

# Innovative AI In Custom Fitting - Will It Diffuse?

Oscar Lindwall

DIVISION OF INNOVATION ENGINEERING | DEPARTMENT OF DESIGN SCIENCES  
FACULTY OF ENGINEERING LTH | LUND UNIVERSITY  
2024

MASTER THESIS

**Wilson**<sup>®</sup>



# **Innovative AI In Custom Fitting - Will It Diffuse?**

Evaluating the diffusion conditions of the recently  
launched Wilson Fit AI

Oscar Lindwall



**LUND**  
UNIVERSITY

## Innovative AI In Custom Fitting - Will It Diffuse?

Evaluating the diffusion opportunities conditions of the recently developed launched Wilson Fit AI.

Copyright © 2024 Oscar Lindwall

*Published by*

Department of Design Sciences  
Faculty of Engineering LTH, Lund University  
P.O. Box 118, SE-221 00 Lund, Sweden

Subject: Innovation Engineering (INTM01)

Division: Innovation Engineering

Supervisor: Kajsa Ahlgren Ode

Examiner: Lars Bengtsson

# Abstract

This thesis investigates the diffusion conditions of Wilson Golf's recently launched Wilson Fit AI, an innovative custom fitting technology that leverages artificial intelligence to enhance the customer experience. This technology has the potential to transform norms and disrupt the status quo in custom fitting.

Using innovation diffusion theory, the author evaluates the diffusion opportunities for Wilson Fit AI by identifying key parameters within theoretical frameworks. Wilson Golf's reliance on retailers to reach end-consumers introduces an additional, relatively unexplored parameter to the innovation diffusion framework. This thesis examines retailers' perceptions of Wilson Fit AI, highlighting strengths such as accuracy, ease of use, and time-saving features, alongside areas for improvement like inclusivity and compatibility issues. Based on these insights, the study provides strategic recommendations for Wilson Golf to enhance its product and promote wider diffusion.

The expectation-confirmation theory (ECT) also plays a central role in this thesis, focusing on customers' initial expectations and how well these expectations are met. Parallels between ECT and innovation diffusion theory are drawn to further illustrate suggestions for improvements to Wilson Fit AI.

In conclusion, Wilson Fit AI is evaluated as having favorable conditions for diffusion, being generally perceived as a useful and well-performing tool by customers. However, Wilson Golf's weak brand and the product's lack of inclusivity present challenges to its wider diffusion.

**Keywords:** Wilson Fit AI, Innovation diffusion, expectation-confirmation theory, custom fitting, retailers

# Sammanfattning

Detta examensarbete undersöker spridningsförutsättningarna för Wilson Golfs nyligen lanserade banbrytande custom fitting-teknologi, Wilson Fit AI. Denna teknologi utnyttjar artificiell intelligens för att erbjuda en unik kundupplevelse. Teknologin har potential att förändra normer och status quo inom custom fitting-branschen.

Genom att använda 'innovation diffusion' teorier utvärderar författaren Wilson Fit AI:s möjligheter att spridas genom att identifiera nyckelparametrar inom de teoretiska ramar som presenteras. Wilson Golfs beroende av återförsäljare för att nå slutkunder introducerar en ytterligare, relativt outforskad parameter till ramverket som är 'innovation diffusion' teori. Detta examensarbete undersöker återförsäljarnas uppfattning om Wilson Fit AI och lyfter fram styrkor såsom precisa avläsningar, användarvänlighet och tidsbesparing, samt förbättringsområden som bristande inkludering och kompatibilitetsproblem. Baserat på dessa insikter ger studien strategiska rekommendationer till Wilson Golf för att förbättra sin produkt och främja en bredare spridning.

'Expectation-confirmation' teori (ECT) spelar också en central roll i detta examensarbete, med fokus på kundernas initiala förväntningar och hur väl dessa förväntningar uppfylls. Paralleller mellan ECT och 'innovation diffusion' teori dras för att ytterligare illustrera förbättringsförslag för Wilson Fit AI.

Sammanfattningsvis utvärderas Wilson Fit AI ha gynnsamma förutsättningar för spridning, då den generellt uppfattas som ett användbart och välfungerande verktyg av kunderna. Emellertid utgör Wilson Golfs svaga varumärke och produktens brist på inkludering hinder för dess bredare spridning.

**Nyckelord:** Wilson Fit AI, Innovation diffusion, expectation-confirmation theory, custom fitting, retailers

# Acknowledgments

This master's thesis was conducted at the Department of Design Sciences at the Faculty of Engineering (LTH) at Lund University in collaboration with Wilson Golf.

First off, I would like to thank Wilson Golf, and Magnus Nilsson in particular, who made this master's thesis possible in the first place. It has been interesting delving into the realm of custom fitting and truly coming under the skin of the Wilson Fit AI technology. It has been an incredible experience, and I will be forever grateful to you for facilitating it. Getting the chance to write a master's thesis about something I truly cherish is a once-in-a-lifetime experience.

Lastly, I would like to say my most sincere thank you to my supervisor Kajsa Ahlgren Ode at the Faculty of Engineering at Lund University. Without your help and guidance, I would not have been able to row this boat ashore. You have somehow managed to keep me afloat during this entire process and on top of that also made sure it got finished on time. You were the lighthouse shining ever so brightly during the roughest of storms. For that, you have my deepest gratitude.

Lund, May 2024.

Oscar Lindwall

# Table of contents

1 Introduction .....	10
1.1 Background.....	10
1.2 Wilson Fit AI.....	12
1.3 Theoretical Background.....	13
1.4 Problem Description .....	14
1.5 Purpose.....	15
1.5.1 Research questions.....	15
1.6 Delimitations .....	15
1.7 Thesis Outline.....	16
2 Contextual Setting .....	17
2.1 Custom Fitting .....	17
2.2 In-depth About the Wilson Fit AI.....	22
2.3 The Retail Industry .....	27
2.3.1 Existing technologies.....	27
2.3.2 The golf equipment market .....	28
2.4 About Wilson Golf Today .....	32
3 Methodology .....	34
3.1 Research Design .....	34
3.2 Planning and Preparation .....	36
3.3 Data Collection .....	36
3.3.1 Literature review.....	36
3.3.2 Interviews .....	37

3.4 Data Analysis.....	41
3.4.1 1 <sup>st</sup> -order concepts.....	41
3.4.2 2 <sup>nd</sup> -order concepts.....	42
3.4.3 Aggregated dimensions.....	43
3.5 Writing and Presentation .....	43
3.6 Ethical Aspects .....	43
3.7 Research Credibility .....	44
4 Theoretical Framework.....	46
4.1 Innovation Diffusion Theory .....	46
4.1.1 The innovation.....	47
4.1.2 Communication channels.....	49
4.1.3 Time.....	50
4.1.4 The social system.....	54
4.2 Adopter Categories .....	55
4.2.1 The S-shaped curve of adoption.....	57
4.2.2 The Chasm.....	58
4.3 Innovation Diffusion in a Retailer Context .....	59
4.4 Customer Expectation-Confirmation Theory .....	61
5 Empirical findings .....	64
5.1 Findings From the Interviews .....	64
5.1.1 Better utilisation of communication channels .....	66
5.1.2 Personalised customer experience.....	66
5.1.3 Perceived ease-of-use .....	67
5.1.4 Testing improves attitudes .....	68
5.1.5 Perceived relative advantage.....	68
5.1.6 Perceived lack of compatibility.....	69
5.1.7 Older individuals take time before learning new technology .....	69
5.1.8 Wilson Golf's brand is weak .....	69
5.1.9 Better golfers are knowledgeable.....	70
5.1.10 Fitters are central in technology usage .....	70

6 Discussion .....	72
6.1 Discussion of Findings .....	72
6.1.1 RQ1: What parameters are important to facilitate effective technology diffusion in a market, according to the literature’s existing theoretical models and frameworks regarding the diffusion of innovations? .....	72
6.1.2 RQ2: How do Wilson Golf’s customers perceive the Wilson Fit AI technology? .....	74
6.1.3 RQ3: How should Wilson Golf improve Wilson Fit AI to better cater to their customers, and enable diffusion to a larger extent? .....	76
6.1.4 Discussing the results.....	81
7 Conclusion.....	83
7.1 Concluding Summary .....	83
7.2 Future Research .....	83
8 References .....	85
Appendix A Wilson Fit AI 7-step Guide .....	89
A.1 Step 1 - Player interview .....	89
A.2 Step 2 - Player physical measurements .....	91
A.3 Step 3 - Warm-up and Swing Data Capture .....	92
A.4 Step 4 - Session Summary .....	93
A.5 Step 5 - AI Algorithm Recommendation .....	95
A.6 Step 6 - Set Configuration, Grip Choice & Loft Adjustments.....	96
A.7 Step 7 - Confirmation .....	97
A.8 Technical Explanation of the Wilson Fit AI.....	99
A.8.1 Blast Motion Sensor.....	99
A.8.2 How the Wilson Fit AI Algorithm Works .....	99
A.8.3 Interpreting the Swing Data & Graphs .....	99
Appendix B Interview Guides .....	104
B.1 Interview Guide - Customers .....	105
B.2 Interview Guide – Wilson Golf Employees.....	106
B.3 Interview Guide – Dr. Eleonora Pantano.....	108

# 1 Introduction

*This chapter aims to introduce the topics of this thesis. The chapter begins with a background to give the reader an understanding of the context, and an introduction to the Fit AI technology which will be a central piece in this thesis. Thereafter, the purpose, research questions, delimitations, and thesis outline are presented.*

## 1.1 Background

Wilson has been a continuous presence across a multitude of different sports arenas around the globe, showcasing their innovative mindset with their apparel, game balls, and equipment used by athletes for over a century (Wilson, 2023a). Established in 1914 in Chicago, Illinois (Wilson, 2024), Wilson first made its way to the sporting scene through tennis rackets. Only three years later the company had grown substantially and began integrating into several other sports, including the golfing industry. They soon produced top-of-the-line quality golf clubs and golf balls and quickly established themselves as market leaders within the industry.

Today, Wilson is the market leader in basketball manufacturing (Wilson, 2024), they are the most famous brand in volleyball, and they continue to be a strong and highly praised brand in tennis, but when it comes to golf today they are falling short of their competitors in terms of brand reputation and market share. Yet, Wilson's golf clubs have won the most major golf titles throughout the years (web.archive, 2013) (Wilson, 2023b).

In 1970 PepsiCo bought Wilson and came in charge of their golf division. This marked the downfall of the Wilson reign. Several poor strategic sales decisions later and the introduction to the boxed golf set, lower-quality clubs purchasable at your arbitrary department store, the market began to lose faith in the brand, and Wilson as a high-end quality golf brand began to crumble (Barba, 2014).

Up until 2006 their sales, as well as their reputation, steadily declined and their market share eventually hit below the one percent mark, all due to bad management (Barba, 2014). What lingered on in these tough fiscal times, however, was their innovation mindset and trade knowledge to produce top-quality equipment. It was around this time that Wilson Golf was introduced to steady and competent

management who had better knowledge about the market and set a clearer vision for the company. Since then, Wilson Golf has struggled to regain market shares and to change the general attitude golfers have toward the brand. This is a process that does not happen overnight and will take several years (Barba, 2014).

However, in recent times they have picked up pace. Wilson Golf are getting continued praised reviews on their most recent golf clubs (Ogle, 2023; Cradock, 2023) and they are beginning to leverage the potential of social media, increasing their presence on social media platforms (Barba, 2020). This contribute to elevating the brand to once again be considered a serious actor on the golf market.

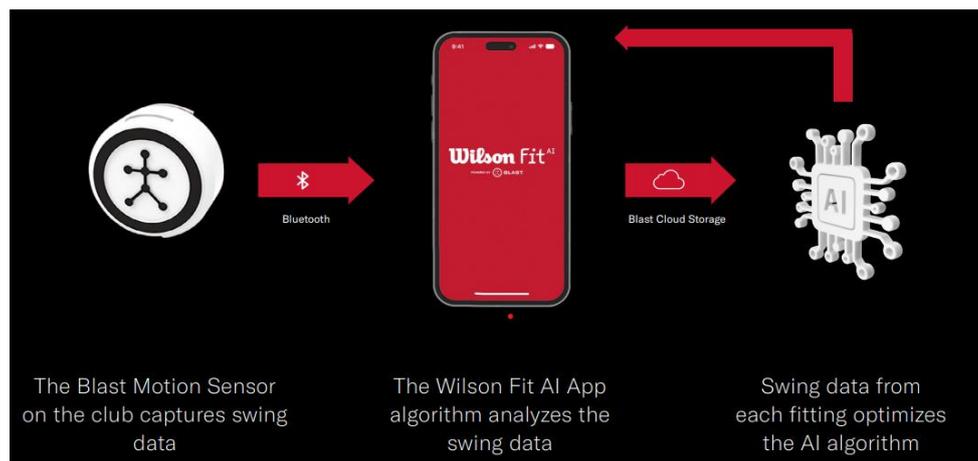
An additional, unexpected, positive factor was the lockdown years during Covid-19 (Nilsson, 2024a). During this period a lot of non-golfers picked up the sport, as it was one of few physical and social activities allowed during the time. Since Wilson Golf is offering golf clubs which is in the cheaper brackets, they became the perfect solution for many new golfers, leading to an increase in revenue by 100 %. Since societies lifted restrictions, Wilson Golf naturally lost some of its newcomers due to them quitting the sport, but they still retained several, leading to many new players being introduced to the brand.

As of now, Wilson Golf has roughly a 5 % market share in iron sales on a global level. They aim to increase their market share to 10 % by the year 2026 (Nilsson, 2024b). Their predominant area of sales is smaller retail stores, which only sell two to four different brands (Clelland, 2024). To reach this rather steep goal in 2 years' time, Wilson Golf needs to make advances in the market. In December of 2023, the company took a groundbreaking leap in custom iron fitting with the introduction of Wilson Fit AI, an artificial intelligence-based technology that gives improved custom fitting results for a fraction of the time (Nilsson, 2024a). Custom fitting in golf is essentially tailoring golf clubs to the golfer's individual swing, thus enhancing their performance on the golf course. This is done with the help of a fitter who measures different aspects of the swing and thereafter gives a professional recommendation.

Wilson Fit AI simplifies and standardises the process to perform a custom fitting, lowering the threshold to be a qualified fitter. As of now, the technology is only apt for irons, which is a medium range golf club used to shoot towards the hole. Irons have shorter shafts and smaller clubheads than drivers and woods, which are other types of clubs made to hit the ball further. With Wilson Fit AI, a possibility to start being seen as an innovative and serious actor opens (Lørup, 2024), which is why the diffusion of this new technology is crucial. In mid-January of 2024, Wilson Golf began pushing Wilson Fit AI to their customers and potential new customers.

## 1.2 Wilson Fit AI

The following information is from email correspondence with Magnus Nilsson (2024c). Wilson Fit AI is a first-of-its-kind generative intelligence golf custom fitting tool that combines machine-learning algorithms, developed by Wilson, with motion analysis from the world-leading motion sensor company, Blast Motion, offering a unique custom fitting experience. Wilson Fit AI captures 12 000 data points per swing through a Bluetooth-enabled Blast Motion sensor and gives recommendations to individual needs after just three to five swings. Each golfer's data will then be stored in an information bank, which the AI utilises to continuously learn and acquire knowledge of the preferences of different types of golfers. As more people use the technology, the more accurate the recommendations will become. The information bank will later be utilised to enhance the R&D process for future golf clubs, cutting lead times for Wilson Golf by several months (Nilsson, 2024b). See Figure 1.1 for a schematic illustration of the Wilson Fit AI technology.



**Figure 1.1 Schematic illustration of the principles of the Wilson Fit AI technology**

Traditionally, the custom fitting process takes roughly one hour, maybe more, depending on the experience of the fitter. With Wilson Fit AI the time needed to perform a complete fitting is reduced to 15 minutes, which enables the retail stores to have a higher customer turnover rate (Nilsson, 2024a). However, what is considered most valuable by Wilson Golf themselves is that this allows the golfer and the fitter to have more time to try out the products recommended by the AI which leaves more room for fine-tuning the custom fit (Nilsson, 2024a; Clelland, 2024) which the existing custom fit alternatives often does not manage to do. Each Wilson Fit AI kit sells for 9800 SEK (Nilsson, 2024a). The contents of the Wilson Fit AI kit are shown in Figure 1.2.



Figure 1.2 The contents of the Wilson Fit AI kit

## 1.3 Theoretical Background

The theoretical background for this thesis is the frequently used framework made by Everett Rogers, Diffusion of Innovations. Technology diffusion theory was first coined in 1962 by Rogers (2003), in his seminal works Diffusion of Innovations. This theory provides a comprehensive framework for understanding how new ideas and technologies spread through societies, showcasing the processes, factors, and adopter categories involved in the diffusion process.

Central to Rogers' (2003) theory are the adopter categories, which categorise individuals or groups based on their readiness to adopt innovations. These categories include innovators, early adopters, early majority, late majority, and laggards. Each category plays a distinct role in the diffusion process, with innovators and early

adopters leading the way and late majority and laggards following suit at later stages. In the diffusion process of an innovation, the innovation-decision process for individuals, typically consists of five stages: knowledge, persuasion, decision, implementation, and confirmation. These stages represent the journey individuals or groups undertake from initial awareness of the innovation to its eventual adoption or rejection.

Wilson Fit AI is a new technology and innovation that currently is being launched and is trying to get a foothold in the market. Meaning, that it is currently undergoing the diffusion process. Rogers' (2003) framework and theories are highly relevant to examine the outcome of how well Wilson Fit AI will diffuse. A more thorough presentation of Rogers' (2003) studies is disclosed in chapter 4.

## 1.4 Problem Description

What is described as Wilson Golf's biggest issue today, is that the general golfer has a negative conception of the brand (Nilsson, 2024b; Clelland, 2024). The general attitude is that Wilson Golf is a low-budget brand that is apt for beginner golfers but not capable of producing clubs fit for better golfers. They are not taken as a serious golf brand by the better golfers, which permeates the rest of the golfing community and successively influences the up-and-coming beginner golfers that currently play with Wilson Golf clubs. Wanting to fit in and uphold the status quo, many therefore switch brands once they reach a certain level.

Another substantial challenge is the indirect sales model Wilson Golf employs. Instead of selling directly to consumers, Wilson Golf relies heavily on retail stores to market and sell their products (Nilsson, 2024a). This dependence means that the company's immediate customers are the retail stores, not the end-users—the golfers.

With the introduction of Wilson Fit AI, there is a unique opportunity to reshape these perceptions and improve market penetration. However, for the technology to be successful, it must be widely adopted by the retailers and be considered to improve the overall experience for the golfer. Retailers need to be convinced of the benefits of implementing the Wilson Fit AI as a standard tool for custom fitting. Addressing these issues is crucial for the effective diffusion of Wilson Fit AI in the market and for improving Wilson Golf's brand reputation.

## 1.5 Purpose

The purpose of this thesis is to evaluate the diffusion conditions of Wilson Fit AI using the lens of innovation diffusion theory. To correctly be able to do so, Wilson Golf's current strategies to promote Wilson Fit AI will be put in parity to the established theoretical models and frameworks on innovation diffusion. Additionally, the customers' perceptions of the technology will further contribute to the evaluation of diffusion conditions.

The study also serves as foundation, for other companies beside Wilson Golf, to learn how to put the theory of innovation diffusion into practice. Especially insightful is the thesis for other companies operating with and within the retail landscape.

### 1.5.1 Research questions

Based on the problem description, the following research questions were formulated by the author:

1. What parameters are important to facilitate effective technology diffusion in a market, according to the literature's existing theoretical models and frameworks regarding the diffusion of innovations?
2. How do Wilson Golf's customers perceive the Wilson Fit AI technology?
3. How should Wilson Golf improve Wilson Fit AI to better cater to their customers, and enable diffusion to a larger extent?

## 1.6 Delimitations

Wilson is a universal brand operating in many sports. Since this technology brought up in this thesis is only applicable for golf it will only focus on the brand-branch, Wilson Golf. Additionally, Wilson Fit AI is only for golf clubs, which is the sole reason why this thesis only will process golf clubs and no other golfing equipment, such as golf balls, tees, apparel and shoes, et cetera.

Wilson Golf is a global company operating in many parts of the world. To make this thesis tangible and given the contacts the author has at their disposal, the selected market will be limited to the Nordic region, i.e. Sweden, Finland, Norway and

Denmark. Although the strategies Wilson Golf implements are on a global scale, some local variations will inevitably occur. Thus, rendering the conclusion of this thesis not applicable on a global level.

In reality, to succeed with a new product on a market, an in-depth analysis is needed regarding competitors, economy and other macro-trends, to be able to draw any viable conclusions. Since Rogers' theories emphasises the product itself, this thesis will limit itself to only take that factor into account.

Henceforth, because Wilson Golf's immediate customers are the retail stores, the word *customers* will refer to retail stores and the word *golfer* refers to the end-consumers of golf clubs, if not stated otherwise contextually.

## 1.7 Thesis Outline

The thesis consists of seven main chapters. See Table 1.1 for a description of each chapter.

**Table 1.1 Outline of the thesis.**

<i>Chapter</i>	<i>Description</i>
1. Introduction	This chapter introduces the Wilson Fit AI, background, theoretical background, purpose of the thesis, problem description, research questions and delimitations.
2. Context	This chapter aims to contextualise the thesis and provide an understanding of custom fitting and its market.
3. Methodology	This chapter aims to explain the methodology used for data collection and data analysis.
4. Theory	This chapter serves to introduce the theoretical framework: innovation diffusion theory, innovations diffusion in a retail context, and customer expectation-confirmation theory.
5. Empirical Findings	This chapter presents the results from the interviews with representatives of Wilson Golf's customers
6. Discussion	This chapter discusses the findings and how it relates to the theoretical frameworks.
7. Conclusion	This chapter concludes how the study answers the research questions.

## 2 Contextual Setting

*This chapter's purpose is to give a context to the reader about custom fitting in golf, and how it historically has been. It also serves to give a deeper understanding of how the Wilson Fit AI works and its purpose and features, as well as how the market works with its different actors and stakeholders.*

### 2.1 Custom Fitting

Custom fitting in golf has been a standard procedure for golfers looking to buy new golf clubs for several years now, but it has changed dramatically over the years (Appleby, 2021). Custom fitting first became a household offering and procedure in retail stores in the 1990s. Then, there were no electronic tools at the fitter's disposal and the fitter had to rely on ordinary tools and their own watchful eye to pass judgment. The procedure was simple and the ways to customise the clubs to the golfer's individual needs were few. Many of the manufactured clubs did not possess the ability to be altered on-site. Since the fitter could not offer to alter the clubs, they had to be knowledgeable about how to extract the correct information from the golfer, in order to be able to know what the golfer's needs and order the right clubs for them. However, as technology advanced and we moved into a digital age, so did the golf clubs as well, allowing for more alternative ways of putting the clubs together, thus increasing the number of different options for individual needs.

In the early 2000s, the first era of digital tools entered the retail stores for golfers to use when buying new golf clubs (Beach, 2008). These tools were first-generation launch monitors and simulators that could give readings about your swing and ball flight. Still simple, compared to modern standards, but now the fitter had revolutionising tools to increase the performance of the golfer out on the course and subsequently enhancing the experience of purchasing new golf clubs. Custom fitting continued to advance and get more intricate. Still, it was not until around 2010 that custom fitting started to grow into a viable business concept, leading to custom fitting specialists and club builders entering the industry and playing a significant role.

Today, the newest technology has taken custom fitting to the next level. You can get a precise reading of every aspect of your shot, including total carry distance, angle of the club face at impact, how steep you attack the ball, the spin on the ball, the exact trajectory of the ball flight, club head speed, and ball speed, to name a few (Nilsson, 2024a). Nowadays, every professional custom fitter uses one of the latest technologies and leverages the exact measurement data the technologies can provide to offer the golfer the best recommendations for which clubs to buy.

A modern custom fitting process has never been a standardised routine. Depending on the fitter's experience and their preferences for performing a custom fitting, a golfer will get different recommendations depending on the fitter (Beach, 2008). Undoubtedly, the role of the fitter is important in the fitting procedure. It remains consistently regarded as the cornerstone of the fitting process (Appleby, 2021). Although custom fitting facilities may employ varying methodologies and utilise advanced analytical tools, the technical expertise of the fitter, complemented by interpersonal skills and effective communication, is the key to a successful fitting session.

Many modern custom fittings are usually done indoors at a retail store at their studio, which entails a screen you can hit the ball into, a projector that shows the ball flight of your shot, and some technology to monitor your shot and measure certain data points. See Figure 2.1, Figure 2.2, and Figure 2.3 for a typical indoor custom fitting studio. A studio can also be outdoors on the golf course's driving range.



