim of this marketing campaign is to introduce Plantiga's smart soles to the French market. Answering these survey questions will bring social value to the French market of available health monitoring sport devices and will help Plantiga Company target the right people, who really need that technology.

Goal: to understand user profile

What is your age?

- 18-24
- 25-44
- 45-54
- 55+

What is your gender?

- Male
- Female
- Other
- Prefer not to say

Goal: to understand how frequent do users play sport

How frequently do you do sports (in a week)?

- Everyday
- 4 to 6 days a week
- 2 to 3 times a week
- Once in a while
- Never

Goal: to understand what sport is the most popular

What type of sport do you mostly do?

- Gym (muscle building)
- Gym (losing weight)

- Running
- Cycling
- Walking
- Team sports (basketball, football) training

Goal: to understand how the soles are going to affect training and recovery.

Have you ever received injuries while doing sports?

- Yes
- No

If yes, did you understand what caused the injury?

- Yes
- No
- N/A

Did you consult a specialist to understand what is needed for a recovery?

- Yes
- No, got help from the pharmacy
- No, didn't do anything
- N/A

Goal: to understand what health pains users have

Do you suffer from lower back pain or knee pain?

- Yes
- No

Goal: to understand potential user count

Are you interested in tracking metrics while doing sports?

- Yes
- No
- Only after injuries

Goal: to understand what metrics audience need

What metrics are you looking for tracking?

- Distance
- Foot pressure

- Speed
- Gait Asymmetries
- Vertical Take-off & Landing Accelerations
- Other

Goal: to understand when smart soles will be used

Would you use insoles only for sports or for everyday use?

- For sports
- For everyday use
- Both
- N/A

Goal: to understand willingness to pay

What price are you willing to pay for the Plantiga set (pods with warranty, insoles, software and hardware updates along with support) for a year subscription (results in Euro currency)?

- < 500
- 500 – 1000
- 1000 – 1500
- 1500 – 2000
- > 2000

Goal: to find the best channels to promote

What social media do you use more often?

- Instagram
- Facebook
- X
- TikTok
- YouTube
- Do not use
- Other

Where do you read the news?

- News app
- Social Media app
- Newspapers/Magazines

- News Channels

Do you prefer purchasing gadgets online or offline?

- Online
- Offline

Which online shopping platforms do you tend to shop from most frequently?

- Amazon
- Grocery Shopping Platforms
- Brand Specific Online store
- None

How do you travel to work?

- Public Transport
- Walking
- Own Vehicle
- Bicycle