**Figure 2.1** Depiction of a general custom fitting studio, showing the range mat, golf balls and the visuals of the ball flight after a shot on the simulator. Taken by the author at Dormy, Malmö.



Figure 2.2 Depiction of a general custom fitting studio, showing the monitor with data of the recent golf shot. Taken by the author at Dormy, Malmö.



**Figure 2.3** Depiction of a general custom fitting studio, showing the equipment of different shafts and club heads they can put together on the spot, and the Trackman launch monitor in the bottom right corner, which reads the golf swing.

Existing technologies focus on the moment the club head strikes the ball but omit analysing the forces and motions of your golf swing (Nilsson, 2024b). Therefore, one of the key roles of the fitters has been to analyse how the golfer swings and then, together with the data from the launch monitors, give recommendations as to what materials to use in the golf club. For example, if a golfer has a hard and fast

swing they would need a stiff shaft, which does not flex as easily. Whereas a golfer with a slower and mellow swing instead needs a shaft that flexes easier. There would indubitably be a correlation between the club head speed and ball speed and to which stiffness in the golf club the golfer will get recommended, but no actual data points are measuring the swing in the existing technologies that are being used today.

Today, nine out of ten Wilson Golf iron sets sold have been chosen from doing a custom fitting (Nilsson, 2024a). Of all brands accumulated, around 55 % of all drivers and irons have been custom fit (Stachura, n.d.). Additionally, eight out of ten serious golfers, of every ability level, have been custom fit, and 94 % of those expressed that they were satisfied with the result. There are data suggesting that it is becoming more common amongst the less experienced golfers to also do a custom fitting before buying new golf clubs, and this claim is also backed up by the majority of the interviewees in this study. This indicates that custom fitting is a central part of the sport and a big market with potential growth.

## 2.2 In-depth About the Wilson Fit AI

Wilson Fit AI is essentially an application on your phone or tablet via which you connect to a Bluetooth motion sensor, developed by Blast Motion, that is attached to a golf club only used for custom fitting purposes, see Figure 2.4 (Nilsson, 2024c). The sensor measures 12 000 data points, which is translated on your device into a few key metrics that is most relevant to both the golfer and the fitter. In Figure 2.5 the full Wilson Fit AI test club is shown.



**Figure 2.4** An illustration of where to attach the Blast Motion sensor on the fitting golf club

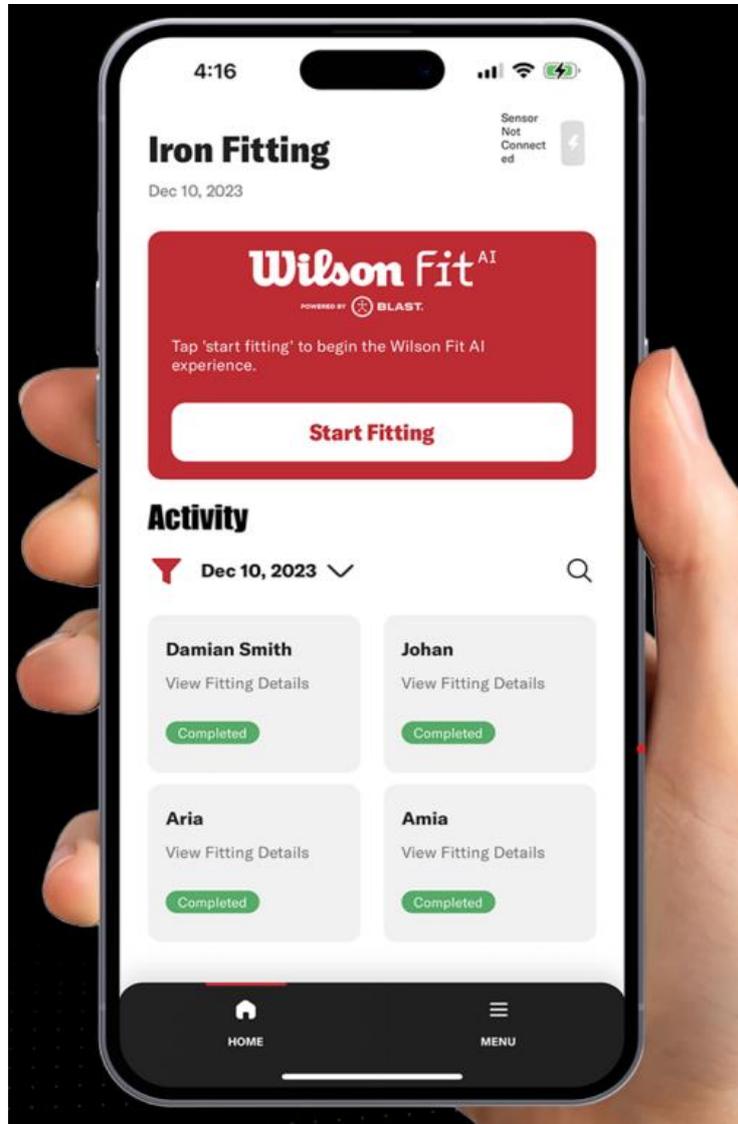


**Figure 2.5** The entire Wilson Fit AI golf club with the attached Blast Motion motion sensor. Taken by the author at Dormy, Malmö.

See Figure 2.6. for an illustration of the application's homepage. The fitting process begins by gathering player background information through a series of initial questions, ensuring a comprehensive understanding of the golfer's game. Utilising

motion sensors, Wilson Fit AI dynamically captures the golfer's swing data, feeding it into an AI algorithm. This algorithm analyses the data to offer recommendations tailored to the individual golfer, including optimal clubhead, shaft flex, length, and lie adjustments, aligned with their unique swing.

What sets Wilson Fit AI apart is its continuous learning capability; the AI algorithm evolves and improves with each fitting, ensuring ongoing precision and accuracy. Additionally, the recommendation process is not isolated, it involves collaboration between the AI and the fitter. The fitter will then construct the recommended club for the golfer, allowing for validation and fine-tuning to guarantee optimal performance on the course. A custom fitting with Wilson Fit AI entails a simple 7-step process, over a significantly shorter period of time than for a regular fitting. A detailed summary of the 7-step process can be found in the Appendix A.



**Figure 2.6** An illustration of the homepage of the Wilson Fit AI application

Wilson Fit AI will, after the session, give the golfer recommendations on how to most optimally build their golf club based on the swing they have. The AI algorithm uses the data to calculate the best fit for the player in terms of head, shaft, lie, length and grip size. The fitter then builds the recommended club, on-site and on-demand, using the included Fitting Kit, or by using the store's own materials and components, as shown in Figure 2.3, to match the recommendations as close as possible. The products recommended will be Wilson products, however, there is no obligation for the golfer to ultimately purchase these recommended products.

Additionally, Wilson's products, regarding shafts, grip, et cetera, are in themselves not unique, meaning that it is possible to translate the recommended Wilson products into other brands' products if the golfer rather would use another brand, which is something a professional fitter knows how to do.

After the fitter has put together the recommended golf club based on Wilson Fit AI's recommendations, Wilson Golf encourage their customers to validate the results using their preexisting custom fit technologies (Nilsson, 2024b). Through simulators and launch monitors, which visualise the golf shot and measures values of your ball strike, results can be validated. To validate the results basically means reviewing the ball flight the golfer gets from using the recommended club. The validation's aim is for the golfer to experience how good the fitting is and how much their performance has improved using the recommended club. This hopefully leads to golfers changing their attitude towards the brand.

Wilson Golf does not expect that every golfer doing a custom fit using Wilson Fit AI will end up buying the recommended products. If one out of ten golfers end up choosing Wilson Golf clubs, they regard it as a victory and that the transaction has been successful (Clelland, 2024). Wilson Golf are more interested in letting golfers familiarise themselves with the brand and seeing and feeling for themselves that Wilson Golf is a high-quality brand that is well in-line with the latest technological advancements in the market. By proving they are a serious golf brand that one can count on, they are changing the attitude many golfers have today towards Wilson Golf.

The technology itself, behind Wilson Fit AI, has many patents. Wilson Golf is however adamant that competitors will be able to mimic their product quite easily, and most likely will do so in the coming one to two years (Lørup, 2024; Nilsson, 2024a). What gives Wilson Golf an edge, however, is that they have an exclusive rights agreement with Blast Motion, who is the leading company in motion sensors globally, ensuring that competitors must choose another lesser company or develop their own motion sensor technology to adequately mimic the Wilson Fit AI.

Wilson Golf have ambitions in the future of further developing Wilson Fit AI to be compatible with both wedges<sup>1</sup> and woods<sup>2</sup> (Lørup, 2024). However, this will likely not be available before 2026.

---

<sup>1</sup> A wedge is a certain type of golf club that has more loft than an iron and a shorter shaft. They require an individual fitting to best fit the player.

<sup>2</sup> A wood is a certain type of golf club, which is characterized by having a thicker club head than irons and having a longer shaft. They require an individual fitting.

## 2.3 The Retail Industry

In the highly competitive golfing industry, manufacturers like Wilson Golf rely heavily on retail stores as crucial distribution channels to reach their target golfers (Nilsson, 2024b, Lørup, 2024). Unlike some industries where manufacturers can sell directly to end-consumers through their own storefronts or e-commerce platforms, the golf equipment market typically operates through a network of retail stores, ranging from local pro shops to larger sporting goods retailers. Manufacturers forge partnerships with these retail outlets, entrusting them with the task of showcasing and selling their products to golfers. This dependence on retail stores stems from several factors, including the specialised knowledge and expertise of retail staff in assisting golfers with product selection, fitting, and customisation. Additionally, retail stores serve as physical touchpoints where golfers can interact with and test out equipment before making purchasing decisions— an aspect particularly crucial for high-involvement products like golf clubs. Furthermore, retail stores often offer services such as custom fitting sessions, further enhancing the value proposition for golfers and driving sales for manufacturers. Consequently, manufacturers like Wilson Golf prioritise building strong relationships with retail partners, ensuring effective product placement, and marketing support to drive sales and brand visibility within the retail landscape. This intricate ecosystem underscores the significance of retail stores as key stakeholders in the golfing market, shaping manufacturers' strategies and market dynamics.

### 2.3.1 Existing technologies

As previously discussed, today's fitting sessions use launch monitors to analyse golf shots. There are several different brands making launch monitors over a large price spectrum. The leading company in launch monitor manufacturing, providing the best technology for analysing golf shots, is Trackman (Nilsson, 2024a). Trackman's are indubitably the best launch monitor and outperforms the competition severely. Trackman's latest products range from around 220 000 SEK to 260 000 SEK and are used by professional golfers and fitters around the world (Trackman, n.d.). Other companies, such as Fullswing, Flightscope, Swing Caddie, ForeSight, and SkyTrak, are providing similar products, solving the same need as Trackman, ranging from between a couple of thousand Swedish crowns up to 158 000 SEK (Fullswing, n.d.; Flightscope, n.d.; Clubbhousegolf, n.d.; Shop Indoor Golf, n.d.; SkyTrak, n.d.). The majority of retail stores uses one of the more expensive launch monitors.

Based on information from the conducted interviews in this thesis with Wilson Golf's customers, it was concluded that 13 out of 15 uses Trackman as their main custom fitting technology, and two uses Flightscope as their main technology, with one customer alternating between Flightscope and Trackman. Beside newer

technology, several still uses traditional fitting methods, such as lie board<sup>3</sup> (11 interviewees) and tape<sup>4</sup> (8 interviewees).

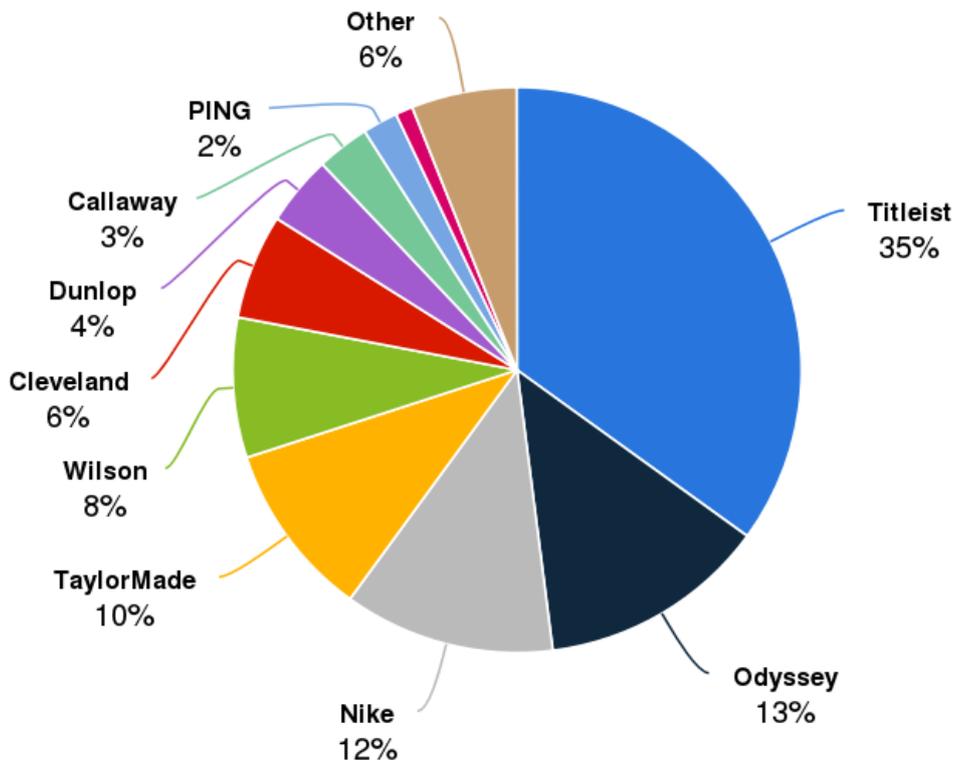
### **2.3.2 The golf equipment market**

When reviewing the golf market in general, Wilson Golf has the fifth largest amount of market shares in the golf equipment market, with an 8 % market share in the Nordic region, see Figure 2.7 (Statista, n.d.). Golf equipment refers to the tools and accessories used for playing golf, such as clubs, balls, bags, gloves, shoes, and carts. The equipment can be broadly classified into two categories: playing gear and accessories. Playing gear includes items such as clubs, balls, and bags, while accessories include items such as gloves, shoes, and carts.

---

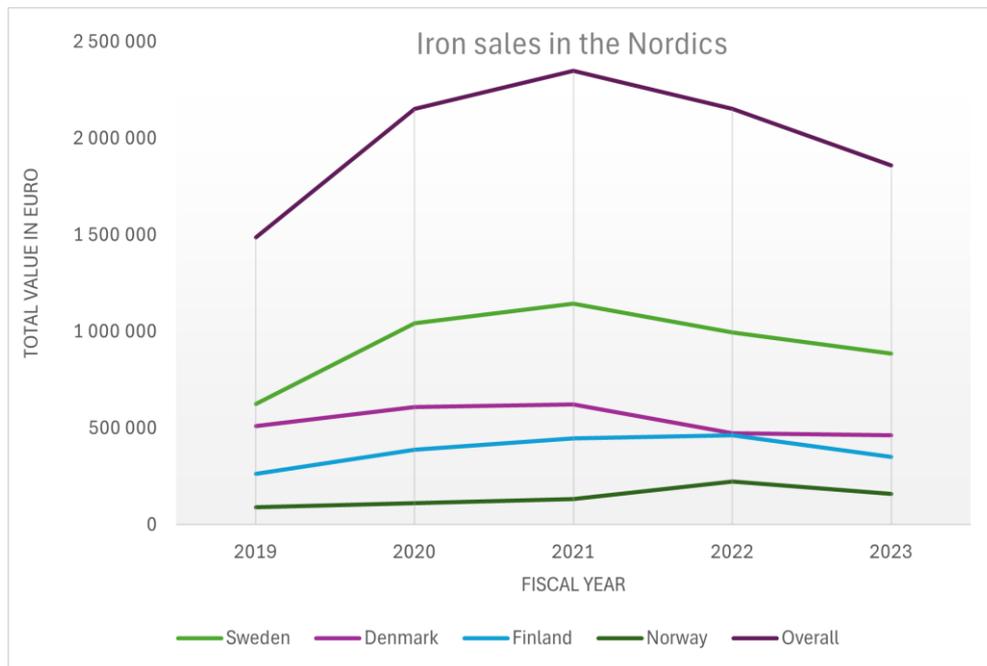
<sup>3</sup> A lie board is typically a flat, hard surface with a grid pattern marked on it. When a golfer hits a shot off the lie board, it leaves an impression of the club's sole pattern (Nordic Golf, n.d.). By analysing the impression left by the club, a club fitter can determine if the club's lie angle needs adjustment.

<sup>4</sup> Tape refers to impact tape, which is placed on the clubface before hitting a shot (Direct Impact Golf, n.d.). When the golfer strikes the ball, the tape leaves a mark on the clubface, indicating where the ball made contact. By examining the location and pattern of these marks, a club fitter can determine if the club's length, loft, or lie angle needs adjustment.



**Figure 2.7 Golf equipment brand shares in 2022 in the Nordics**

The total revenue in iron sales for the Nordic countries is shown in Figure 2.8 (Nilsson, 2024c). As previously mentioned, Wilson Golf got a surge in revenue during Covid-19 lockdown periods, and a drawback in sales in the suites of lockdowns lifting, which is clearly depicted in the following figure. When comparing the total revenue in 2019, i.e. before lockdowns, with the total revenue in 2023, i.e. after lockdowns, every country except Denmark has a higher total revenue. If the period 2020 to 2021 is regarded as an irregularity and the year 2022 as a year to let the market stabilise and revert to normal, there is a total revenue growth of almost 25 % between 2019 and 2023.



**Figure 2.8 Visualisation of Wilson Golf iron sales in the Nordic countries, from 2019 – 2023**

In the Nordic countries, the golfing retail market is made up of larger off-course retail stores, smaller on-course retail stores that is part of a chain, and some privately owned retail stores that operates fully individually, often also on-course. In Table 2.1 below, is a summary of the different actors in the retail market for the respective Nordic countries is presented. It provides an overview of how the stores operate and the presence Wilson Golf has on the market (Dormy, 2024; Golfstore, n.d.; PQ Golf, n.d.; Golfexperten, n.d.; Nilsson, 2024b).

**Table 2.1 Summary of the major golf retail stores in the Nordic countries respectively, and to which extent Wilson Golf is present, based on the total number of stores in the region.**

<i>Country</i>	<i>Retail Store</i>	<i>Qty</i>	<i>Description</i>	<i>Presence</i>
Sweden	Dormy	12	The largest golf retail store in Sweden. Off-course. Key account for Wilson Golf. Sells every brand. Does many fittings.	100 %
	Pro Quality	44	On-course retail chain. Each store works with 2-4 brands. New customer to Wilson Golf. Franchise owner decide the assortment.	25 %
	Golfstore	90	Largest on-course retail chain in the Nordics. Each store works with 2-4 brands. Established Wilson customer. Franchise owner decide the assortment.	45 %
	Non-chain	50-60	Privately owned or non-chain retail stores on-course. Works with 2-4 brands.	25 %
Denmark	Golfexperten	8	Largest golf retail store in Denmark. Off-course. Works with every brand. Does many fittings. Key account for Wilson Golf.	100 %
	Golfstore	30	Largest on-course retail chain in the Nordics. Each store works with 2-4 brands. Established Wilson customer. Franchise owner decide the assortment.	65 %
	Non-chain	50-60	Privately owned or non-chain retail stores on-course. Works with 2-4 brands.	75 %
Norway	Golfshoppen	2	Large online retail store with big market share, and Norways biggest golf store. Does many fittings.	100 %
	Golfstore	14	Largest on-course retail chain in the Nordics. Each store works with 2-4 brands. Established Wilson customer. Franchise owner decide the assortment.	75 %
	Non-chain	40-50	Privately owned or non-chain retail stores on-course. Works with 2-4 brands.	70 %
Finland	Golfcenter	6	Largest golf retail store in Finland. Owns 60 % of the total golf equipment market share. Off-course. Sells every brand.	100 %
	Non-chain	30-40	Privately owned or non-chain retail stores on-course. Works with 2-4 brands.	70 %

## 2.4 About Wilson Golf Today

The typical golfer that plays with Wilson Golf clubs today generally has between 10 to 36+ in handicap<sup>5</sup>, and does not want to spend too much money on their clubs and equipment (Nilsson, 2024a). They are keen on receiving high value for their money, and typically do not want to pay a premium for a certain brand. Demographically, the typical Wilson Golf golfer is 40 years and above, mostly male and a golfer who is not too involved with the technological aspects of the golf clubs. They simply want a golf club that is easy to play and forgiving on the golf course.

Psychographically, the typical Wilson Golf golfer is someone who does not care about status and image on the golf course (Nilsson, 2024a). They do not feel the need to have the latest and most expensive equipment. Instead, what matters more is the trustworthiness of the brand; that the brand they use is transparent, has reasonable prices and that their value proposition is accurate. Consequently, Wilson Golf is more prominent in smaller metropolitan areas where image is not valued as an important factor in life. In bigger metropolitan areas, such as Stockholm, Wilson Golf has noticed that image on the golf course is more important, making it harder for them to attract golfers in these areas. The retail store in Sweden that has the biggest product turnover for Wilson Golf is Dormy in Norrköping. This store is optimally located in close proximity to many smaller towns and golf courses.

One key offering that makes Wilson Golf stand out from the competitors is its generous customer support, warranty, and service (Nilsson, 2024b). Wilson Golf offers golfers a 30-day trial period to test the clubs and return them without cost. They offer close customer support and wants to be close with the golfer throughout the whole experience. They value the personal connection to the golfer and are keen on satisfying their needs.

An additional factor, especially in Wilson Golf's case, is that many of the fitters working today are older custom fit specialists, who do not have an aptitude for technology (Lørup, 2024). It will take time to train all their customers and make sure the product works and runs smoothly. It will take a lot of work for the sale force to facilitate this. Now, Wilson Golf's strategy is to use personal connection to sell the product and to help in times of need. They call their customers and ask if they

---

<sup>5</sup> Handicap in golf is an index measuring the golfer's playing ability and determines the number of strokes a player is expected to take above or below the course's par score. The higher the handicap, the more strokes a player is allowed to subtract from their actual score to determine their net score. A lower handicap indicates a more skilled golfer who is expected to have a lower gross score.

have any issues or questions. If possible, they guide to the solution over the phone, and if not possible, they physically visit the customer and help them on the spot.

Regarding marketing, Wilson Golf does not have the same capital as other bigger brands to pursue fruitful marketing campaigns, such as high-profile brand ambassadors (Lørup, 2024). Instead, they focus on their sales force to try and penetrate the market by engaging directly with customers and potential new customer. They also host demo days, which is an event where they invite golfers and stakeholders to try their latest golf clubs, equipment and technologies. This is a way to reach their targeted audience and to be personally present.

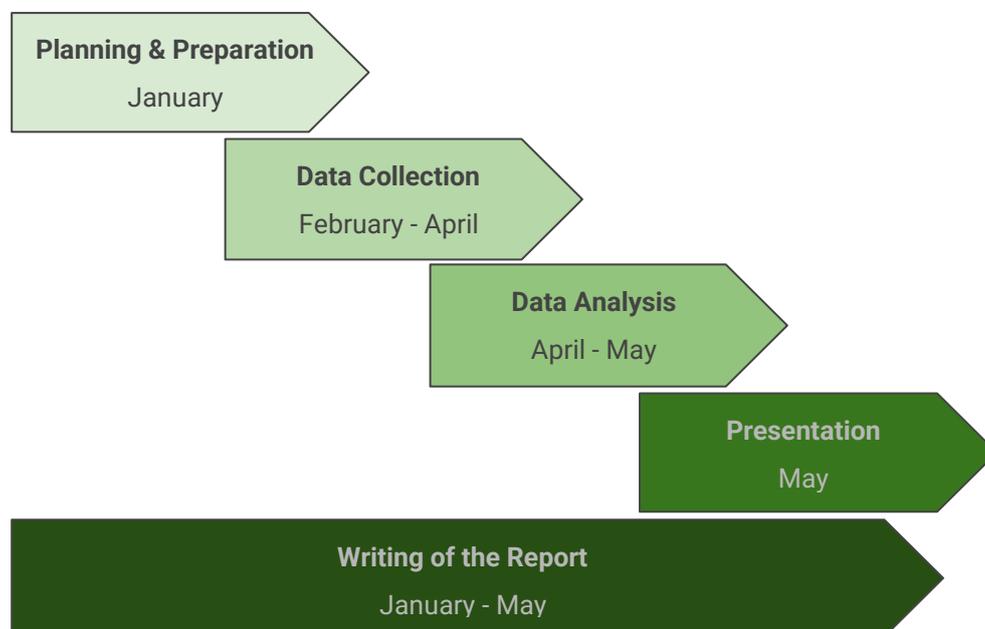
In the upcoming years however, Wilson Golf will undergo a big change globally regarding their marketing (Lørup, 2024). They will shift to have a higher presence on social media and also change the name of each sport under the Wilson brand to only be named 'Wilson'. They are focusing the upcoming strategy to be more appealing to the next generation of golfers, which consequently might create friction with their existing demographic.

# 3 Methodology

*This chapter aims to present the thesis' research design, and explain the methodology used for data collection and data analysis.*

## 3.1 Research Design

The research design of this thesis consists of five phases, that occurred in a somewhat linear order: 1) Planning and preparation, 2) Data collection, 3) Data Analysis, 4) Writing of the report, and 5) Presentation. The writing of the report was not an isolated phase, but an ongoing process throughout the entirety of the project. That goes similarly for all of the phases as the project has been a dynamic process with more or less overlap from one phase to another. Broadly reviewing the entire process, the phases paved out in the mentioned order, and as shown in Figure 3.1.



**Figure 3.1: Schematic illustration of the projects five main phases**

According to Robert K. Yin (2018), a study's research method is based upon the research questions. Regarding the author's research questions, the study would be considered an explorative case study because it aims to explore a phenomenon in its natural context without imposing preconceived hypotheses. Explorative case studies are often qualitative in nature and rely on methods such as semi-structured interviews to gather rich, in-depth data. The research questions in this thesis align with this approach as they seek to explore various aspects of technology diffusion in the context of Wilson Golf's new product. Below follows each research question and a motivation to why the thesis is an exploratory case study.

1. *What parameters are important to facilitate effective technology diffusion in a market, according to the literature's existing theoretical models and frameworks regarding the diffusion of innovations?*

This question aims to explore existing theoretical models and frameworks related to technology diffusion. By conducting a literature review and interviews with experts in the field, the author seeks to identify key parameters that influence the diffusion of innovations in a market. According to Yin (2018), explorative questions often start with "what" to identify variables and establish a foundation for further inquiry. This question is designed to uncover unknowns and provide a comprehensive understanding of factors affecting diffusion, making it explorative.

2. *How do Wilson Golf's customers perceive the Wilson Fit AI technology?*

This question focuses on understanding the perceptions and opinions of Wilson Golf's customers regarding their new product, the Wilson Fit AI. Through semi-structured interviews with customers, the author aims to gather insights into their experiences, preferences, and attitudes towards the technology. Yin (2018) emphasises that explorative research often involves understanding perspectives and meanings, which aligns with this question as it aims to gather qualitative insights into customer views.

3. *How should Wilson Golf improve Wilson Fit AI to better cater to their customers, and enable diffusion to a larger extent?*

This question explores potential strategies for Wilson Golf to optimize their product offer based on customer feedback and market insights. By analysing the data collected from interviews, the author aims to provide recommendations for enhancing the product's appeal and facilitating its diffusion in the market. According to Yin (2018), explorative research often leads to recommendations for action by uncovering new insights.

## 3.2 Planning and Preparation

This acted as the first phase of the thesis and laid the foundation for the rest of the project. At the beginning of the phase, discussions with Wilson Golf began and a draft of the research questions was created in dialogue with a Wilson Golf representative, Magnus Nilsson, who also acted as a contact person for the author. This was an iterative process, meaning the research questions changed several times to better fit the frame of the master's thesis. In this phase, a Gantt chart was also created to organise the workload. Lastly, in dialogue with Magnus Nilsson, the decision to make the project a qualitative study was taken, and the author got contact information to several interview objects considered useful. This marked the start of the next phase, data collection.

## 3.3 Data Collection

In case studies, interviews, observations, and archival analysis are common data collection techniques (Höst et al., 2006). The data for this thesis was mainly collected through semi-structured interviews with representatives on Wilson Golf, as well as semi-structured interviews with a derivative of Wilson Golf's customers, i.e. golf retail stores, in the Nordic countries. However, the first part of the data collection phase consisted of a literature review.

### 3.3.1 Literature review

The literature that was reviewed during the project was collected from a variety of sources, mostly consisting of books, published articles and websites. A literature review at this stage allowed for an in-depth understanding of the innovation diffusion theory, which in turn facilitated the formulation of interview questions to better reflect the theoretical background. By doing this early in the process it makes it easier to understand the problem, as discussed by Sekaran and Bougie (2016). This allowed to easier narrow down the problem at hand, and to formulate a clear and specific problem description. This stage mostly involved reading academic papers, books and other relevant materials related to the topic. The sources were acquired through different databases, but the majority was found on Science Direct, LubSearch, Google Scholar and through general searches in the Google search field. Keywords used was among others: innovation, diffusion, technology, AI, expectation theory, retailers, innovation diffusions in sports, et cetera. The author created a bank with different sources and ranked them on a three-grade scale according to their perceived relevance. The highest ranked articles were thoroughly

read, the second highest ranked were skimmed through, and the least ranked were scoured for keywords and potentially useful sentences.

### **3.3.2 Interviews**

The author noticed early that the research area of innovation diffusion in a retail context is not widely researched. The studies that existed were mainly written by the same researcher, a professor in retail and marketing technology by the name Dr. Eleonora Pantano. Hence, the author contacted Dr. Pantano for an exclusive interview discussing the research as well as how it could be applied in the context of this thesis. The author used this opportunity to introduce Dr. Pantano to the subject of this thesis to gain valuable insights regarding innovation diffusion in a retailer context from them. The interview with Dr. Pantano exclusively contributed to answering research question 1 (RQ1).

Since the golf season in the Nordic countries is heavily dependent on the weather, many of Wilson Golf's customers had not begun using Wilson Fit AI, simply because golfers seldom choose to do a custom fitting during winter/early spring. Therefore, on Magnus Nilsson's suggestion, the interviews with the customers had to be postponed until the beginning of April, when they had familiarised more with Wilson Fit AI. Hence, data collection from interviews began with interviewing employees at Wilson Golf. The interviews were conducted with employees that have had some involvement with the launch of the Wilson Fit AI and were knowledgeable about the product, as well as employees knowledgeable about how Wilson Golf operates on the golf market in general. The goal of the interviews was mostly for the author to receive an understanding of how Wilson Golf operates, how the Wilson Fit AI works and its intended functions, as well as how Wilson Golf performs on the golfing market, regarding iron sales. The Wilson Golf representatives that were interviewed can be found in Table 3.1.

The main phase of the interviews was with Wilson Golf's customers. Magnus Nilsson provided the author with contact information to roughly 30 customers that Wilson Golf works with throughout the Nordics. The interview objects were contacted via email and were asked to do a 30-minute video interview about the custom fit market in general and their thoughts on Wilson Fit AI. The aim was to interview as many different customers as possible to maximise the broadness of the perspective. The goal was to interview both on-course and off-course retailers, both customers connected to a retail chain and those who operated privately, as well as to get insights into each of the Nordic countries markets. The aim was also to try to interview those customers who are new to working with Wilson Golf, who not yet have created a report and feel a loyalty towards the brand. The answering frequency was 60 %, i.e. 18 respondents, where twelve were from Sweden, three from Denmark, two from Norway, and one from Finland. Two of the Swedish

respondents told they could not do the interview and one Swedish respondent did not show up to the interview. This resulted in 15 customer interviews in total. Several of the unanswered interview requests were to customers who not yet feel a loyalty toward the brand. This potentially have led to generating data that is not entirely a truthful depiction of reality. This will be discussed further in chapter 6.1.4.

In total, 19 interviews were conducted for this thesis. Each of the interviews were manually transcribed by the author during said interview. Below, in Table 3.1, is a list of every conducted interview and to which research question (RQ) the interview contributed to answering.

**Table 3.1 List of all conducted interviews and which research question the interview contributed to answering.**

<i>Name</i>	<i>Title / Role</i>	<i>Area of contribution</i>		
		<i>RQ1</i>	<i>RQ2</i>	<i>RQ3</i>
Eleonora Pantano	Professor in retail & marketing technology	X		
Magnus Nilsson	Wilson Golf Market Manager Nordics			X
Lars Lørup	Wilson Golf Area Sales Manager			X
Scott Clelland	Wilson Golf Custom Fit Support Technician			X
Valdemar Bjerseth	Custom fit specialist		X	
Tomas Ericson	CEO of Pro Quality - Tylösands GK		X	
Johan Moberg	Custom fit specialist at Norrköpings GK		X	
Fredrik Lindegård	Commercial Coordinator		X	
Gustav Thyr	Purchaser		X	
Robin Jakobsen	Custom fit specialist		X	
Stefan Jönsson	Custom fit specialist at Knistad GK		X	
Henrik Dihné	Pro/custom fit specialist at Forsgården GK		X	
Ole Kristian Rå	Coach / Custom fit specialist at Sotra GK		X	
Marius Andersen	Head pro at Kristiansand GK		X	
Andreas Bjerrum	PGA pro / Wilson Tech representative		X	X
Nicolaj Viuff	Club manager / Golf pro at Ribe GK		X	
Johannes Jensen	Coach / Custom Fit Specialist		X	
Vili-Jesper Koivula	Store manager / Custom fit specialist		X	
Oscar Fälth	Custom fit specialist		X	

Below, in Table 3.2, each conducted interview with the customers is listed. The table includes additional information about the interviewees to give the reader a more thorough understanding of who they represent. Their answers during the interviews were later synthesised into 1<sup>st</sup>-order concepts in accordance with the Gioia Methodology (Gioia et al., 2012). This will be discussed more in chapter 3.4.

**Table 3.2 Information about interview objects that are Wilson Golf customers, including their nationality, which retail store they belong to, and additional comments about the individual and/or retail store.**

<i>Name</i>	<i>Nation</i>	<i>Retail store</i>	<i>Additional Comment</i>
Valdemar Bjersest	SWE	Dormy Malmö	Works on one of the largest off-course retail stores in Sweden.
Tomas Ericson	SWE	Pro Quality	New to working with Wilson Golf. Manager over 35 Pro Quality stores.
Johan Moberg	SWE	Golfstore	Faithful to Wilson Golf for several years. Likes their products.
Fredrik Lindegård	SWE	Golfstore	Manages supplier relations and oversees the entire value chain.
Gustav Thy	SWE	Dormy Centralkontor	Manages supplier relations and oversees the entire value chain.
Robin Jakobsen	SWE	Dormy Kungenskurva	Works on one of the largest off-course retail stores in Sweden. Test pilot for Fit AI.
Stefan Jönsson	SWE	Non-chain	Faithful Wilson Golf customer for several years in a smaller area
Henrik Dihné	SWE	Golfstore	Have received training in Fit AI. Does not sell Wilson Golf products
Oscar Fälth	SWE	Custom Club Göteborg	Sweden's leading online fitting store
Ole Kristian Rå	NOR	Non-chain	Top 5 best Wilson Golf Customer in Norway. Likes the brand but has not done many fittings.
Marius Andersen	NOR	Non-chain	Have used Wilson Golf products for many years.
Andreas Bjerrum	DK	Non-chain	Have done many fittings with Fit AI.
Nicolaj Viuff	DK	Non-chain	Worked with Wilson Golf products for 2 years. Have not begun using Fit AI yet.
Johannes Jensen	DK	Golf Network Denmark	Worked with Wilson for 3 years and is an ambassador for the brand on demo-days.
Vili-Jesper Koivula	FIN	Golfproffa	New customer to Wilson. Positive to Wilson Fit Ai.

## 3.4 Data Analysis

Since this thesis solely relies on qualitative data it was crucial to analyse the data in a structured and effective manner. The qualitative data needed to be compiled and interpreted systematically to be useful for the research. Qualitative analysis methodologies, as discussed by Höst et al. (2006), are categorised into four main groups, one of which involves editing methods. These methods entail scouring the data for specific keywords or themes to delineate subject classifications, with researchers' interpretations of content and patterns serving as the foundation for these classifications. One such editing method, discussed by Höst et al. (2006), is Grounded Theory.

The Gioia Methodology (Gioia et al., 2012) is a qualitative data analysis method that is based upon generating concepts or themes derived from interview answers. These concepts are then grouped and distilled into aggregated dimension, meaning a grounded theory about the data has been made. Magnani and Gioia (2023) underscore the effectiveness of The Gioia Methodology, as a qualitative approach within the field of Grounded Theory, for crafting legitimate grounded theories. In this study, the Gioia Methodology was selected for analysing the qualitative data from the interviews. The methodology is based on three core principles:

1. Constructing a data framework.
2. Formulating a grounded theory model.
3. Compellingly presenting the findings.

The development of a grounded theory model aims to illustrate the significant relationships among emerging concepts that explain the phenomena of interest. A visual representation of the structure aims to illustrate the evolution from raw data to terms and concepts, providing tangible evidence of rigor in qualitative research.

Constructing a data framework entailed deriving analytical codes and categories from information provided during the interviews. This information was structured into a framework forming 1<sup>st</sup>-order concepts, and 2<sup>nd</sup>-order concepts, and aggregated dimensions. The methods for deriving and creating the 1<sup>st</sup>-order concepts, the 2<sup>nd</sup>-order concepts and the aggregated dimensions, in accordance with the Gioia Methodology (Gioia et al., 2012), will now be discussed.

### 3.4.1 1<sup>st</sup>-order concepts

The 1<sup>st</sup>-order concepts were generated directly from the answers from the interviews. For each interview, the author noted down the answers in separate Google documents, creating 15 different documents with interview answers. To

easier be able to get an overview of each separate answer, they were all transferred to a Google Sheet. Each column represented a question, and each row represented an interviewee. It was discovered that several of the interviewees answered similarly, or roughly similar, and these answers were then put together in a group. The answers who were unique remained alone in their group. The author looked for similar messages in their answers, where they were suggesting the same thing but using different words. When the grouping of answers was complete the author was left with 112 1<sup>st</sup>-order concepts.

In the first draft of the 1<sup>st</sup>-order concepts the author ended up with 145 concepts. This was deemed too many, resulting in iterating the process of analysing the answers to examine similar themes in the interviewees' answers. During this iteration process, several of the previously solo groups were now put together forming broader and wider 1<sup>st</sup>-order concepts than before. Some concepts were also erased altogether because they lacked relevance.

### **3.4.2 2<sup>nd</sup>-order concepts**

To derive the 2<sup>nd</sup>-order concepts, the author used the generative AI, ChatGPT version 3.5, as help. A draft of the concepts was first made by the author, but undersigned found the draft to be below standard. Since there is only one author on this project, there has been no chance for a second opinion. Therefore, the usage of ChatGPT was deemed necessary to generate ideas on how to move forward.

The 1<sup>st</sup>-order concepts act as the foundation on which the 2<sup>nd</sup>-order concepts are derived from. In a similar fashion as in the first step, the author searches for common themes and other general similarities among the 1<sup>st</sup>-order concepts. To utilise ChatGPT, all 1<sup>st</sup>-order concepts were fed into the AI with the prompt: *Using the Gioia Methodology I have generated 112 1<sup>st</sup>-order concepts. I need your help finding common themes and grouping those together to create 2<sup>nd</sup>-order concepts* (OpenAI ChatGPT, 2024).

Although ChatGPT did not provide any good or valid 2<sup>nd</sup>-order concepts, perhaps due to poorly constructed prompt, it did however, instead generate aggregated dimensions that were somewhat relevant. When seeing everything condensed to a few aggregated dimensions directly, it was easier to see the bigger picture of the data. The author could then more easily form the 1<sup>st</sup>-order concepts into groups. ChatGPT's answers solely acted as inspiration and to generate ideas, and the end results are entirely crafted by the author. The inspiration were derived from the ChatGPT-generated dimensions (OpenAI ChatGPT, 2024): market dynamics, adoption factors, customer experience, golfer demographics, Fit AI assessment, and Fitter's role and influence.

The author concluded that what summarises each of the 1<sup>st</sup>-order concepts best was the answers that had been paired into the largest groups, i.e. the same answer who several different interviewees had expressed. These answers best captured the essence of the 1<sup>st</sup>-order concepts. The author could then generate 33 2<sup>nd</sup>-order concepts, which can be seen in Table 5.1.

### **3.4.3 Aggregated dimensions**

The final step of the process of analysing the interviews was to generate aggregated dimensions based on the 1<sup>st</sup>-order concepts and 2<sup>nd</sup>-order concepts. The process resembled the previous step with the difference that the aggregated dimension should be more concise than the 2<sup>nd</sup>-order concepts. The dimensions were aggregated with the theoretical background in mind, trying to draw parallels between the two. For example, the characteristics of innovations were one parameter that was noted having significance. Thus, some of the aggregated dimension tried to be in line with what the theory says regarding that aspect. Additionally, what is important is that the aggregated dimension contribute to answering the research questions. The analysis resulted in ten unique aggregated dimensions and can be found in Table 5.1.

## **3.5 Writing and Presentation**

The writing of the report and the presentation both serve, fundamentally, the same purpose; to convey the project's progression and its findings. The writing occurred during the whole project but with different levels of emphasis. After all the data had been collected and the author could start the data analysis phase, the writing of the report could accelerate. The main part of the report was written from mid-April to late May. The project was presented in late May to the university and an informal presentation of the research's findings to Wilson Golf representatives in early June.

## **3.6 Ethical Aspects**

Ethical considerations are important in conducting and presenting research to maintain the integrity and credibility of the study. This research has strived to achieve high ethical standards, ensuring that all procedures are conducted responsibly and transparently.

One critical ethical aspect is the avoidance of plagiarism. All sources of information and ideas that are not the original thought of the author have been properly cited and referenced, ensuring that credit is given to the original authors. This practice not

only acknowledges the work of others but also strengthens the reliability of the research by grounding it in established knowledge.

Additionally, the integrity of the research data is maintained by ensuring that all data presented is genuine and accurately reported. The fabrication or falsification of data is strictly avoided, as such practices would undermine the validity of the research findings and potentially cause harm to the field of study and Wilson Golf.

### 3.7 Research Credibility

The credibility of this research is ensured through the triangulation of multiple data sources. Triangulation involves using different methods and perspectives to study a single phenomenon, thereby enhancing the credibility of the qualitative research findings (Bogdan and Sari Knopp Biklen, 2006).

In this study, both literature review and interviews were used as primary data collection methods. The literature review provided a comprehensive understanding of the theoretical framework and existing knowledge in the field. Peer-reviewed journals and books were the preferred sources for this thesis.

Interviews with Wilson Golf, their customers and experts in the field of innovation diffusion among retailers, offered valuable and credible insights. These interviews were conducted systematically with the help of an interview guide, to ensure consistency and reliability. By comparing the information gathered from these different sources, the research achieved a well-rounded understanding of the topic.

What should be considered when reviewing this research is the fact that the study is based on only 15 different customers to Wilson Golf. The company has vastly more customers than this number, especially on a global scale, meaning that these 15 interview objects act as a derivative of their entire customer base, which might not be an entirely accurate representation. Although the author tried to conduct as many interviews as possible with individuals that possess higher degree of influence in the retailer's operations, the majority of the interview objects were simply employees working with custom fitting at the retail store and were in no direct power of their operations. There are most likely several steps and people involved in the decision to adopt a technology like Wilson Fit AI, and interviewing people with decision power would give a better insight in the retail store's way of reviewing new technology before adopting it. This study aims to be transparent with the limitations regarding the results and tries its best to depict a truthful representation of reality.

In parts of this thesis, predominantly during the data analysis, the large language model ChatGPT from OpenAI was used. Utilising AI language models to produce text or results in a research study severely affects the credibility of the study. The author was therefore careful in how it was used. As previously stated, ChatGPT solely acted as a source of inspiration for the author to move past the issue of not

knowing how to move forward with the Gioia analysis. None of the answers it provided was ultimately used in this thesis, but it gave the author tools and inspiration at times to progress in the research.

Furthermore, rigorous fact-checking was implemented when using sources from online websites or non-peer-reviewed information. Every piece of information and data was thoroughly verified by the author to ensure its legitimacy.

## 4 Theoretical Framework

*This chapter serves to introduce the theoretical frameworks that the research in this thesis is based upon. Central in this chapter is 'Innovation Diffusion Theory' and how it describes the journey of innovations within a market. Additionally, the chapter explores previous research regarding technology in sports and retail stores and different factors that drive the adoption of certain technologies in this field. Lastly, the chapter touches upon customer 'Expectation-confirmation Theory' and draws parallels to diffusion of innovations.*

### 4.1 Innovation Diffusion Theory

As previously mentioned, innovation diffusion theory first came to light in 1962 in the seminal work 'Diffusion of Innovations' by Everett M. Rogers (2003). Wherein, he describes the processes and mechanisms involved when innovations spread through a market among a societal system. The majority of this chapter, up until 4.2.2, is based on the 5th edition of the book Diffusion of Innovation published in 2003, if not stated otherwise, which is the latest updated version of 'Diffusion of Innovations'.

Rogers (2003) brings up four central elements in the process that is diffusion, that each play a crucial role in the success of an innovation diffusing in a market. The definition of diffusion by Rogers (2003) is:

*"Diffusion is the process by which an **innovation** is communicated through certain **channels** over **time** among the members of a **social system**. It is a special type of communication, in that the messages are concerned with new ideas."* (Rogers, 2003, p. 5)

Rogers (2003) claimed that diffusion is not something that affects just an individual but rather it is a social change that fundamentally alters the structure and function of a social system (Rogers, 2003, p. 6). The four elements of diffusion are the innovation, the channels, time, and the social system. Each will be further discussed in what follows.

### 4.1.1 The innovation

Rogers (2003) underscored the pivotal role of an innovation's characteristics in influencing adoption rates within a social system. There are five characteristics, including relative advantage, compatibility, complexity, trialability, and observability, which collectively shape individuals' perceptions and inclinations towards adopting new ideas. In general, innovations that are perceived by receivers as having greater relative advantage, compatibility, trialability, observability, and less complexity will be adopted more rapidly than other innovations. Each will now be discussed more in-depth.

- *Relative advantage* is the degree to which an innovation is perceived as better than the idea it supersedes (Rogers, 2003). Innovations perceived as economically beneficial, socially prestigious, or satisfactory tend to garner faster adoption rates. It does not matter to a larger extent whether the innovation has an objective advantage, but what is more important is that the innovation is perceived as advantageous by an individual. If the perceived relative advantage is larger, the faster the rate of adoption is going to be. The rate of adoption refers to the pace at which an innovation is adopted by a social system. Rate of adoption will be discussed further later on.

Depending on what kind of innovation it is, it will to a great extent govern what specific type of relative advantage will be important to its adopters, such as economic, social, et cetera (Rogers, 2003). It should also be noted that the characteristics of the individual adopters also affect which dimension of relative advantage are most important.

Rogers (2003) emphasises that the diffusion of an innovation is an uncertainty-reduction process. When individuals, or an organisation, is in the process of forming a decision whether to adopt the innovation or not, they continuously seek information in order to decrease uncertainty about the relative advantage of the innovation. The potential adopters want to determine the degree to which a new innovation is better than an existing practice (Rogers, 2003).

Relative advantage is discussed in similar terms in other research. For example, Fred D. Davis (1989) brings up 'perceived usefulness' as the extent to which individuals believe that using a technology will improve their performance or provide benefits over existing methods. When a technology offers clear advantages over alternatives, individuals are more likely to perceive it as useful and thus adopt it.

- *Compatibility* is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters (Rogers, 2003). Innovations that are seamlessly integrated into prevailing norms in a societal system are more readily embraced than an innovation that is incompatible. Innovations that are incompatible often require the adoption of a new value system prior to itself getting adopted, which time-wise, often is a lengthy process.

An innovation that is more compatible offers less uncertainty to the potential adopter (Rogers, 2003). An innovation can be compatible or incompatible (1) with sociocultural values and beliefs, (2) with previously introduced innovations, or (3) with client needs for innovations.

- *Complexity* is the degree to which an innovation is perceived as difficult to understand and use (Rogers, 2003). The complexity of an innovation influences the adoption rate, where simpler innovations - innovations that do not require a preexisting skill set and generally are easier to understand and comprehend - are being adopted more rapidly than complex ones having an intricate user interface and requiring extensive skill acquisition before being able to use it.

Complexity may not be as important as relative advantage or compatibility for many innovations, but for some new ideas, complexity is a very important barrier to adoption, especially electronics and technological innovations (Rogers, 2003).

The innovation attribute 'complexity' is discussed in similar terms in other research. For example, Fred D. Davis (1989) discusses the 'perceived ease of use' in technological products. It reflects the ease with which individuals perceive they can use a technology. When a technology is perceived as easy to use, it is akin to having low complexity, making it more likely to be adopted by users.

- *Trialability* is the degree to which an innovation may be experimented with on a limited basis (Rogers, 2003). This includes being able to test the innovation before committing to purchasing. Trialability facilitates experimentation, allowing individuals to mitigate their uncertainty about the innovation by testing it for themselves and reviewing how compatible it is. To mitigate the uncertainty via trialability has proved to increase adoption rate.
- *Observability* is the degree to which the results of an innovation are visible to others (Rogers, 2003). The easier it is for individuals to see the results of an innovation, the more likely they are to adopt. The visibility of an

innovation's performance or result stimulates peer discussion among the social system, where word-of-mouth plays an important role in further spreading information about the new innovation. Some innovations are easily observed and communicated to other people, whereas other innovations are difficult to observe or to describe to others.

Previous research predominantly focuses on technological innovations. These innovations typically comprise two components: hardware, which embodies the technology in physical form, and software, which constitutes the information base and the actual computer programs for a system. Notably, the software aspect of technological innovations is less observable, leading innovations with a dominant software component to have lower observability and slower adoption rates (Rogers, 2003).

It should be noted that these five characteristics are not the only qualities that defines an innovation's adoption rate, however they are widely considered to be the most important and consequently the only attributes discussed in this thesis. Particularly important are the first two attributes, relative advantage and compatibility, in explaining the rate of adoption (Rogers, 2003).

To increase the validation of these claims, Davis's (1989) research suggests that both perceived usefulness and perceived ease of use significantly influence an individual's intention to use and accept a new technology. In other words, if a person perceives a technology as useful and easy to use, they are more likely to accept and adopt it, which directly correlates to the attributes of relative advantage and complexity playing an important role in innovation diffusion. Davis's (1989) research was later elaborated into the 'Technology Acceptance Model' (TAM), which is a widely used theoretical framework for understanding users' acceptance and adoption of new technologies (Bradley, 2011), which is primarily influenced by two factors: perceived usefulness and perceived ease of use.

#### **4.1.2 Communication channels**

Diffusion is a certain type of communication where its aim is to transfer information about an innovation via channels connecting one adopter who possess knowledge and experience of an innovation, to a potential adopter that does not yet have knowledge of the innovation (Rogers, 2003). In essence, a communication channel is the mean by which messages get from one individual to another. Communication channels serve as conduits for disseminating information about innovations within a social system. There are several different kinds of communication channels to achieve this, but they can generally be categorised into; mass media channels, including television or news sources, and interpersonal channels, which are

characterised by face-to-face interactions (Rogers, 2003). The two categories serve different purposes in informing and enlightening potential adopters.

- *Mass media* are generally the fastest and most efficient way to inform the members of a social system about the existence of a new innovation, this creates what is called awareness-knowledge. Kreng and Wang (2009) discusses the interplay between advertising expenditure and technology replacement dynamics. Their findings underscore the significant impact of marketing campaigns on accelerating the transition from older technologies to newer alternatives. Increased advertising expenditure correlates directly with a swifter adoption rate, highlighting the influential role of effective marketing strategies in shaping consumer perceptions and driving demand for innovative products.
- *Interpersonal channels* on the other hand are more effective when it comes to persuading an individual to adopt a new innovation (Rogers, 2003). This channel is particularly effective if the communication involves two or more near-peers, meaning individuals who operate in the same field, have the same socioeconomic status and share similar values. However, it is important that the individuals are different to a certain extent to allow for diffusion.

Rogers (2003) states that previous research shows that most people depend mainly upon a subjective evaluation of an innovation that is conveyed to them from other individuals, who are similar to themselves, who have already adopted the innovation. This dependence on the experience of near-peers suggests that the heart of the diffusion process lies in the imitation of near-peers who already have adopted the innovation. Diffusion could therefore be considered a social process that heavily relies on interpersonal communication relationships (Rogers, 2003).

### **4.1.3 Time**

Time plays a crucial role in the diffusion of innovations, more precisely in three different parts of it (Rogers, 2003). Firstly, the time dimension is involved in diffusion in what Rogers call the *innovation-decision process*. This process is a sequential walkabout that highlights each step an individual undergoes from acquiring knowledge of an innovation to an eventual adoption or rejection of it. Secondly, time plays a role in the innovativeness of an individual. Meaning the relative earliness or lateness with which an innovation is adopted compared with other members of the same social system. Lastly, time is the dimension to which an innovation's rate of adoption in a social system is measured, usually by the number of members in the system who adopts the innovation in a given time period. This

section only focuses on the innovation-decision process, and the last two parts will be discussed later.

The innovation-decision process is divided into five main steps: 1) knowledge, 2) persuasion, 3) decision, 4) implementation, and 5) confirmation (Rogers, 2003). At each stage, individuals actively seek information to reduce uncertainty about an innovation's advantages, disadvantages, and expected consequences, and each step can act as a point of rejection of the innovation. Rogers' (2003) model emphasizes the iterative nature of the diffusion process, as seen in Figure 4.1.

1. *Knowledge* is the first step of the innovation-decision process, and it occurs when an individual is exposed to the innovation's existence and gains some understanding of how it functions (Rogers, 2003). During the knowledge stage, individuals primarily want to know about the software capabilities within the technology. They seek information that reduces the uncertainty regarding the innovation's ability to solve a problem. At this step, the potential adopter wants to understand what the innovation is and how and why it works. Mass-media platforms serve as effective conduits for disseminating such software-related knowledge (Rogers, 2003).
2. *Persuasion* is the next step, and it occurs when an individual forms a favorable or unfavorable attitude toward an innovation (Rogers, 2003). Now the potential adopter becomes increasingly psychologically involved with the innovation, and they are intrigued in knowing more about it. They actively seek information to reduce uncertainty and to gain more knowledge about its relative advantage, compatibility and complexity (Rogers, 2003). Unlike the knowledge stage, where the thought process is mostly cognitive, the thinking during the persuasion stage is more affective. It is here the individual forms a favourable or unfavourable attitude about the innovation.

The most effective communication at the persuasion step is interpersonal. Because the individual actively seeks out information about the innovation to know the advantages and disadvantages in their own situation, interpersonal networks with near-peers are a particularly attractive mean to form their attitude toward the innovation (Rogers, 2003).

3. *Decision* is the third step, and it occurs when an individual engages in activities that lead to a choice to adopt or reject the innovation. (Rogers, 2003). During this part of the innovation-decision process the trialability of an innovation is of great importance. As previously discussed, the process partly aims to reduce the uncertainty of an innovation, and innovations that have a high level of trialability has a higher chance of getting adopted. Similarly to the persuasion stage, interpersonal communication with near-

peers is paramount for individuals to base their potential adoption or rejection decision upon.

4. *Implementation* is the next step, and it occurs when an individual puts an innovation into use (Rogers, 2003). The adopter has tried to eliminate uncertainty factors up until this stage, however a certain degree of uncertainty about the expected consequences of the innovation still exist for the individual here. The remaining uncertainty factors are mostly practical questionmarks, such as where to obtain the innovation, how to use it and what eventual operational problems they can expect. This means the adopter still is actively seeking information about the innovation, even after deciding to implement it

The implementation stage can occur for a long period of time, partly depending on the nature of the innovation (Rogers, 2003). There will come a point where the new innovation becomes an institutionalised part of the adopter's daily operations, and it is at this point they say that the implementation stage has reached its end.

5. *Confirmation* is the last step of the innovation-decision process, and it occurs when an individual seeks reinforcement of an innovation-decision already made, but they may reverse this previous decision if exposed to conflicting messages about the innovation (Rogers, 2003). At this stage the adopter seeks to avoid dissonance, and if it occurs, try to limit it.

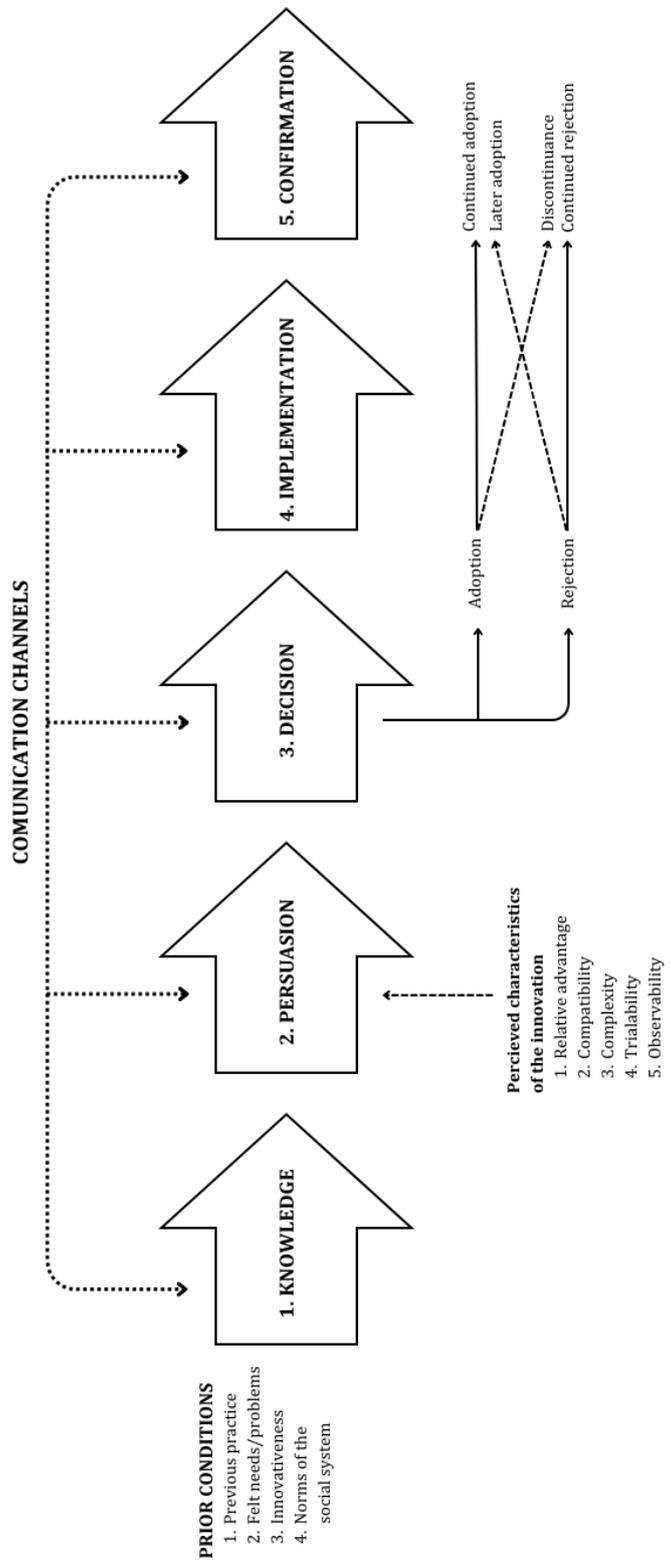


Figure 4.1 A model of the stages in the innovation-decision process

#### 4.1.4 The social system

The social system plays an integral part in Rogers' (2003) theories about innovation diffusion as it is through the social system that the information transfer occurs between adopters and potential adopters, through different communication channels (Rogers, 2003). Rogers (2003) define a social system as: “/.../ a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The members or units of a social system may be individuals, informal groups, organisations, and/or subsystems.” The social system serves as the arena where adopter categories interact. The social system constitutes a boundary in which the innovation diffuses. Norms, opinion leaders, and decision-making mechanisms influence the diffusion dynamics within a social system.

Norms establish behavior patterns and serve as guidelines for decision-making, exerting a significant influence on adoption processes, which could pose as a barrier of change (Rogers, 2003). Opinion leaders, recognised for their influence and credibility, play a pivotal role in shaping attitudes and behaviors towards innovations. Opinion leaders could be individuals who are considered experts in a certain field, spokespeople in mass media channels, or individuals who in other ways possess authority regarding the subject. Opinion leadership is the degree to which an individual is able to influence other individuals' attitudes informally in a desired way.

An individual who is considered more innovative than others in a social system is often regarded as a deviant to the social norm, which consequently leads to their credibility as a trustful information source decrease (Rogers, 2003). This individual therefore has little influence in the diffusion process, especially when considering persuading others. These kinds of innovators could be regarded as the opposite of an opinion leader.

The social system influences the diffusion of innovations in additional ways. There are generally two ways the social system influences the adoption, either individually or collectively. There are three types of innovation-decisions that forms within the social system.

1. *Optional innovation-decisions*: These decisions involve individuals making choices to adopt or reject an innovation independently of others in the system (Rogers, 2003). However, even though the decision is made individually, it can still be influenced by the norms of the system and interpersonal networks.
2. *Collective innovation-decisions*: In contrast to optional decisions, collective decisions involve consensus among all members of the system regarding

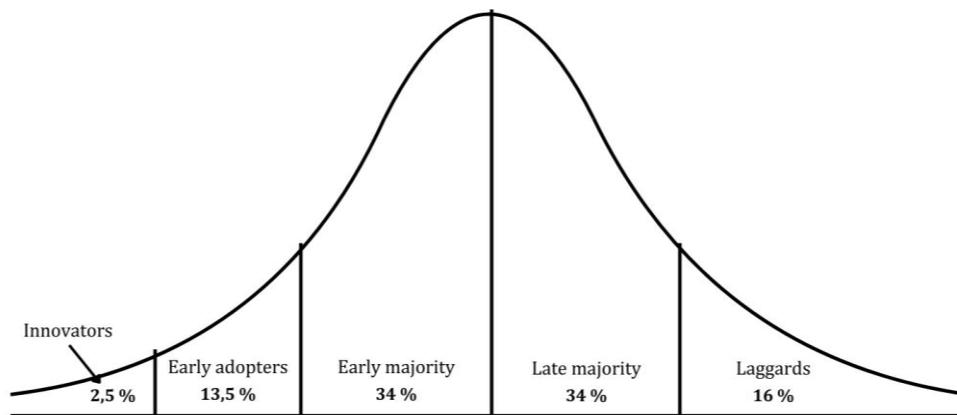
whether to adopt or reject an innovation (Rogers, 2003). Once a decision is reached, all units within the system typically must adhere to it.

3. *Authority innovation-decisions*: These decisions are made by a select few individuals within the system who hold power, status, or technical expertise (Rogers, 2003). In this case, individual members of the system have little to no influence on the decision-making process and simply implement the decision made by those in authority.

Generally, the most rapid adoption rate stems from authority decisions. However, optional decisions are usually the quickest to form, as it only involves one party (Rogers, 2003). Although the decisions forms quicker, it takes longer time to diffuse in the social system than diffusion stemming from an authority decision.

## 4.2 Adopter Categories

The adopter categories in Rogers (2003) research constitutes the Innovators, the Early adopter, the Early majority, the Late majority and the Laggards. They each represent distinct segments characterized by varying degrees of innovativeness and readiness to adopt new innovations. Innovators and early adopters are driven by venturesomeness and local influence and play a crucial role in initiating and facilitating the diffusion process, while late majority and laggards adopt innovations at later stages, influenced by social pressures and economic considerations. The distribution of the five adopter categories follows a normal distribution curve, however not evenly distributed as there are three categories to the left of the center and two to the right. See Figure 4.2.



**Figure 4.2: The normal distribution curve of adopter categories, estimated by the percentage each category represents of the total number of individuals in a social system, an adaptation based on Rogers (2003)**

- *Innovators* are characterized by their venturesomeness and lust to experiment with novel ideas. They serve as the trailblazers in the adoption journey (Rogers, 2003). Possessing substantial resources and a penchant for technology, innovators play a gatekeeping role in introducing innovations into the social system.
- *Early adopters*, closely integrated into the social system, exhibit a high degree of opinion leadership and influence (Rogers, 2003). As respected figures within their communities, early adopters serve as role models, facilitating the diffusion process by providing guidance and endorsement of new ideas. This adopter category, more than any other, has the greatest degree of opinion leadership and many of potential adopters look to early adopters for information and advice.

The early adopter serves to decrease uncertainty about an innovation by adopting it, and then conveying a subjective judgement of the innovation to near-peers via interpersonal networks (Rogers, 2003).

- *Early majority*, comprising individuals who adopt innovations before the average member of the social system, bridge the gap between early adopters and late majority (Rogers, 2003). While less influential than early adopters, the early majority contribute to the interconnectedness of social networks and facilitate the diffusion process. They exhibit a strong willingness to adopt innovations but do not want to be the pioneer.
- *Late majority*, adopting innovations after the average member of the social system, tend to exhibit cautious and skeptical attitudes towards change

(Rogers, 2003). Influenced by social pressures and economic considerations, the late majority adopt innovations once they perceive reduced uncertainty and widespread acceptance within the social system.

- *Laggards*, the final segment of adopter categories, are characterized by their resistance to change and adherence to traditional values (Rogers, 2003). Often isolated within the social system and reliant on past practices, laggards adopt innovations reluctantly and only after widespread acceptance within the social system. When they finally decide to adopt an innovation, it may already have been superseded by a newer innovation.

Earlier adopters of an innovation perceive trialability as more important than later adopters (Rogers, 2003). Innovators, being at the forefront, lack established role models and opinion leaders to guide their adoption, whereas later adopters are influenced by the experiences of their peers who have already embraced the innovation. These peers essentially provide a trial run for later adopters, diminishing the necessity for them to personally experiment with the new concept. Interestingly, laggards transition from initial trial to full-scale implementation more swiftly than innovators and early adopters.

#### **4.2.1 The S-shaped curve of adoption**

When acknowledging the time dimension and combine it with the adopter categories and their relative percentage in a social system, the appearance of an S-shaped curve, as seen in Figure 4.3, is portrayed (Rogers, 2003). This graph depicts the relative time it takes for an innovation to reach widespread diffusion. It (almost always) starts slow with the Innovators and the Early adopters, with a low percentage of adoption but when a sufficient number of individuals within a social system has adopted the innovation, the percentage of adoption increases exponentially. At this time, interpersonal communication becomes activated in spreading individuals' subjective evaluations of an innovation from peer to peer in a system and is the reason an innovation starts diffusing more rapidly. When the innovation reaches above circa 85 % of adoption, it reaches the Laggards and the curve begins to flatten out until the social system is fully saturated (Rogers, 2003).

The most critical part of the diffusion curve is when an innovation goes from about 10 percent adoption rate to 20 percent adoption (Rogers, 2003). This part is considered the heart of the diffusion process. After that point, the diffusion of an innovation is practically imminent.

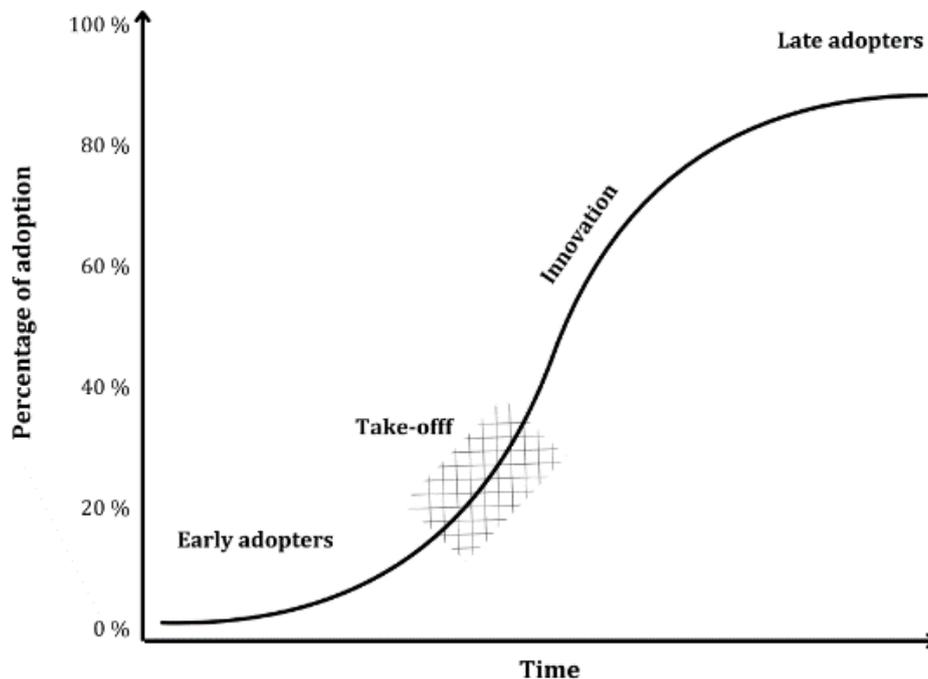
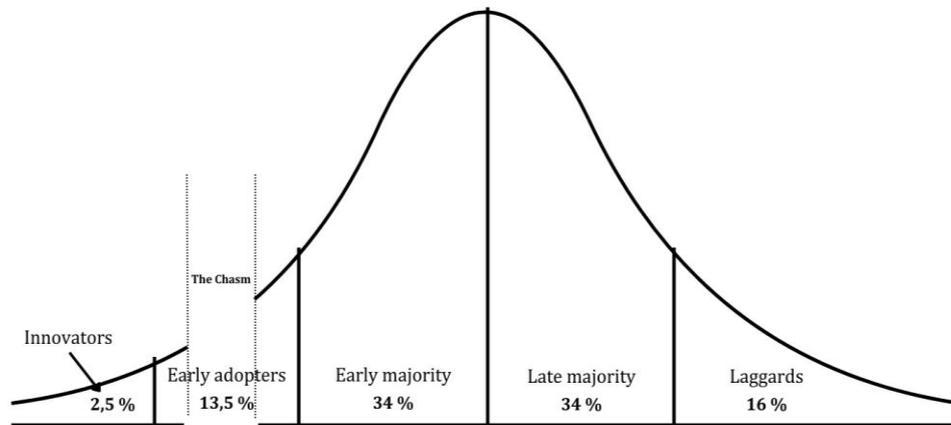


Figure 4.3 The S-shaped curve of adoption for an innovation, set over a period of time (Rogers, 2003, p. 10)

#### 4.2.2 The Chasm

As previously mentioned, a critical point in the diffusion process is moving from 10 percent adoption rate to 20 percent. This is what some scholars refer to as “crossing the Chasm”, see Figure 4.4. The chasm was first coined by Geoffrey A. Moore in 1991 in the book “Crossing the Chasm: Marketing and Selling Disruptive Products to Mainstream Customers”, and has since been revised in 2014 (Moore, 2014).

The chasm is based on Rogers' (2003) diffusion of innovations theory and argues that there's a gap between early adopters and the early majority (Moore, 2014). Moore argues that there is a large discrepancy between the two adopter categories, as the former are considered a visionary and latter a pragmatic. There is a certain metaphorical distance between these two categories that does not allow innovations to seamlessly diffuse between one another. Moore (2014) emphasises that companies should focus on one customer group at a time instead. He further discusses the importance of creating enough momentum in the early stages of diffusion to create a bandwagon effect that will overcome the chasm, which in turn will establish the innovation as a standard solution. However, Rogers (2003) criticizes the concept about the existence of a chasm, stating that innovativeness is a continuous variable without sharp breaks between adopter categories.

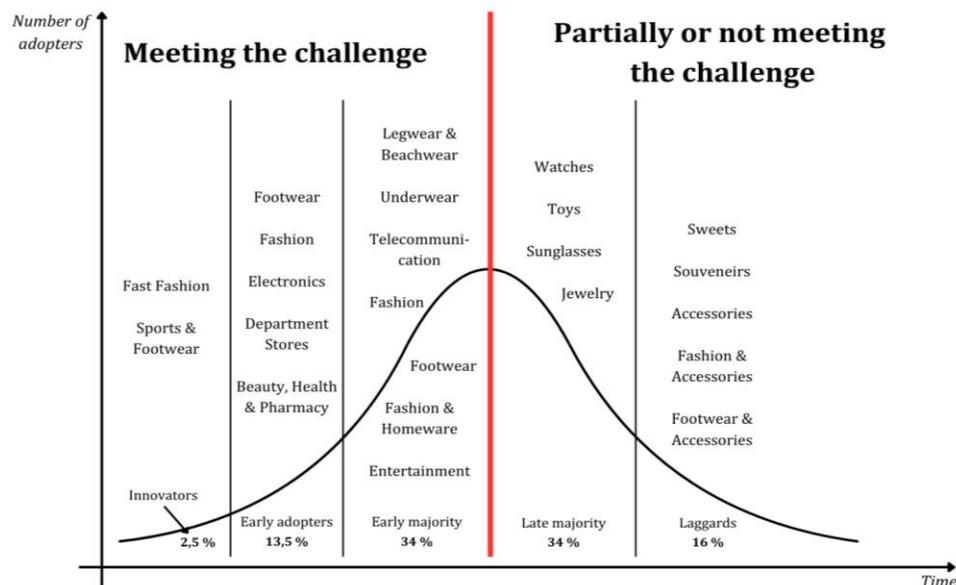


**Figure 4.4** The normal distribution curve of adopter categories with the inclusion of “the chasm”.

### 4.3 Innovation Diffusion in a Retailer Context

Innovation diffusion theory finds application in understanding the adoption and dissemination of technological advancements within the retail sector. Retailers play a pivotal role in introducing and implementing innovations that enhance customer experiences and operational efficiency.

In a study Pantano and Vannucci (2019) examined which type of retail store was sufficiently meeting the technology pull from customers, which is when there is a market demand for a technology and companies respond by satisfying that demand. In their findings, fast fashion, sports, and footwear retailers emerged as frontrunners in adopting digital technologies to drive innovation. These retailers fall under the adopter category innovators, and are characterized, in this instance, as leveraging technology to create new benefits and enhance customer engagement and customer satisfaction, see Figure 4.5.



**Figure 4.5** An iteration of the normal distribution curve of adopter categories in a retail context, where each adopter category corresponds with a certain retail store. Figure from Pantano and Vannucci (2019).

What is considered an important factor for the customer, and something that is expected when introducing new technologies, is that it must improve their overall experience and shopping activity (Pantano and Viassone, 2014). The authors also highlighted the critical role of retailers and key stakeholders in the adoption of innovations, particularly technology-driven ones. Many innovations fail to diffuse due to the retailer not being technologically prepared and lacks the support from key stakeholders (Pantano, 2024). Such support could be the endorsement from end-users, as their positive attitudes facilitate adoption. Accessibility to information is also vital, as consumers in general are more hesitant towards innovations lacking widespread information as it significantly increases the uncertainty of the innovation.

Retailers, in general, tend to adopt innovations only after they have achieved significant diffusion. Pantano and Viassone (2014) therefore underscored the importance of a communication network to ensure that technology-driven innovations diffuse. If effective communication networks exists, the adoption of the innovation can contribute to increased sales, improved customer satisfaction, customer loyalty, and an overall increase in-store experience.

Relating to Rogers' (2003) discussion of uncertainty for the potential adopter of an innovation, uncertainty in a retailer context would be related to (1) how well-received and accepted the chosen innovation is by the end-users, (2) how compatible

it is with the retail store's current systems and routines, and (3) the risk of obsolescence (Pantano and Viassone, 2014).

According to the interview with Eleonora Pantano (2024), in high-involvement products or services, such as a custom fitting session, the most important factor for the customer is the overall experience and to not be rushed in their purchasing decision. These products or services are not a spontaneous occurrence for the customer, but rather a planned event with much thought behind it as it involves larger sums of money. Factors contributing to the overall experience are several, e.g. feeling seen and listened to, feeling valued, understanding the product, and transparency.

The continuous emergence of new technologies presents retailers with both opportunities and challenges (Pantano, Priporas and Stylos, 2018.). The diversity of emerging innovations underscores the need for retailers' ability to discern and embrace the best technological innovation available to them. By doing so, retailers can deliver new stimuli and foster innovative experiences that resonate with their customers and promote products, services, and brands. Retailers are therefore compelled to develop and manage technological innovations that align with customer expectations and organisational goals, which is crucial for enhancing business profitability but also for upholding relevance in the competitive market landscape.

Consumers form beliefs about products, brands, and services by comparing them to their initial expectations, thereby influencing their satisfaction and repeat decision-making (Pantano and Viassone, 2014). The Expectation-confirmation Model, which will be discussed more in the next subchapter, provides valuable insights into this phenomenon, highlighting the role of perceived usefulness and satisfaction in shaping users' intentions to continue using a particular system or product. Retailers therefore need to consider their customers' expectations, of the products or services they are offering, when they commit to new innovations.

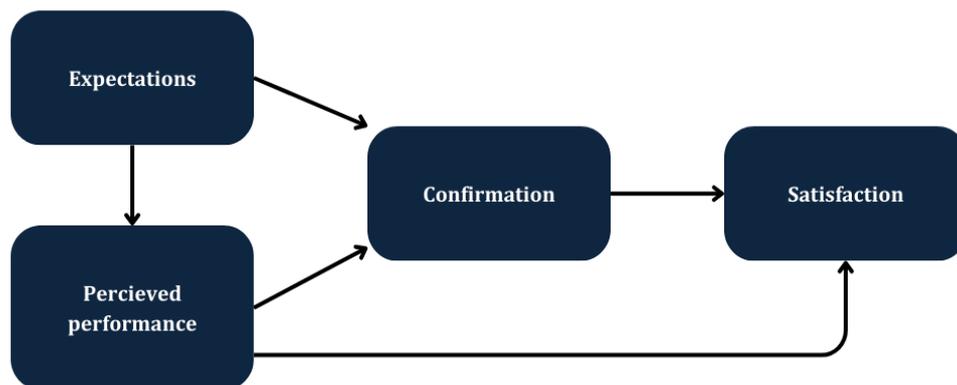
## 4.4 Customer Expectation-Confirmation Theory

Expectation-Confirmation Theory (ECT) originates from the seminal work "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions" by Richard L. Oliver, published in 1980, which dives into the field of consumer behavior. Oliver's model seeks to understand the processes that lead individuals to make satisfaction decisions, and the consequences of those decisions. A satisfaction decision refers to the process through which individuals assess their level of contentment or fulfillment with a product, service, or experience. It involves evaluating whether the expectations they had prior to consumption have been met,

exceeded, or fallen short. A simple visual representation of the model is presented in Figure 4.6.

Expectations are formed prior to consumption and act as a benchmark against which actual performance is compared (Oliver, 1980). Perceived performance refer to the individual's evaluation of the product or service received, while disconfirmation (or confirmation) levels represent the dissonance between expectations and perceived performance. At its core, a satisfaction decision involves comparing perceived performance (how well the product or service actually performed) with expectations (what the individual anticipated or desired). If the perceived performance matches or exceeds expectations, the individual is likely to experience satisfaction. Conversely, if perceived performance falls short of expectations, dissatisfaction may occur.

Satisfaction decisions are dynamic processes influenced by personal preferences, past experiences, marketing communications, and social influences (Oliver, 1980). Positive satisfaction decisions lead to repeat purchases, brand loyalty, and positive word-of-mouth, while negative decisions may result in brand switching and disengagement.



**Figure 4.6** Visualisation of the Expectation-confirmation theory

ECT holds significant relevance in the context of innovation diffusion, and particularly within the retail sector. ECT provides a framework for understanding and predicting consumer behavior. In a time characterized by rapid technological advancements and evolving consumer preferences, retailers must swiftly align their offerings with customer expectations. By leveraging ECT, retailers can tailor their innovation strategies to meet the evolving needs and preferences of their target audience, thereby fostering positive satisfaction outcomes and building long-term customer loyalty. As noted by Huang et al. (2024) ECT is widely used in

technology-related contexts to determine consumer satisfaction, which additionally proves the theory to be relevant in this thesis.

ECT is also closely related the innovation diffusion theory's innovation-decision process, which was discussed in chapter 4.1.1, the innovation-decision process starts with the *knowledge* and *persuasion* step, which is characterised by forming attitudes towards an innovation. The customer's expectation plays part in how the attitude is formed, thus making it relevant to bring up in this thesis.

Oliver's (1980) cognitive model of satisfaction decisions emphasizes the iterative nature of satisfaction decisions and underscores the importance of managing consumer expectations and perceptions. By aligning product performance with consumer expectations, businesses can enhance satisfaction outcomes and foster long-term customer relationships.

# 5 Empirical findings

*This chapter presents the empirical findings from the study. The chapter presents the results from the interviews with representatives of Wilson Golf's customers, the retail stores.*

## 5.1 Findings From the Interviews

The findings from the analysis of the customer interviews can be found below. In Table 5.1 the 33 2<sup>nd</sup>-order concepts as well as the ten aggregated dimensions are presented. Each aggregated dimension will be further discussed after the table. Each aggregated dimension is preceded by a vignette, formulated by the author, derived from the interviews and aims to catch the essence of the aggregated dimension.

**Table 5.1 The 33 2<sup>nd</sup>-order concepts and the ten aggregated dimensions derived from using the Gioia Methodology framework analysis.**

<i>2nd order concepts</i>	<i>Aggregated dimensions</i>	
<p>Communicate advantages - the simplicity and timesaving.</p> <p>Marketing towards golfers can create a pull-effect for fitters to want to start using Fit AI.</p> <p>Better marketing via social media and use of key individuals.</p>	Better utilisation of communication channels	
<p>If the process is too quick the golfer can lose interest and feel stressed.</p> <p>Many golfers value the overall experience as a big factor contributing to their satisfaction with the fitting session</p> <p>Many golfers value and expect transparency and honesty from the fitter. It contributes to their satisfaction with the fitting session.</p> <p>Golfers want to feel seen and heard during a fitting.</p>		Personalised customer experience
<p>If the interface is good and the app and the data is easy to comprehend it contributes to wanting to use a new technology.</p> <p>Ease-of use-is important in wanting to use new technologies.</p> <p>It makes things simpler for fitters, if implementing Fit AI.</p> <p>First impressions were: easy to use and a useful tool.</p> <p>The advantage of Fit AI is that it's easy to use.</p>		
<p>It's important that you can try a product before committing to using it.</p> <p>After testing Fit AI the scepticism disappeared.</p> <p>Training on-site for fitters how to use Fit AI.</p> <p>The first impression of Fit AI was scepticism. Wanted to try it for themselves.</p>	Testing improves attitudes	
<p>You reach which club a golfer should use faster if using Fit AI. The advantage of Fit AI is timesaving.</p> <p>It will be much faster to do a fitting if implementing Fit AI, allowing for more customers per day.</p> <p>The values and the readings must be completely accurate for a technology to ever be considered.</p>		Perceived relative advantage
<p>The test club is a male standard club, meaning ladies and juniors can't use it properly.</p> <p>Ladies have it harder to hit with the test club. The swing data can be affected if they can't swing normally.</p> <p>Must have a test club for ladies and juniors.</p> <p>Make it compatible with wedges and drivers and increase the assortment of shafts and grips.</p>		
<p>The challenge for Fit AI is to convince older fitters, as they are more stuck in their way.</p> <p>It's often older golfers who do not understand the technology and what the values represent.</p>	Older individuals take time before learning new technology	

The challenge for Fit AI is that Wilson's brand is too weak to want to use.	Wilson Golf's brand is weak
Low trust toward the Wilson brand.	
A few golfers doing a fitting are very knowledgeable about what the measured numbers represent, especially better players.	Better players are knowledgeable
There is a need to educate the market about what a custom fit entail.	
The fitters play an important role to ensure Fit AI spreads in the market.	Fitters are central in technology usage
Golfers who do fittings are there to receive the fitter's expertise. They trust their decisions and knowledge.	
Most golfers doing a fitting are not knowledgeable and relies on the fitter's expertise.	
Most golfers understand the new technology of a product when it's presented or described to them	

### 5.1.1 Better utilisation of communication channels

*« Wilson Golf must have a lot of promotion online. Get a “fitting-guru” to endorse Wilson Fit AI to spread the word and increase the product’s credibility. Key individuals must be in the game and spread the word for the product to get picked up by the market. »*

An opinion that several interviewees expressed was need for brands to effectively use the right communication channels to create awareness of an innovation and to persuade them into wanting to learn more. The interviewees expressed these opinions in a context where they suggested improvements for Wilson Golf’s operations. What additionally permeated the interviews was the importance of face-to-face interactions in the persuasion process. This was something that they believed Wilson Golf was doing good. However, when it comes to establishing an online presence and promoting the brand via social media channels, Wilson Golf is not seen to any larger extent.

Almost everyone expressed that the personal connection established when meeting in-person is severely more impactful when conveying an innovation, than hearing about it on social media. However, the innovation must initially be promoted via social media, or other news sources, to reach the targeted audience to begin with.

### 5.1.2 Personalised customer experience

*« It is a VIP-feeling standing in the custom fitting studio, surrounded by advanced technology, expensive equipment, and a professional fitter only*

*there for your disposal – that is what you pay for. If the session is too quick the customer might lose interest. »*

What became clear from the beginning was the retailers' focus on striving to improve customer satisfaction and make the customer experience more impactful for the golfer. Every interviewee expressed, on at least one occasion, that one crucial aspect of new innovations is that it enhances the experience for the customers. If the innovation in any way does not increase this factor, the relative advantage of the innovation is limited. It should be noted that the customer experience when doing a custom fitting is more dependent on the fitter rather than the innovation. However, this does not mean that the innovation should not strive for improving the overall experience. The market is continuously evolving, creating demand for new products to elevate the experience to ensure higher customer satisfaction rates. It is important to acknowledge that golfers enter with expectations, and if the experience does not match the expectations, the satisfaction will be decreased. Attributes contributing to increasing customer satisfaction and enhancing customer experience will be brought up in the upcoming headlines.

In conclusion, many of the interview objects expressed they were impressed by Wilson Fit AI and could see it participating in elevating the customer experience and being a contributing factor to increased customer satisfaction.

### **5.1.3 Perceived ease-of-use**

*« The simplicity of innovations is the most important factor for it to spread. I am positive towards Wilson Fit AI. It will make custom fitting so much easier, and you will get recommendations quick that are legit and accurate. It is a great tool for the inexperienced fitter. »*

The number one factor for increasing the chances of new products getting picked up by the custom fitting market, expressed by the interviewees, is ease-of-use. As technology software is becoming increasingly advanced and smart, it is important to balance the complexity of the technology with a simple-to-understand user interface. If an innovation is too complex, and requires extensive training to understand how to use, it will never get picked up by the market.

The ease-of-use factor was something that most interview objects attributed to Wilson Fit AI and praised its simplicity. Factors making Wilson Fit AI's easy to use is that it is quick to start up, the data is easy to comprehend, there are few steps in the total process, and the app and motion sensor seamlessly connects.

Multiple interviewees said that Wilson Fit AI is perfect for the inexperienced fitter, as the tool is easy to use and comprehensible. Custom fitting becomes more accessible with this solution as it makes the whole process simpler. It lowers the threshold for fitters to give good and accurate recommendations.

#### **5.1.4 Testing improves attitudes**

*« I was a bit sceptic at first. Could it really be as good as they claimed? I felt that I needed to see it and try it for myself before I could commit to trusting it fully. »*

Several interviewees discussed the importance of seeing, trying, and testing a new product before trusting its validity. All the interviewees expressed an initial uncertainty regarding the Wilson Fit AI when they first heard of it, and that they were doubtful it could deliver what was promised. They wanted to try for themselves to see if it was as good as promised.

Several interviewees claimed they were satisfied with the way Wilson Golf had operated to facilitate trials of the product, e.g. physically being present at the customer's location and showing the product and how it works. Some said that Wilson Golf could improve in this area, by for example having more extensive training about how to use the Wilson Fit AI and its features and functions for their existing customers, as well as hosting more demo days where potential customers could try the technology.

#### **5.1.5 Perceived relative advantage**

*« It is important to review a technology's numbers and readings. It must be completely accurate for us to want to use it. Wilson Fit AI's readings is extremely close to the truth. It is favorable that it only takes 15 minutes to do a fitting, it reduces unnecessary wait times. »*

A new product must be an improvement from existing solutions. Several interviewees expressed that one important factor for them personally (who will be working with the Wilson Fit AI) is that it reduces the time of doing a complete fitting. This will allow for having "more time on one hour" to dive deeper into the more specific parts of the fitting, which otherwise often gets neglected due to shortage of time. When going into the specifics you give the customer a more personalised experience and increasing the customer satisfaction.

The interviewees also highlight the importance of innovations being completely accurate and giving precise readings. Some interviewees were arguing that the Wilson Fit AI still had some bugs and gave partly bad readings from time to time, reducing the advantages of using the product in comparison with other options. The lion's share, however, were strongly in favour of the accuracy of the product and believed it is in parity with current technology.

### **5.1.6 Perceived lack of compatibility**

*« There are some minor bugs in the system. Wilson Golf should focus future R&D on creating an overall solution, making it work for ladies, juniors and for other types of golf clubs such as woods and wedges. It got to be the whole package to hedge against future competition. »*

The biggest issue that several interviewees expressed, with the current version of Wilson Fit AI, is that it is designed for a male-only usage. Meaning, women and juniors cannot use the product comfortably, which they speculated could tamper with the accuracy of the readings and reducing the golfer's overall experience of the fitting session.

Additionally, several interviewees believe that the Wilson Fit AI, as it is now, is too limited to properly diffuse on the market. It is limited in terms of recommending to few different options in shafts and grips, as well as only being applicable for irons, neglecting the other golf clubs in the bag, such as wedges, woods and driver. They mean that Wilson Golf must work towards creating an overall solution, covering all different types of golfers, golf clubs and recommendations.

### **5.1.7 Older individuals take time before learning new technology**

*« Implementing new routines and technologies is always a struggle before it runs smoothly. This transition is harder for older fitters who, in general, are not as technologically advanced as their younger colleagues. »*

The interviewees expressed that older generations, within the custom fitting community, begins using newly launched products later than others. Several interviewees said that there was somewhat of a resistance among older fitters towards new technologies as they simply are more stuck in their way, and suggests the same will be for Wilson Fit AI. They described it as a reluctance to change their routine of doing things and as a larger hurdle for them to learn how to use newer technologies, in contrast to their younger colleagues. Although this train of thought permeated the majority of interviews, some opposing views were brought up, arguing that Wilson Fit AI is so easy to use that even older generations could and would implement it without reluctance.

### **5.1.8 Wilson Golf's brand is weak**

*« Wilson's brand is too weak. They need to start producing better clubs first. »*

There was no doubt about it during the interviews that the general perception of Wilson Golf as a brand is that it is somewhat uncool and not as strong of a player as

for example Titleist, Callaway, Ping or Taylormade. Several interviewees listed the fact that Wilson Golf is a weak brand as something that makes them uncertain in wanting to use Wilson Fit AI. They know that the general golfer thinks of Wilson Golf this way, which is why some of them were not too keen on endorsing the Wilson Fit AI fully. However, in Finland the opinion is otherwise. The market is still young, and many want to buy cheaper clubs, making Wilson Golf a perfect option. Almost every interviewee thought very highly of the product itself, but the brand's weakness made them unsure of adopting it.

### **5.1.9 Better golfers are knowledgeable**

*« We are working on educating the market about fitting. We are trying to really push on that doing a custom fitting is important to evolve as a player. Some golfers are scared to do a fitting as they believe they are not good enough. »*

There is a large discrepancy between better golfers and beginners regarding their knowledge about the sport in general and about certain numbers and readings that are relevant to custom fittings. The better golfers generally understand the importance of doing a fitting as they have some, or a lot, of knowledge about what the values the fitter examines during a fitting represent. Custom fittings are becoming increasingly accessible for every golfer, and many are beginning to see the benefits of doing one to improve their golf game. There are, however, according to several interviewees a need to educate the market even more. Many golfers in the higher handicap tiers still believes custom fitting only is for better players. Wilson Fit AI could potentially increase worse players involvement in custom fitting thanks to its simplicity. Interviewees suggests the importance of promoting on social media to enlighten the general public further.

### **5.1.10 Fitters are central in technology usage**

*« The fitters' role is important. We act as ambassadors for the product, and it is crucial that we use it and talk about it. If golfers know about Wilson Fit AI, it could create a pull-effect for retailers to want to use it. »*

Every interviewee was unified in the question whether the fitters' role are important in making sure that Wilson Fit AI gets picked up by the market. The fitters and the retail stores, in a way, acts as ambassadors for the brands they have in store. They represent the equipment's quality. Therefore, their role is critical in making sure an innovation spreads, as they are the ones promoting and using it. If they're not using it, the product will never get put into use. It is also important that they talk highly of the product with their peers as it can create a word-of-mouth effect, piquing the interest in others who are curious about the product. Fitters also acts as educators to

the lesser knowledgeable golfers, about what custom fitting, its equipment and measured values entail and represent.

# 6 Discussion

*The purpose of this chapter is to discuss the most important findings from the research regarding the research questions.*

## 6.1 Discussion of Findings

### **6.1.1 RQ1: What parameters are important to facilitate effective technology diffusion in a market, according to the literature's existing theoretical models and frameworks regarding the diffusion of innovations?**

The answer to the first research question can be derived from chapter 4, Theoretical Framework, where the author maps the existing theoretical frameworks and models that is applicable in this case. When discussing innovation diffusion theory, what becomes apparent as an important factor to facilitate diffusion, is what Rogers (2003) calls the four elements of diffusion. Additionally, customer expectation-confirmation is highly relevant in facilitating diffusion. Below, in Table 6.1, is a short summary of the most relevant parameters to answers RQ1 listed.

**Table 6.1 Parameters answering RQ1 derived from the theory presented in chapter 4.**

<b>Innovation</b>	→	An innovation should have:	
		<ul style="list-style-type: none"> <li>○ High relative advantage</li> <li>○ High compatibility</li> <li>○ Low complexity</li> <li>○ High trialability</li> <li>○ High observability</li> </ul>	
<b>Communication channels</b>	→	Mass media	→ ○ Television & news sources creates knowledge & awareness.
		Interpersonal channels	→ ○ Communication between near-peers facilitate persuasion.
<b>Time</b>	→	Innovation-decision process	→ Uncertainty-reducing process: <ul style="list-style-type: none"> <li>1. Knowledge</li> <li>2. Persuasion</li> <li>3. Decision</li> <li>4. Implementation</li> <li>5. Confirmation</li> </ul>
<b>The social system</b>	→	Opinion leaders	→ ○ Large impact on adoption decisions. Trusted source & can persuade others.
		Early adopters	→ ○ Role models who show benefits. Encourages others to follow.
		Collective or optional innovation decision	
<b>Innovation diffusion in a retailer context</b>	→	<p>Innovations must enhance overall customer experience.</p> <p>Compatibility in new innovations is crucial for retailers.</p> <p>Customers do not want to feel rushed.</p>	
<b>Expectation-confirmation theory</b>	→	Positive satisfaction decisions lead to repeat purchases, brand loyalty, and positive word-of-mouth.	

### **6.1.2 RQ2: How do Wilson Golf's customers perceive the Wilson Fit AI technology?**

The answer to RQ2 is derived from chapter 5, Empirical Findings. Below follows a shorter summary of the result. Wilson Golf's customers have expressed a range of perceptions regarding the Wilson Fit AI technology. The general impression is that it is a good and useful tool, which lowers the threshold to perform good custom fittings. Several interviewees believe the product hold great potential to become a standard practice in the custom fitting community. However, there are those who oppose, saying that Wilson Fit AI needs developing to be successful on the market. In Table 6.2 below are the positive and negative perceptions expressed by Wilson Golf's customers regarding Wilson Fit AI.

**Table 6.2 Positive and negative perceptions of the Wilson Fit AI expressed by Wilson Golf's customers for each aggregated dimension.**

<i>Aggregated dimension</i>	<i>Positive perceptions</i>	<i>Negative perceptions</i>
Better utilisation of communication channels	+ Effective use of face-to-face interactions	- Limited online presence and social media promotion
Personalised customer experience	+ Can see Wilson Fit AI enhancing overall experience	
Perceived ease-of-use	+ The simplicity and ease-of-use praised.  + Makes custom fitting accessible, especially for inexperienced fitters.	
Testing improves attitudes	+ Scepticism of Wilson Fit AI disappeared after testing  + Sufficient testing opportunities	- To few demo days  - Too little educating on how to operate the application
Perceived relative advantage	+ Timesaving increases personalised custom fitting  + High accuracy in readings	- Occasional bugs and inaccuracies reported
Perceived lack of compatibility		- Only perfectly compatible with male golfers  - Only applicable with irons  - Recommends too few grips and shafts
Older individuals take time before learning new technology	+ Wilson Fit AI easy enough for older fitters to understand	- Some older fitters reluctant to use Wilson Fit AI
Wilson Golf's brand is weak	+ The Finnish market likes Wilson Golf	- Weak brand compared to competitors.  - Wilson's weakness impacts willingness to adopt their products.
Better golfers are knowledgeable	+ Wilson Fit AI simple to understand for beginner golfers	
Fitters are central in technology usage	+ Fitters act as ambassadors and educators, promoting the product effectively	

An assessment of Wilson Fit AI's innovation characteristics can be found in Table 6.3 below. The assessment is derived from Table 6.2 and is based on the theoretical framework on diffusion of innovations presented in chapter 4.1.1. The assessment

is solely made by the author and acts as an attempt to put the theory into practice. It should be noted that this assessment is purely hypothetical as it is not put in parity with anything else. Meaning that the conclusions, drawn by the author, can possess some degree of inaccuracy compared to a quantitative assessment of different products in comparison to each other.

**Table 6.3 An assessment of Wilson Fit AI’s innovation characteristics**

<i>Innovation characteristics</i>	<i>Assessment</i>
Relative advantage	High
Compatibility	Moderately low
Complexity	Very low
Trialability	Moderately high
Observability	Moderately low

**6.1.3 RQ3: How should Wilson Golf improve Wilson Fit AI to better cater to their customers, and enable diffusion to a larger extent?**

The answer to the last research question is a distillation of the previous two research question’s answers, which then is applied to this specific case. To answer RQ3, each aggregated dimension is firstly applied to the theoretical frameworks of this study to see the connection more clearly between the two, see Table 6.4. For each aggregated dimension a motivation is presented to how it relates to innovation diffusion theory and/or expectation-confirmation theory.

To enhance the Wilson Fit AI and facilitate its market diffusion, it is essential to address the negative perceptions from customers and leverage insights from the theory. The feedback from Wilson Golf’s customers highlights several areas for improvement which, when addressed, can significantly boost both customer satisfaction and product adoption. The improvement suggestions for Wilson Golf will leverage the answers to RQ1 as a template to show how these suggestions, theoretically, could be considered fruitful.

**Table 6.4 Each aggregated dimension and how it relates to the theory brought up in this thesis.**

<i>Aggregated dimension</i>	<i>Theoretical application</i>
Better utilisation of communication channels	Rogers (2003) stipulate that communication channels play a critical role in the diffusion process. Effective use of communication channels can accelerate the diffusion by enhancing awareness and knowledge among potential adopters.
Personalised customer experience	ECT highlights the importance of meeting or exceeding customer expectations to ensure satisfaction and continued usage. Personalisation in customer experience can help align perceived performance with customer expectations, thus fostering positive satisfaction outcomes and brand loyalty.
Perceived ease-of-use	Rogers (2003) emphasizes that innovations perceived as easier to use and more convenient are adopted more quickly. Simplicity and time-saving features reduce the complexity of the innovation, making it more accessible to a broader audience.
Testing improves attitudes	Rogers (2003) identifies trialability as a significant attribute affecting the rate of adoption, as it decreases uncertainty. By offering demo days and hands-on experiences, Wilson Golf can reduce potential customers' uncertainty and encourage adoption.
Perceived relative advantage	Rogers (2003) discuss that relative advantage is the degree to which an innovation is perceived as better than the one it supersedes. Innovations with a clear relative advantage are adopted more rapidly. Interviewees review Wilson Fit AI as having several advantages, which drives its diffusion further.
Perceived lack of compatibility	Rogers' (2003) framework indicates that higher compatibility leads to faster adoption. Ensuring that Wilson Fit AI integrates seamlessly into the existing fitting routines and meets user expectations will be crucial for its widespread acceptance.
Older individuals take time before learning new technology	Rogers (2003) theory suggests that age can influence the adoption rate, with older individuals often being later adopters. Thus, being in the Late majority or Laggards adopter category.
Wilson Golf's brand is weak	A weak brand perception diminishes the perceived relative advantage of Wilson Fit AI, as potential adopters might not see it as a credible option compared to competitors' offerings.  ECT posits that user satisfaction and continued use are influenced by the degree to which initial expectations are met or exceeded. A weak brand perception sets low initial expectations for the Wilson Fit AI.
Better golfers are knowledgeable	In line with ECT, educating golfers about the benefits of custom fitting aligns their expectations with actual outcomes, leading to higher satisfaction and continued use.  In accordance with Rogers (2003), effective education and use of communication channels, such as social media, enhance awareness and understanding, persuading higher handicap golfers to adopt custom fitting.

Fitters are central in technology usage	Fitters, acting as opinion leaders (Rogers, 2003), influence potential adopters by endorsing Wilson Fit AI, enhancing its credibility and perceived value, and facilitating its diffusion through interpersonal communication.
---	--

After condensing the negative perceptions listed in Table 6.2 the author identified three key issues, which is presented in Table 6.5.

**Table 6.5 Identified key issues for Wilson Fit AI and Wilson Golf and the respective issue's motivation.**

<i>Identified key issues</i>	<i>Motivation</i>
Inclusivity	The current design of Wilson Fit AI is male-centric, limiting its accuracy and appeal for women and juniors, and older fitters exhibit reluctance towards adopting new technologies.
Compatibility	The system is limited to iron clubs, neglecting other types of golf clubs. Recommendations for shafts and grips are too narrow, reducing perceived customisation.
Brand perception	Wilson Golf's brand is seen as weaker compared to competitors, affecting willingness in adopting new technologies from the brand.

To improve in the just described areas shown in Table 6.5, the author suggests the following improvement strategies for Wilson Golf, regarding the diffusion of Wilson Fit AI.

#### *Enhance inclusivity and user experience*

Wilson Golf must modify the Wilson Fit AI to cater to women and junior golfers. This involves having test clubs that are fit for women and juniors to accurately measure and suggest recommendations for these groups, ensuring a more personalised and effective experience for all users.

It is also worth noting that women and junior golfers constitutes a small percentage of golfers doing custom fittings. Developing test clubs to fit their needs will be a costly affair and might not be immediately profitable for Wilson Golf, especially in this early phase where it is still uncertain if the technology will diffuse. Although, the diffusion conditions of the technology will improve if including women and junior test clubs, as retailers value the inclusiveness, Wilson Golf must balance the positive effects with the costs of developing the product.

It is not uncommon that fitters are among the older generations and exhibits a resistance to adopting new technology. Wilson Golf should therefore have comprehensive training programs and user-friendly interfaces on the technologies

they employ, to quicken the learning curve for older fitters. By emphasising the ease-of-use and demonstrating the tangible benefits through peer-led training sessions, older fitter's resistance might reduce.

It is important to acknowledge that the average golfer who plays with Wilson Golf clubs is somewhat older and have a higher handicap. Having simple interfaces and conveying information in an easy manor to the individual doing a fitting, eases the understanding of what a fitting entail. Thus, increasing their end-consumers' general knowledge and increasing their involvement in the fitting session, which elevates their overall experience of doing a custom fitting.

It is easy to interpret the theory and understand how one should go about to reduce the resistance of later adopters, but it is most likely harder in practice. This is a process that takes time and Wilson Golf must make continuous efforts to gain the trust of these individuals. Changing a person's mindset will not happen overnight and involves many steps of persuasion during a long time.

#### *Expand product capabilities*

By extending the capabilities of Wilson Fit AI to include wedges, woods, and drivers, Wilson Golf would achieve a more holistic fitting solution. This will better meet the diverse needs of golfers and enhance the overall value proposition for retailers, defending it better against potential future competitors. Additionally, it will allow fitters to use the Wilson Fit AI for a complete fitting of the entire bag, eliminating the need to use other fitting tools for the remaining golf clubs. As mentioned in chapter 2, Contextual Setting, this development is currently something that Wilson Golf is working on, but will, according to Lars Lørup (2024), not be available until 2026.

Wilson Golf should increase Wilson Fit AI's assortment of recommendations to a wider variety of grips and shafts. This will increase the perceived customisation options for the golfer. This factor could contribute to golfers' overall experience exceeding their initial expectations. This in turn elevates the relative advantage of the Wilson Fit AI among retailers and thereby encouraging adoption.

Increasing their assortment of recommendations will inevitably mean large investments and adjustments for Wilson Golf's production line. The company must be smart in which areas they want to improve to maximise the return of the investment.

#### *Strengthen brand perception*

Social media presence and brand promotion is an aspect Wilson Golf surely could improve on. The company themselves have at several occasions expressed the problem of not being perceived by the market as a strong and attractive actor, and

this view was confirmed by their customers as well. According to ECT, both Wilson Golf's customers as well as the golfers will indubitably have lower expectations of all their products and equipment, including Wilson Fit AI, if the brand is perceived as weak. This will in turn make it harder for the customer and golfer to feel satisfied with a product or equipment after usage, and consequently also with the brand. By utilising mass media channels, such as social media, Wilson Golf can penetrate and reach a wider audience. Mass media channels are especially good in creating awareness and knowledge about innovations, which is the first stage in the innovation-decision process. By promoting the innovativeness and benefits of Wilson Fit AI, it could pique the interest of potential adopters.

Establishing a solid presence on social media is a time-consuming process involving commitment and resources. To produce quality content with high production value that catches the eye of individuals, a lot of thought and capital must be involved. This is an iterative process that requires analysing the performance of previous posts to constantly improve and increase engagement on the platforms.

Several of the interviewees expressed the importance of testimonials from satisfied users, especially influential fitters in regard to Wilson Fit AI's diffusion. Utilising opinion leaders when promoting a product, serves as a powerful endorsement. This can contribute to potential adopters reaching the second step in the innovation-decision process, persuasion.

It can be hard to attract opinion leaders that want to endorse Wilson Golf. Due to the brand being weak today, many opinion leaders might not want to be affiliated with them, to not risk losing their status and influence. Assigning brand ambassadors and spokespeople is also costly. Therefore, Wilson Golf must wisely choose which individuals they approach that they believe want to endorse the brand and incrementally attract opinion leaders of higher status.

Wilson Golf should also focus on their presence in the physical world to gain exposure. Hosting more demo days and inviting opinion leaders within the golfing and fitting communities will increase the brand's involvement on the market and increase their credibility when showcasing equipment that are in parity with competitor's. Wilson Fit AI's observability will increase during these events. This can help elevate Wilson Golf's brand perception and build trust among potential adopters. A stronger brand will make customers more likely to trust and adopt Wilson Fit AI. A strong brand image will also attract new customers and retain existing ones, boosting overall market share.

#### *Leverage innovation diffusion elements*

Clearly communicating the relative advantages of Wilson Fit AI over traditional fitting methods and competitor products will improve the diffusion conditions. Emphasising time savings, which allows for doing more in-depth fittings, as well as highlighting its accuracy of recommending the right club after only a few shots can

persuade early adopters and opinion leaders. Several interviewees also believed that emphasising its technological superiority could improve its adoption conditions.

Wilson Golf should increase opportunities for potential users to try Wilson Fit AI through, for example, demo days. Experiencing the product firsthand can mitigate scepticism and encourage adoption. By showcasing successful stories and showing results from existing users will make the benefits observable which can enhance the credibility and appeal of the technology.

#### *Utilise customer expectation-confirmation theory*

It is important to manage the user's expectations. By setting clear and realistic expectations for what Wilson Fit AI can achieve and having transparent communication about the product's capabilities and limitations, can prevent dissatisfaction stemming from unmet expectations. This will lead to an increased brand loyalty and general trust in the brand.

Additionally, it is important to have continuous feedback loop from the customers using the product. Wilson Golf must always seek to improve the technology to keep their customers satisfied. Both to foster brand loyalty, but also to keep relevance once competitors develop similar products.

#### **6.1.4 Discussing the results**

What the result does not cover which plays a pivotal role in the theory is how the social system in this case is constructed. The existence different decision-making types is believed by the author to play a significant role in this case. The author got the impression that the social system, that is the fitting community, is highly interrelated and share ideas and spread words about innovations via interpersonal channels. Decision whether to adopt or reject innovations within the social system, therefore could be argued to be more a collective decision, than an optional or authoritative decision. There appears to be very little room for optional technologies in the custom fitting market. There are typically only a handful different technologies that each serve essentially the exact same purpose. Meaning, there are few deviated technologies that are severely different from another one. This creates a sense of conformity in the fitting community, where innovations must adhere to the standard norms to be accepted by the collective decision-making. Wilson Fit AI opposes the norms in many ways since it fundamentally alters the way to do a custom fitting. To still be accepted within the social system, it is crucial that Wilson Fit AI integrates seamlessly with existing systems and that the characteristic of the innovation exceeds in all parameters. Analysing Table 6.3, it can be concluded that Wilson Fit AI is performing good overall. However, the assessment cannot in itself convey any relevant information as it is not put in parity with competing products. The innovation characteristics for Wilson Fit AI could be believed to meet the

required degree to have sufficient conditions to diffuse in the market, while yet opposing the social system's norms.

The Wilson Fit AI could arguably be in the early phases of the diffusion curve, which is also the most critical. Wilson Golf have begun pushing the product since early 2024 to their customers, and if using the interviewed customers as a derivative for their entire customer base, the extent to which the product is being used varies significantly. Some of the interview objects are consistently using the product whereas some had only tested it a couple times. This indicates that Wilson Fit AI currently are being diffused among Innovators and Early adopters. The interview objects who are a bit slower in the adoption process could be considered Early or Late majority. The stage Wilson Fit AI is in now is, according to Moore (2014), a critical part of the diffusion journey as it now must cross the chasm to reach widespread diffusion. Wilson Golf must develop enough momentum in the diffusion rate of Wilson Fit AI to connect the Early adopters with the Early majority, to ensure that it bridges the chasm and continues to diffuse through the social system. It is yet too soon to tell if Wilson Fit AI will reach full diffusion in the market. It is also impossible to prove the existence of a chasm between adopter categories from just this case.

While the findings emphasise managing expectations and gathering feedback, there is less focus on how Wilson Golf can enhance post-purchase support and engagement to ensure continued satisfaction and positive word-of-mouth. The theory also highlights the importance of addressing both positive and negative disconfirmation. The findings could delve deeper into specific strategies for turning negative disconfirmation into positive experiences through targeted improvements.

Additionally, what should be noted regarding the result is that the interview objects that wanted to participate in an interview mostly had favourable opinions about Wilson Golf. Roughly 10 out of the 30 individuals that were contacted were not currently working much with Wilson Golf products and had a somewhat negative or indifferent attitude toward the brand. Out of those ten retailers only three agreed to an interview. This indubitably skewed the results to act more in Wilson Golf's favour and does not provide a truly truthful depiction of reality.

# 7 Conclusion

*This chapter concludes the thesis with a short recap of the findings and improvements for Wilson Golf's future. Future research is also discussed.*

## 7.1 Concluding Summary

To be able to review any effects of Wilson Fit AI on Wilson Golf as a company and a brand, this study must be made again at a later stage. It is too soon to be able to identify and qualify any eventual contributions the technology has had on the company. Since much of Wilson Golf's issues lies with the perception of the brand and the general golfer's attitude, it would be interesting to see if the launch of Wilson Fit AI and the implementation on the market has had any effects in changing the perception of the brand.

Implementing the recently presented improvements will ensure that Wilson Fit AI is perceived as a valuable, user-friendly, and innovative tool, fostering positive word-of-mouth and long-term brand loyalty, which will improve the diffusion conditions for Wilson Fit AI.

In conclusion, the successful diffusion of Wilson Fit AI hinges on addressing both the technological and perceptual challenges identified in this study. By enhancing inclusivity, expanding product capabilities, strengthening brand perception, and effectively managing customer expectations, Wilson Golf can improve the adoption conditions for Wilson Fit AI. The insights gained from this research offer valuable guidance for Wilson Golf and other companies seeking to introduce innovative technologies in competitive markets. With a strategic focus on these areas, Wilson Golf can not only improve the user experience and satisfaction, but also solidify its position as a leader in the custom fitting market and once again rise to its long-lost glory in the game of golf.

## 7.2 Future Research

The findings from this study on Wilson Fit AI provide several avenues for future research. One primary area for further investigation is the long-term impact of

Wilson Fit AI on brand perception and customer loyalty. While this study offers initial insights, a longitudinal study would be beneficial to understand how the adoption of Wilson Fit AI evolves over time and its sustained effects on Wilson Golf's market position.

Additionally, future research could explore the effectiveness of various strategies aimed at crossing the "chasm" between early adopters and the early majority, as identified by Moore (2014). Investigating different marketing and engagement tactics that could facilitate this transition would provide valuable insights for Wilson Golf and other companies facing similar challenges with technological innovations. Comparative studies with other golf equipment companies that have successfully navigated this phase could offer practical strategies and lessons learned.

Another potential research direction involves a deeper analysis of user experience and satisfaction with Wilson Fit AI. This could include a more extensive survey of a broader customer base, beyond the initial 15 interviewees, to gather diverse perspectives and more comprehensive data. Understanding the factors that contribute to high satisfaction and identifying any common issues could help refine the tool and improve its adoption rates.

Finally, the motion sensor technology that makes up Wilson Fit AI could be studied and applied in other sports. This should be of high interest to Wilson as they are involved in many sports, such as tennis, baseball, basketball, and football. This research provides a foundation for future research in other sports, and which parameters that facilitate the adoption of an innovative technology in a retailer-based market landscape.

In summary, while this study lays the groundwork for understanding the initial impact of Wilson Fit AI, ongoing research is essential to fully capture its long-term effects, optimise its adoption, and explore new technological integrations that could further enhance its value proposition.

## 8 References

- Appleby, J. (2021). The History of Custom Fitting (and why it matters). [online] Golf Datatech. Available at: <https://www.golfdatatech.com/the-history-of-custom-fitting-and-why-it-matters/>.
- Barba, J. (2014). Rebuilding Wilson Golf Part 1: What Went Wrong. [online] MyGolfSpy. Available at: <https://mygolfspy.com/news-opinion/how-the-wilson-staff-empire-crumbled/>.
- Barba, J. (2020). A 2020 LOOK AT WILSON STAFF. [online] MyGolfSpy. Available at: <https://mygolfspy.com/news-opinion/wilson-staff-2020/>
- Beach, A. (2008). The Evolution of Golf Club Fitting (1985-Present). [online] MyGolfSpy. Available at: <https://mygolfspy.com/news-opinion/golf-club-fitting-technolog/>.
- Bogdan, R.C. and Sari Knopp Biklen (2006). Qualitative Research for Education: an Introduction to Theory and Methods. Boston: Pearson International Edition.
- Bradley, J. (2011). If We Build It They Will Come? The Technology Acceptance Model. Information Systems Theory, pp.19–36. doi:[https://doi.org/10.1007/978-1-4419-6108-2\\_2](https://doi.org/10.1007/978-1-4419-6108-2_2).
- Clelland, S. (2024). Interviewed by Oscar Lindwall. 22 February, digital via Teams.
- Clubhousegolf (n.d.). Search Results - Clubhouse Golf. [online] Available at: [https://www.clubhousegolf.co.uk/cgi-bin/ss000003.pl?PAGE=search&SS=swing+caddie&PR=1&TB=A&SO=1\\_10\\_6\\_0&ACTION=Go%21](https://www.clubhousegolf.co.uk/cgi-bin/ss000003.pl?PAGE=search&SS=swing+caddie&PR=1&TB=A&SO=1_10_6_0&ACTION=Go%21)
- Cradock, J.T. last updated C. from M. (2023). Best Wilson Golf Clubs 2024. [online] Golf Monthly Magazine. Available at: <https://www.golfmonthly.com/buying-advice/best-wilson-golf-clubs>.
- Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13(3), pp.319–340. doi:<https://doi.org/10.2307/249008>.
- Direct Impact Golf (n.d.). How to Use. [online] Direct Impact Golf Company LLC. Available at: <https://directimpactgolf.com/pages/how-to-use>

- Dormy (2024). Våra varuhus - Dormy. [online] Available at: <https://www.dormy.com/sv/vara-varuhus>
- Flightscope (n.d.). Kit Launch Monitor. [online] Available at: <https://www.fullswinggolf.com/kit-launch-monitor/>.
- Gioia, D., Corley, K. & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research: notes on the Gioia Methodology. *Organ. Res. Methods*, 16, pp. 15–31.
- Golfexperten (n.d.). Butikker. [online] Available at: <https://www.golfexperten.dk/butikker>
- Golfstore (n.d.). Golfstore Butiker - Hitta din närmaste golfbutik i Sverige. [online] Available at: <https://www.golfstore.se/butiker>
- Huang, A., Ahmet Bulent Ozturk, Zhang, T., Efren and Haney, A. (2024). Unpacking AI for hospitality and tourism services: Exploring the role of perceived enjoyment on future use intentions. *International Journal of Hospitality Management*, 119, pp.103693–103693. doi:<https://doi.org/10.1016/j.ijhm.2024.103693>.
- Höst, M., Regnell, B. & Runeson, P. (2006). Att genomföra examensarbete. 6th ed. Studentlitteratur AB.
- Kreng, V.B. and Wang, H.T. (2009). A technology replacement model with variable market potential — An empirical study of CRT and LCD TV. *Technological Forecasting and Social Change*, 76(7), pp.942–951. doi:<https://doi.org/10.1016/j.techfore.2009.02.001>.
- Lørup, L. (2024). Interviewed by Oscar Lindwall. 27 March, digital via Teams.
- Magnani, G. & Gioia, D. (2023). Using the Gioia Methodology in international business and entrepreneurship research. *International Business Review*, 32(2), p. 102097, doi:10.1016/j.ibusrev.2022.102097.
- Moore, G.A. (2014). *Crossing the Chasm: Marketing and Selling Disruptive Products to Mainstream Customers*. 3rd ed. New York: Collins Business Essentials.
- Nilsson, M. (2024a). Interviewed by Oscar Lindwall. 31 January, digital via Teams.
- Nilsson, M. (2024b). Interviewed by Oscar Lindwall. 13 March, digital via Teams.
- Nilsson, M. (2024c). E-mail to Oscar Lindwall, 31 January.
- Nordica Golf (n.d.). Dynacraft Lie Fitting Board. [online] [www.nordicagolf.se](http://www.nordicagolf.se). Available at: <https://www.nordicagolf.se/dynacraft-lie-fitting-board>
- Oliver, R.L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4), pp.460–469. doi:<https://doi.org/10.2307/3150499>.

- Ogle, S. (2023). Wilson Golf Review for 2023: Are Wilson Irons Worth It? [online] Breaking Eighty | Best Golf Courses and Golf Product Reviews. Available at: <https://breakingeighty.com/wilson-golf-review>
- OpenAI ChatGPT 3.5. (2024). In response to Oscar Lindwall, 25 April.
- Pantano, E. and Viassone, M. (2014). Demand pull and technology push perspective in technology-based innovations for the points of sale: The retailers evaluation. *Journal of Retailing and Consumer Services*, 21(1), pp.43–47. doi:<https://doi.org/10.1016/j.jretconser.2013.06.007>.
- Pantano, E. and Vannucci, V. (2019). Who Is innovating? an Exploratory Research of Digital Technologies Diffusion in Retail Industry. *Journal of Retailing and Consumer Services*, 49(49), pp. 297–304.
- Pantano, E., Priporas, C.-V. and Stylos, N. (2018). Knowledge Push Curve (KPC) in retailing: Evidence from patented innovations analysis affecting retailers' competitiveness. *Journal of Retailing and Consumer Services*, 44, pp.150–160. doi:<https://doi.org/10.1016/j.jretconser.2018.06.004>.
- Pantano, E. (2024). Interviewed by Oscar Lindwall. 6 March, digital via Teams.
- PQ Golf. (n.d.). PQ Golfbutik & Golfshop. [online] Available at: <https://pqgolf.se/pages/pq-butiker>
- Rogers, E.M. (2003). *Diffusion of innovations*. 5th ed. New York: Free Press.
- Sekaran, U. & Bougie, R. (2016). *Research Methods For Business: A Skill 81 Building Approach*. John Wiley & Sons.
- Shop Indoor Golf. (n.d.). Foresight Sports Launch Monitors & Golf Simulators. [online] Available at: <https://shopindoorgolf.com/collections/foresight-sports>
- SkyTrak. (n.d.). Launch Monitors. [online] Available at: <https://skytrakgolf.com/collections/launch-monitors>
- Statista. (n.d.). Golf Equipment - Nordics | Statista Market Forecast. [online] Available at: <https://www.statista.com/outlook/cmo/toys-hobby/sports-equipment/golf-equipment/nordics#key-players>
- Stachura, M. (n.d.). New study reveals 1 thing that helped 90 percent of avid golfers. [online] Available at: <https://www.golfdigest.com/story/new-research--number-of-serious-golfers-who-ve-been-fit-for-club>.
- Trackman (n.d.). Best Golf Launch Monitor - Full Swing and Ball Flight Tracking. [online] Available at: <https://www.trackman.com/golf/launch-monitors/trackman-4>.

web.archive.org. (2013). Wilson | Wilson Sporting Goods. [online] Available at: <https://web.archive.org/web/20130519105712/http://www.wilson.com/en-us/golf/wilsonstaff/history/wilson/>.

Wilson.com. (2023a). Wilson About Us. [online] Available at: <https://www.wilson.com/en-us/explore/about-us>.

Wilson.com. (2023b). Wilson Fit AITM Set to Change the Future of Golf Club Fitting. [online] Available at: <https://www.wilson.com/en-us/blog/golf/behind-scenes/wilson-fit-ai%E2%84%A2-set-change-future-golf-club-fitting>

www.wilson.com. (2024). More Than a Century of Innovation. [online] Available at: <https://www.wilson.com/en-us/explore/about-us/more-than-a-century-of-innovation>.

Yin, R.K. (2018). Case Study Research and Applications: Design and Methods. 6th

# Appendix A Wilson Fit AI 7-step Guide

## A.1 Step 1 - Player interview

The golfer first must do a short interview in the application where they get asked simple questions about their game, in a similar fashion the custom fitter ordinarily ask questions. These are standard questions that, before Wilson Fit AI, every custom fit specialist had to ask to get an understanding of the golfer. Now this is done solely in the application. This information is still relevant for the fitter and can be displayed for them in the application as well. The question can be found in Figure A.1 – A.3.

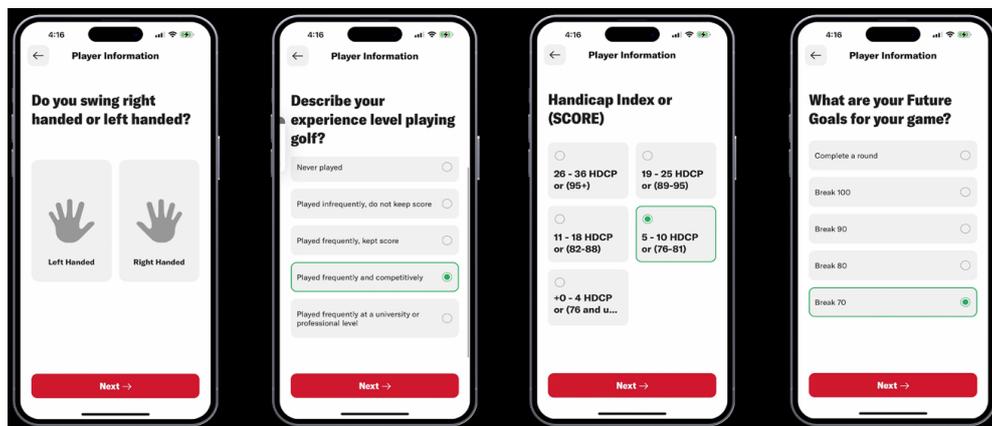


Figure A.1 Player experience questions that should be asked by the fitter and answered by the golfer in the application

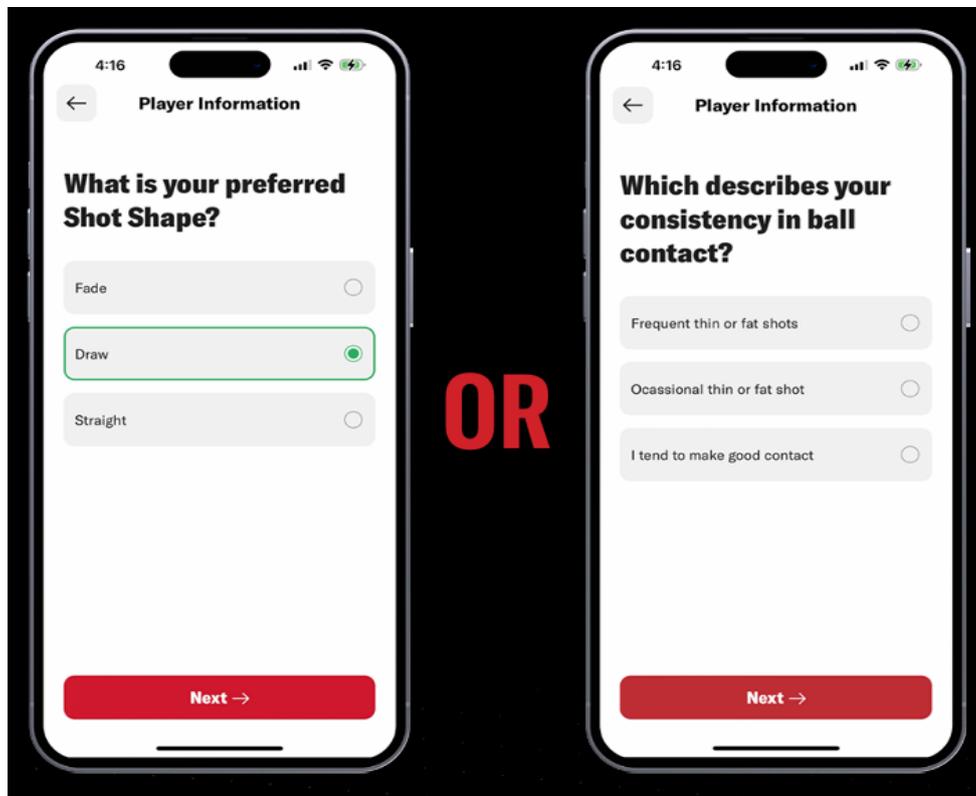


Figure A.2 Questions tailored to the golfer's handicap and experience

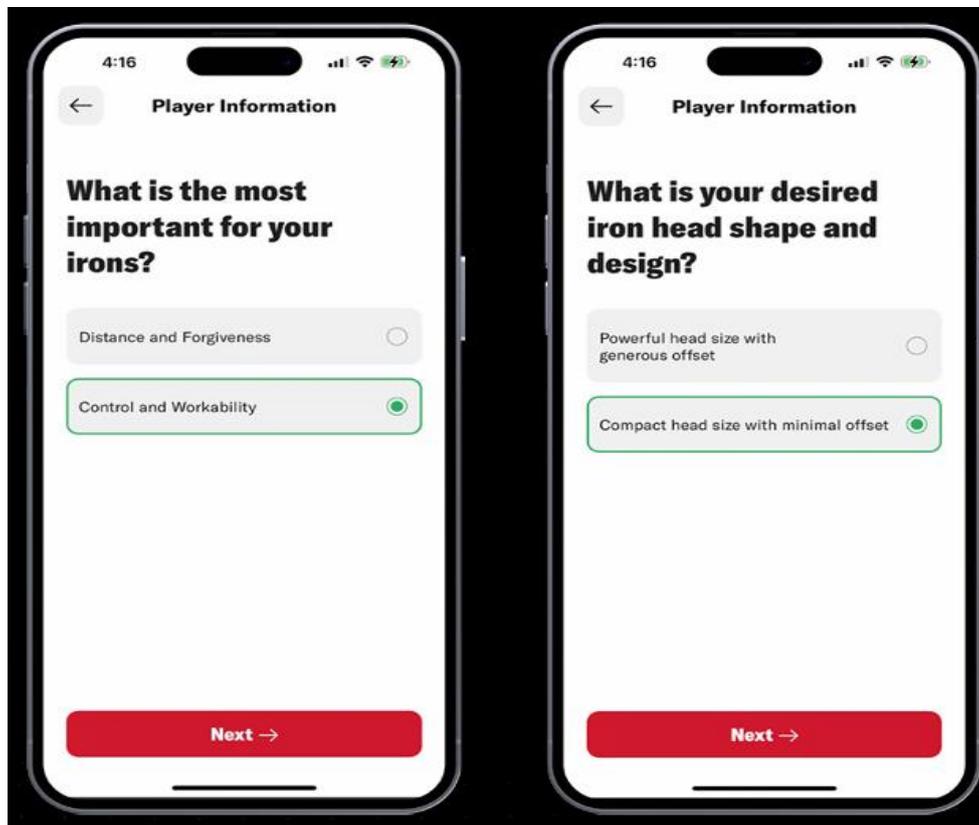
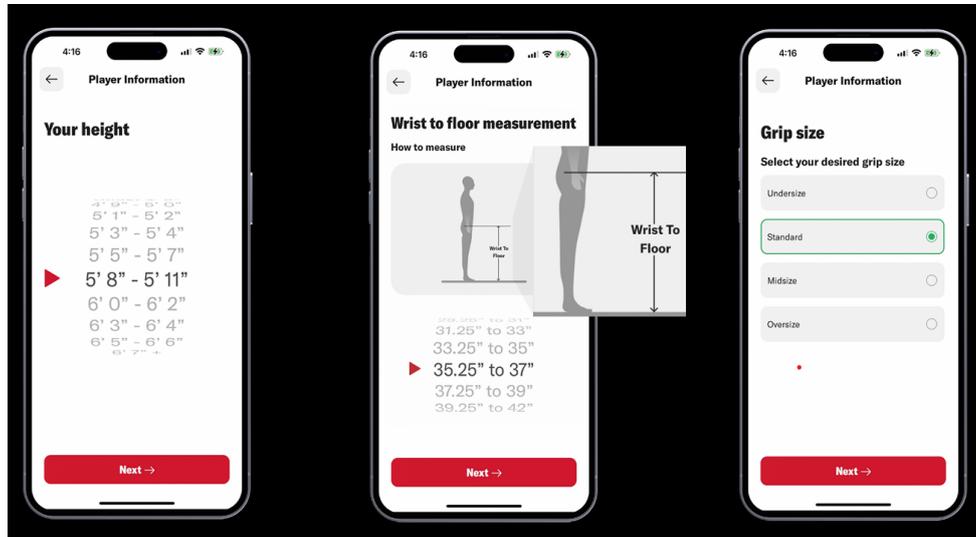


Figure A.3 Clubhead preference question regarding head size, offset, distance and forgiveness

## A.2 Step 2 - Player physical measurements

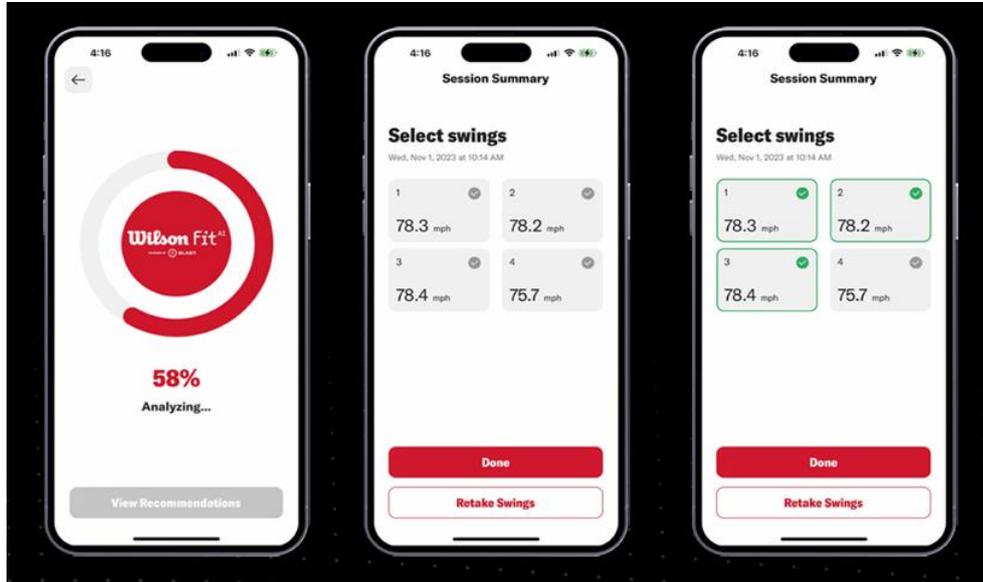
Thereafter follows a part where the golfer fills in their physical measurements, such as height, wrist-to-floor length, and grip size. See Figure A.4 for a visualisation of this part during in the application. To measure wrist-to-floor length the fitter uses the accompanying ruler that comes in the Fitting Kit, seen in Figure 1.2.



**Figure A.4** Illustration of the part where the player fills in their measurements in the application.

### A.3 Step 3 - Warm-up and Swing Data Capture

After the golfer has filled in their information it is time to start the actual fitting. For more accurate results the golfer is encouraged to warm up with a few practice swings with the designated custom fitting club seen in Figure 2.5. before collecting data from the swing. When the golfer feels ready, the fitters begins the fitting and the golfer hits a minimum of three shots. They recommend hitting at least five shots to ensure a good result, however there is no actual limit to how many shots the golfer is allowed to hit. After sufficient number of shots have been taken, you select the swings you feel are best representing your overall swing and analyse them, see Figure A.5.



**Figure A.5** Pictures of the screen when the golfer has taken enough swings and gets to choose which ones to analyse

## A.4 Step 4 - Session Summary

When the analysis of the swings is complete the results will be presented as shown in Figure A.6. The accelerator graph is measured in G-force and shows how and when the player loads and unloads the shaft in the backswing and downswing. The gyroscope graph is measured in degrees per second and shows the rotational load of the hips, arms, shoulders, and legs in developing swing speed. Data shows the max G-forces and rotation developed in the swing as well as swing time (a.k.a. tempo) and the timing of the hinging and unhinging of the wrists. Each piece of data has a small label that categorizes that piece of data statistically as Early, Mid, Late or Fast, Typical, Slow, which is a direct comparison with other golfers's data measurements.

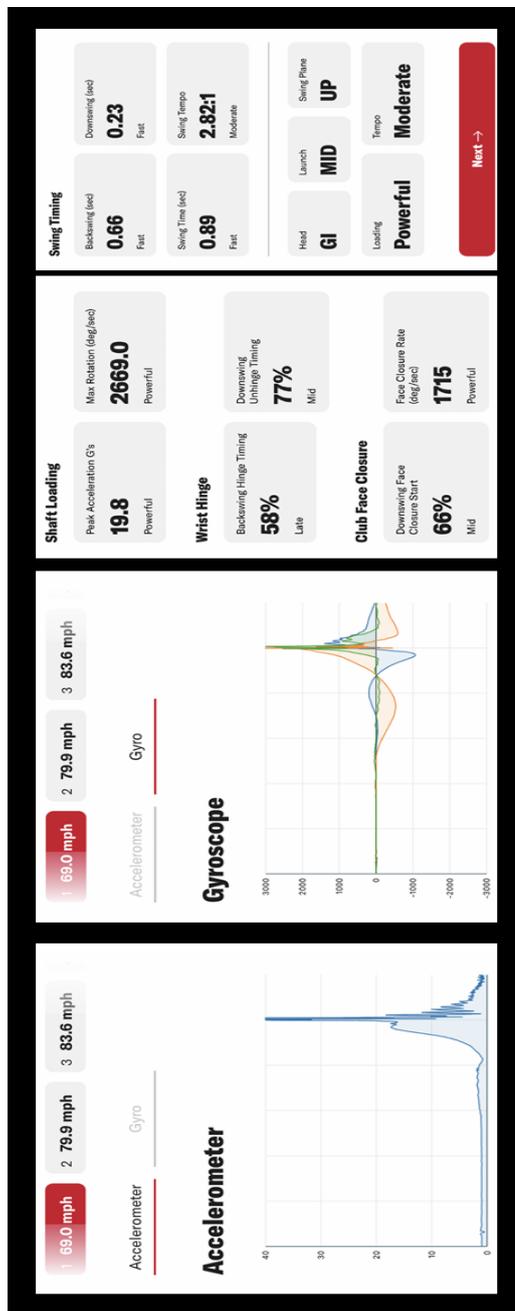


Figure A.6 12 000 data points summarised in an accelerometer graph, gyroscope graph, shaft loading measurements, wrist hinge timing, club face closure data and swing timing

## A.5 Step 5 - AI Algorithm Recommendation

Once the swings have been selected and the player swing analysis reviewed, the AI Algorithm uses the data to calculate the best fit for the player in terms of head, shaft, lie, length and grip size, as shown in Figure A.7. The fitter now builds the recommended club from the Fitting Kit as close as possible. This is where the Fitter's expertise applies. The fitter has the opportunity with the golfer's feedback to fine-tune the selection and override the recommendation. This change will be used in the AI algorithm.

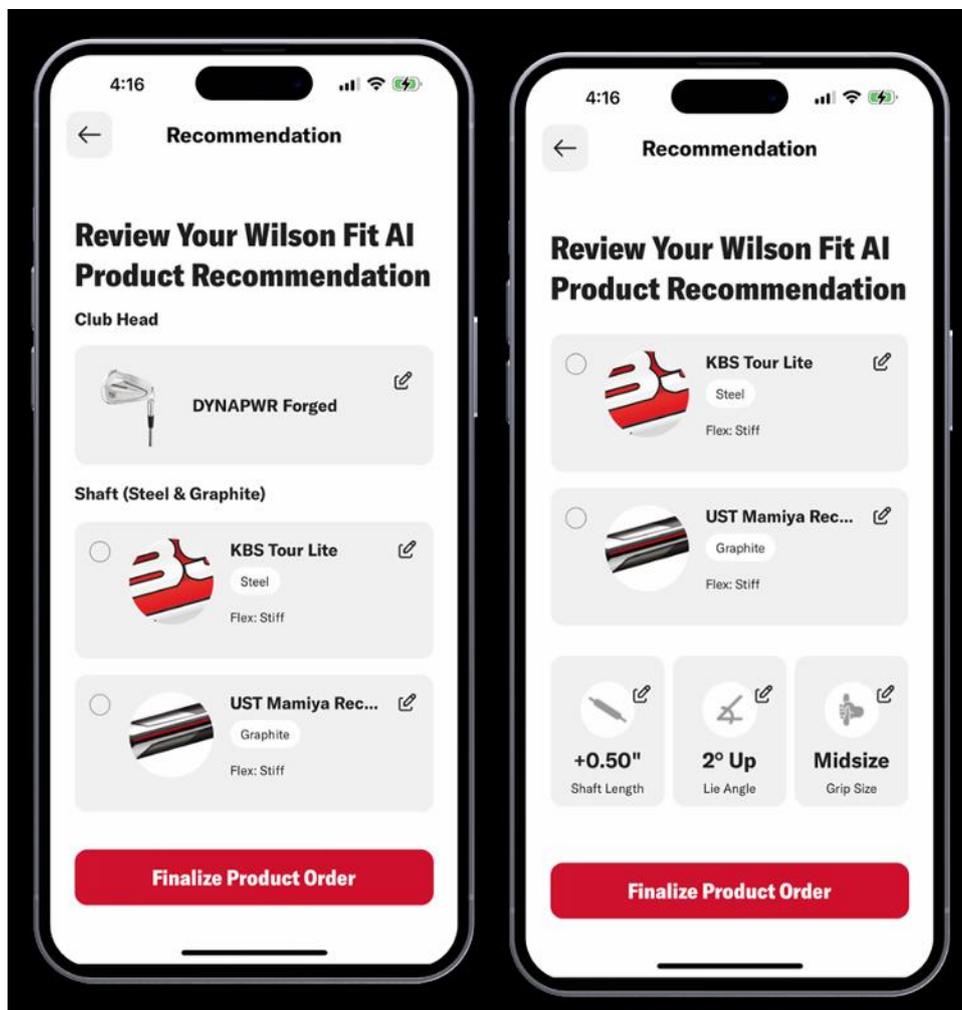


Figure A.7 The final recommendations the AI algorithm provides after analysing the golfers data measurements. The recommendations include head, shaft, lie, length and grip size.

## A.6 Step 6 - Set Configuration, Grip Choice & Loft Adjustments

It is common that golfers deviate from the standard swing, meaning their clubs need some adjustments. Oftentimes this can mean that they need a different loft on their club head compared to how it is originally manufactured. In this part, the fitter chooses which types of irons the golfer wants and adjusts the loft according to the recommendations in the previous step. Thereafter the fitter presents the golfer with a type of grip. The type of grip a golfer uses is mostly determined by feel and personal preferences. Some golfers want a thicker grip than standard, which can be entered here as well. See Figure A.8 and Figure A.9 for a visual description of how this looks in the application.

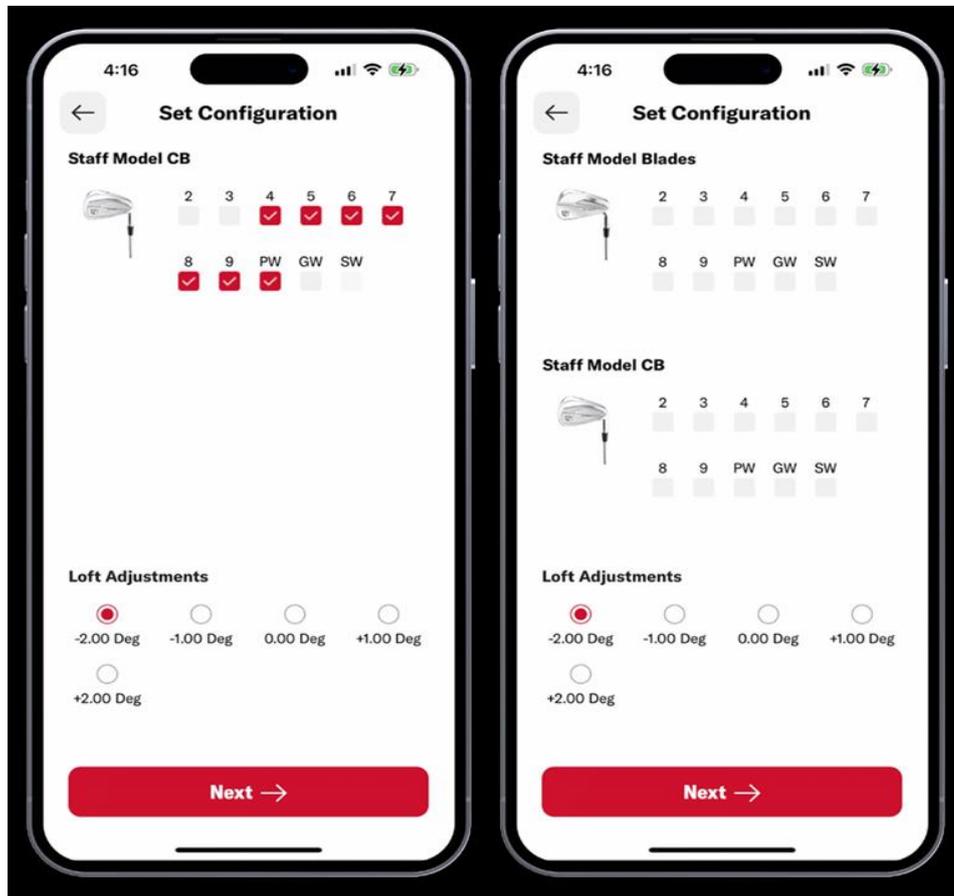


Figure A.8 Visualisation of setting configuration of the golf clubs and adjusting the loft in the application

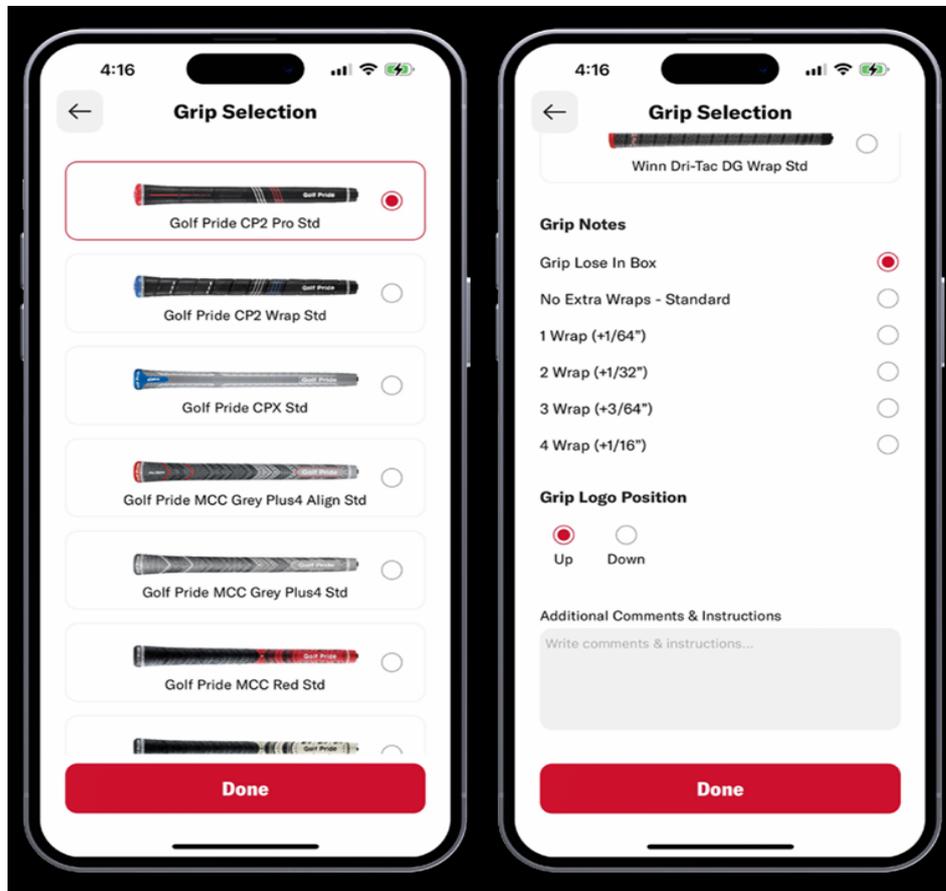


Figure A.9 Visualisation of selecting the correct grip and adjusting its thickness in the application.

## A.7 Step 7 - Confirmation

The final fit and player swing data is sent to the cloud. This will help refine the Wilson Fit AI algorithm and shape future fittings around the world. Saving the confirmation sends the golfer's personalised recommendations to the golfer's email address. Saving the confirmation also creates a player locker where data can be recalled for future fitting sessions. Wilson Golf's long-term goal is to have the fitting report of the golfer sent directly to their B2B site to create and fulfill an order for the golfer's just personalised golf clubs. See Figure A.10 for the Fitting Report created after confirming the recommendations.

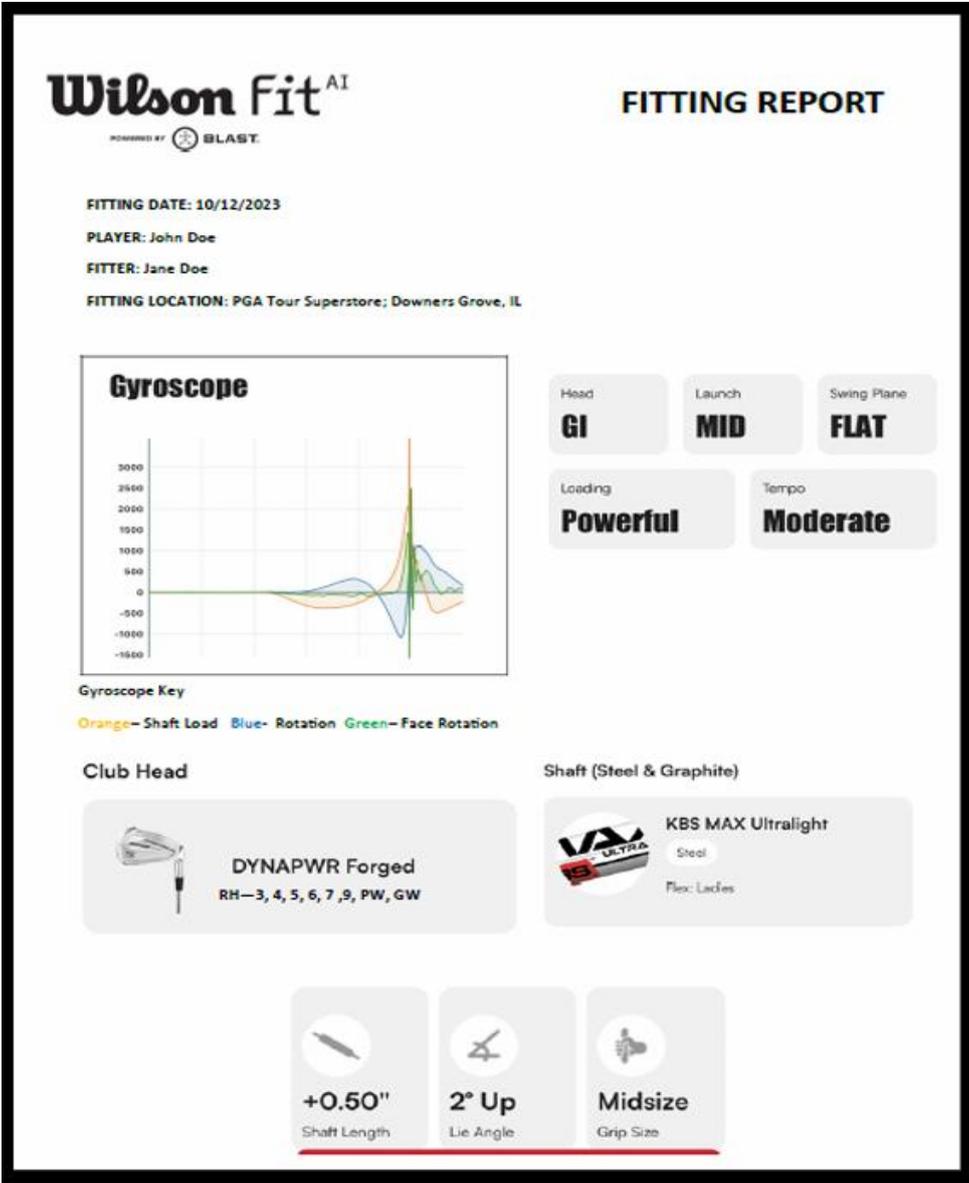


Figure A.10 The finalised Fitting Report after the custom fitting session is complete that acts as a basis for the order of the personalised golf clubs.

## A.8 Technical Explanation of the Wilson Fit AI

### A.8.1 Blast Motion Sensor

The blast sensor consists of a high sampling rate 3-channel accelerometer and gyroscope. The Accelerometer measures acceleration along three orthogonal directions while the gyroscope measures rotation (angular velocity) along three orthogonal axes. Wilson utilizes the Accelerometer and Gyro data to integrate a full 3-dimensional representation of a golfer's swing. The Blast motion sensor feeds this data into the Wilson Fit AI Algorithm. On a full charge, the sensor will last for 6 hours of continuous operation and should easily last more than a day of full fittings. The sensor will time out when not in use and go into sleep mode to conserve battery.

### A.8.2 How the Wilson Fit AI Algorithm Works

Wilson Fit AI is built on a machine learning algorithm which extracts and analyzes hundreds of parameters from 12,000 data points measured by the sensor during a swing in combination with data gathered from the golfers' physical measurements, experience level, and playability desires. There are five separate models that provide recommendations for club head, shaft flex, length, lie and launch characteristics. Every model relies on a combination of dynamic data (sensor) and static data (player questions). The shaft type, length, and lie recommendations are more biased to the dynamic data whereas the clubhead model is more biased to the static data.

Every time the fitter overrides the recommendation; the data is uploaded to the cloud. The machine learning algorithm reanalyzes the models with the newly available data and updates it. Essentially, the model becomes smarter with every fitting that is uploaded. The Wilson Fit AI tool relies on the participation of the fitter community and is designed to assist the fitter by narrowing down and speeding up the fitting process.

### A.8.3 Interpreting the Swing Data & Graphs

The accelerometer and gyro data from the sensor produce swing profile curves for each golfer fitted. How each golfer loads and unloads the shaft and delivers the clubhead to the ball is unique and dependent on physiology, flexibility, training and experience. Wilson Fit AI app places these curves on a graph to demonstrate how

the player takes the club away and delivers it to the ball. Key data from these curves are leading indicators of the shaft flex and weight needed to deliver the most optimum results. The swing plane and wrist unloading are leading indicators of lie angle and length. As discussed in the previous section, the algorithm works in a non-linear fashion and recommendations are dependent on a multitude of factors measured during the dynamics of the swing.

### A.8.3.1 Accelerometer Graph

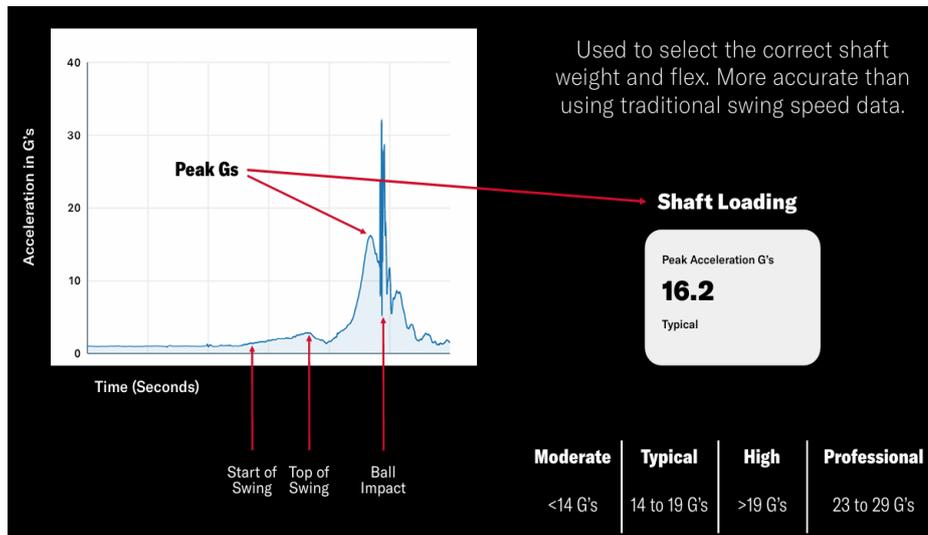


Figure A.11 In-depth explanation of the Accelerometer graph. Measures linear acceleration of your hands during the complete golf swing.

### A.8.3.2 Gyro Graph

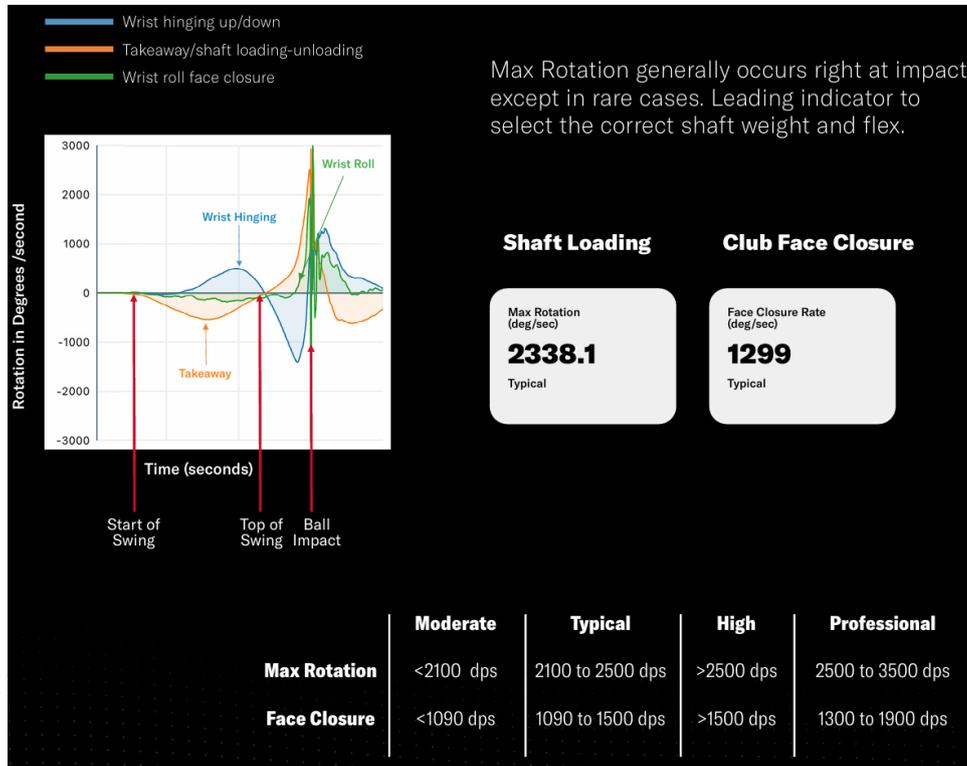


Figure A.12 In-depth explanation of the Gyro graph. Measurement of the club rotation in the swing about 3 axes.

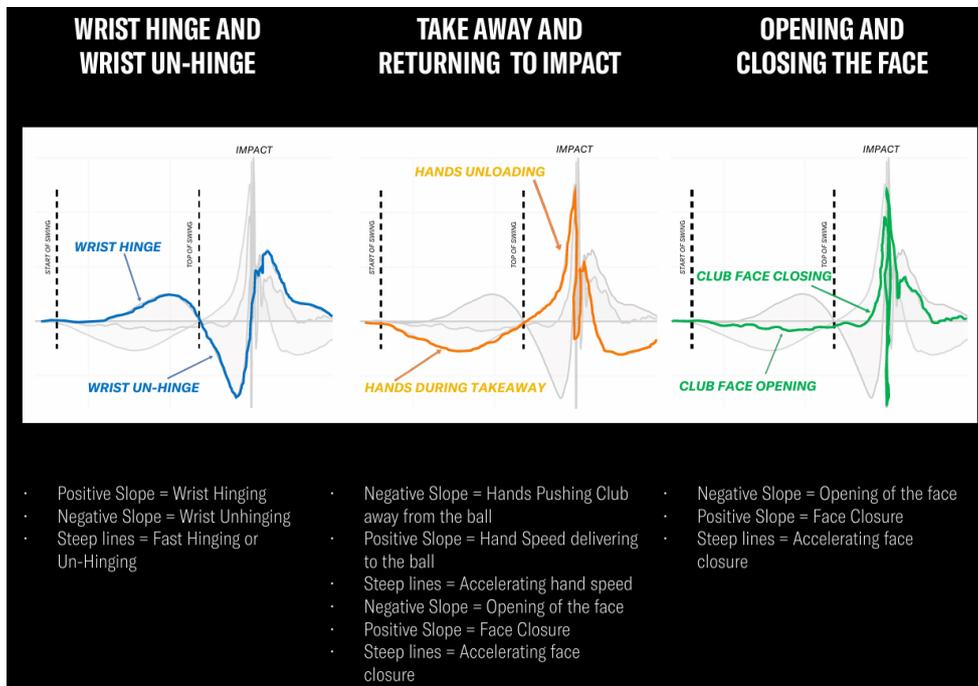


Figure A.13 A closer look on the different measurement stages of the swing in the Gyro graph.

### A.8.3.3 Swing Data Tables



Figure A.14 In-depth explanation of the swing data table

A.8.3.4 Classification Data

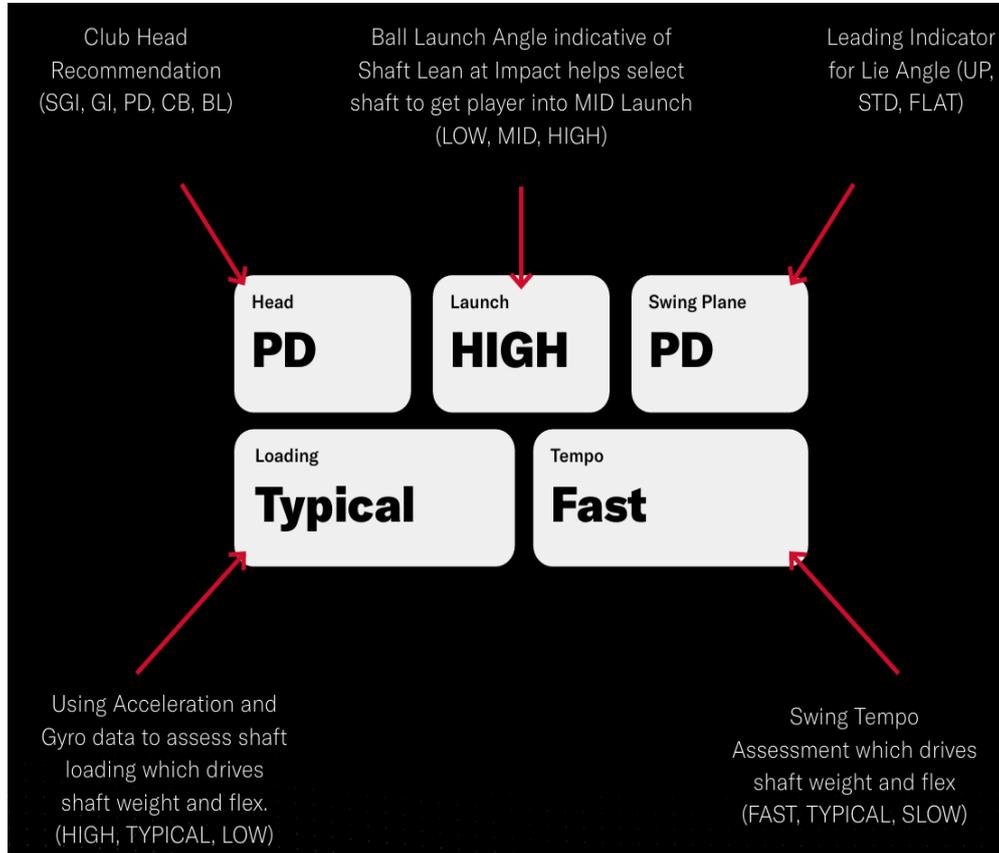


Figure A.15 In-depth explanation of the classification symbol's meaning.

## Appendix B Interview Guides

*Appendix B shows the interview guide used for interviewing Wilson Golf's customers, the Wilson employees and the researcher Dr. Eleonora Pantano.*

## B.1 Interview Guide - Customers

**Table B.1 Interview guide used as a foundation for the semi-structured interviews with Wilson Golf's customers**

---

---

<b>General Questions</b>
<ul style="list-style-type: none"><li>• How would you describe the current market landscape for custom fitting in your region?<ul style="list-style-type: none"><li>○ In your opinion, what factors contribute to the adoption or rejection of new technologies like Wilson Fit AI within the golf equipment market?</li></ul></li><li>• Can you share any insights into the preferences and behaviors of golfers who visit your store for fittings?<ul style="list-style-type: none"><li>○ How do you perceive the readiness of golfers (as adopters) to embrace innovations in custom fitting technologies?</li></ul></li><li>• How does your store currently approach custom fitting services for golf clubs, and what methods or technologies do you utilise?<ul style="list-style-type: none"><li>○ How do you see the adoption of Wilson Fit AI potentially influencing or changing the custom fitting practices in your store?</li></ul></li></ul>
<b>Wilson Fit AI Specific Questions</b>
<ul style="list-style-type: none"><li>• What are your first impressions of the Wilson Fit AI technology?<ul style="list-style-type: none"><li>○ Based on your knowledge and experience, how do you anticipate Wilson Fit AI diffusing within the market and being adopted by the industry?</li><li>○ What benefits do you expect it to bring?</li></ul></li><li>• What challenges or barriers do you foresee in implementing Wilson Fit AI in your store, and how do you plan to address them?<ul style="list-style-type: none"><li>○ In your view, what factors might inhibit the adoption of Wilson Fit AI among golfers, and how can these barriers be overcome?</li></ul></li></ul>
<b>Future Outlook and Recommendations</b>
<ul style="list-style-type: none"><li>• What strategies or actions do you think Wilson Golf could employ to accelerate the adoption of Wilson Fit AI across the market?</li><li>• Do you have any suggestions or recommendations for Wilson Golf on how they can effectively promote and support the adoption of Wilson Fit AI among retail stores and golfers?<ul style="list-style-type: none"><li>○ What role do you think early adopters (like your store) play in influencing the diffusion process of new technologies like Wilson Fit AI?</li></ul></li></ul>

---

---

## B.2 Interview Guide – Wilson Golf Employees

**Table B.2 Interview guide used during interview (a) with Magnus Nilsson. Translated from Swedish.**

- 
- 
- Where (countries, cities, stores, etc.) will the product be launched?
  - Who are the customers that buy the product?
  - What does Wilson's customer segment look like?
    - Demographics
    - Psychographics
  - How do you relate to your competitors?
    - What does your positioning look like?
  - Which specific customers do you want to try to win over from competitors?
    - Any particular country?
    - Young or old?
    - Next generation of golfers?
  - Has Wilson previously developed any new high-tech product?
    - What was the result then, better/worse than expected?
  - What are Wilson's marketing channels and which are the most important?
  - What is Wilson's overall marketing strategy?
  - How does Wilson generally perform in the market - good/bad/same?
  - What is the current customer attitude towards the brand?
    - Do you want to change this or reinforce it?
  - Is this technology patented?
    - Are you willing to license the technology to competitors?
  - What are Wilson's biggest threats right now?
  - Are there any people I can interview about the subject?
  - Is there any retailer that currently has access to the product that one can talk to about their experiences with it?
  - Have you conducted or do you plan to conduct market research on how this technology performs?
  - What specific points do you want to emphasise in the marketing of this product?
  - Is there any competitive analysis that Wilson has done that I can take part in?
- 
-

**Table B.3 Interview guide used for interview (b) with Magnus Nilsson.**

- 
- Which market should I investigate?
  - The figures stating that you have a 5% market share in irons today and want to reach 10%, which market does that apply to?
  - Are you responsible for selling Fit AI to customers?
    - Which advantages are you pushing the most to get them interested?
  - How much faster is a fitting with your product?
  - What difficulties have you noticed with the launch so far?
    - What has gone well?
  - You previously said that Dormy is the largest customer, accounting for about 40% of turnover. When I spoke to Scott, he said that Wilson is strongest in smaller stores that work with a few suppliers. Elaborate.
  - You have said that you like to validate the fitting results by checking the values with, for example, Trackman. Do all smaller stores have a way to validate the results?
  - Could it be a risk if people don't trust what Fit AI says if it can't be validated?
  - What do you sell Fit AI for?
  - Do you want to try to penetrate stores that currently don't have any kind of technology for custom fitting? How much potential is there to gain from that?
  - Can I use pictures from the presentation in the Pitch Deck you sent?
- 

**Table B.4 Interview guide used during interview with Lars Lørup.**

- 
- What is your title at Wilson?
  - Explain what you do and how your work is related to Wilson Fit AI.
  - Tell me about Wilson Golf's journey in the world of custom fitting.
  - How do you believe Wilson Fit AI will contribute to elevating your brand and increasing market share in iron sales?
  - Which parameters are most important for the golfer doing a fitting for them to be satisfied with the outcome?
    - How does Wilson Fit AI facilitate satisfying golfers wanting to do a custom fit?
  - What are the biggest difficulties in getting the technology adopted by the industry?
    - Wilson Fit AI deviates from the industry standard of doing fittings. How do you integrate this new technology at the retail stores?
  - What is the next step in custom fitting for Wilson Golf?
    - How are you planning on further developing Wilson Fit AI
-

**Table B.5 Interview guide used for interview with Scott Clelland.**

---

**Introduction**

- Describe your role at Wilson and what it entails.
- Can you briefly explain how Fit AI works and what the idea behind it was?
- How have you been involved with the Fit AI development and launch?
- What is the end-goal with this technology?

**The market**

- Has Wilson previously been an actor in the custom fitting market?
  - If no, what made Wilson pursue this route?
- What were the reasons Wilson decided to pursue this idea?
  - Did you see a need for this type of product?
- How did you evaluate the market opportunity of this product?
- Could you explain the go-to-market strategy for Fit AI?
  - Is it different depending on the country?

**Competition & Problems**

- Is it cheaper for Wilson's retail stores to purchase Wilson Fit AI or are the incumbents' technologies cheaper?
  - Which are your biggest competitors at the moment? Is it the incumbent custom fitting practices or the other golf brands?
  - How do you see that Fit AI will contribute to increasing Wilson's golf club turnover rate at retailers?
  - Do you believe that Fit AI will lead the way to a new generation of custom fitting in golf?
  - Explain how you hope this technology will change golfers' attitude toward Wilson today.
- 

## B.3 Interview Guide – Dr. Eleonora Pantano

**Table B.6 Interview guide used during interview with Dr. Eleonora Pantano.**

---

---

**Introduction**

- Give a brief presentation about yourself and what you have specialised in.
- Shortly go through some of your academic research regarding the retail industry connected to technology push & pull.
- Which are some of the most surprising and interesting findings in your research, according to you?

**Presentation of the Fit AI technology**

- I will go through the fundamentals of the Wilson Fit AI, its customers and market.
  - Is it possible to draw parallels between your research and this case?
  - Whom possess the most power to ensure a technology diffuses in a market?

**Retailer's perspective**

- How important is it for the retailer to be included in the development of a new technology to be prepared to adopt it smoothly?
- Does a retailer generally have a strategy for which technologies they use?
- From the retailers point of view, how do you think they will react to a new technology like the Fit AI?
  - What factors are the most important for a retailer to consider in this case?
    - How important is the cost-to-time-saving ratio?

**Wilson's perspective**

- What factors are the most important, for the company that pushes a technology, to think about before launching a new technology to ensure it diffuses swiftly and broadly on a market?
  - Which is more important, to have the consumer or retailer in mind when developing new technologies in a market like this?
- How could/should Wilson leverage this new technology to win market shares?
- Explain your thoughts on how to successfully implement and push this technology to Wilson's retail stores.

**Consumer's perspective**

- Could you explain more about the expectation-confirmation model and how it could be applied in this case.
  - How much power does the end-consumer possess in choosing which new technology the market adopts?
  - In your opinion, which parameters do you think the consumer will value the highest in this case, and subsequently, what should Wilson therefore focus on in their marketing?
  - Do you know any similar technology like this one that was refused by the consumer, and why?
- 
-