Digital asset management for homeowners in the German market

A business idea evaluation of a B2C digital asset management platform

Marvin Graf

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Professor Rute Xavier.

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Table of contents

I. Abstract

The digital economy is already seen as a sophisticated part of the world's economy with some industries being more and some being less advanced in terms of digitalization. With the real estate and construction industry seen as one of the less developed industries the idea of this research is to study why there have not been any digitalized management tools for privately owned and used properties. The study examines a structural equation model with different variables having an influence on the benefit added, adoption rate, and if users are willing to recommend the tool. The goal of the master's thesis is to analyze and evaluate the feasibility of the business idea as well as shed light on if and how consumers are willing to adopt and recommend the product. The analyses show that people are open to try new ways of managing their homes and test if the new method will be useful to them. A digitalized property management tool is perceived as value creating and has a significant impact on the adoption. Homeowners need different factors to establish trust in the relationship with an online tool. People will mostly not recommend such a service to others. It can be concluded that the interest in such a business model is high and worth a try founding a venture. Nevertheless, the digital property management platform needs to be hypothesized and evaluated further through the lean start-up approach to get more practical insights.

Keywords: digital asset/property management, B2C, manage your home, proptech, property/asset management tool, property/asset management platform

II. Abstrato (Português)

A economia digital já é vista como uma parte sofisticada da economia mundial, sendo algumas indústrias mais e outras menos avançadas em termos de digitalização. Com a indústria imobiliária e de construção vista como uma das indústrias menos desenvolvidas, a ideia desta investigação é estudar a razão pela qual não houve quaisquer ferramentas de gestão digitalizada de propriedades privadas e usadas. O estudo examina um modelo de equação estrutural com diferentes variáveis com influência no benefício acrescentado, taxa de adopção, e se os utilizadores estão dispostos a recomendar a ferramenta. O objectivo da tese de mestrado é analisar e avaliar a viabilidade da ideia de negócio, bem como esclarecer se e como os consumidores estão dispostos a adoptar e recomendar o produto. As análises mostram que as pessoas estão abertas a experimentar novas formas de gerir as suas casas e a ver se o novo

método lhes será útil. Uma ferramenta de gestão digitalizada da propriedade é vista como geradora de valor e tem um impacto significativo na adopção. Os proprietários de habitações precisam de diferentes factores para estabelecer a confiança na relação com uma ferramenta online. A maioria das pessoas não recomendará tal serviço a outros. Pode-se concluir que o interesse em tal modelo de negócio é elevado e vale a pena tentar fundar um empreendimento. No entanto, a plataforma de gestão de propriedade digital precisa de ser hipotética e avaliada através da abordagem "lean start-up" para obter mais conhecimentos práticos.

Palavras-chave: gestão digital de bens/propriedades, B2C, gerir a sua casa, proptech, ferramenta de gestão de bens/activos, plataforma de gestão de bens/activos

III. Abbreviation Index

Expression	Abbreviation
Adoption	ADO
Application Programming Interface	API
Asset Management	AM
Asset Management Platform	AMP
Average Variance Extracted	AVE
Composite Reliability	CR
Concept Attractiveness	COA
Confirmatory factor analysis	CFA
Et cetera	etc.
For example,	e.g.,
Heterotrait-monotrait	HTMT
Information Technology	IT
Lean start-up method	LSM
Minimum viable product	MVP
Property Management	PM
Recommendation	REC
Research Question	RQ
Standard Deviation	SD
Structural Equation Model	SEM
Technology Adoption Model	TAM
Total Benefit Added	TBA
Trust	TRU
Usefulness	UFN
Value Creation	VAC
Venture Capitalists	VC
Word of Mouth	WOM
Word of Mouth Marketing	WOMM

IV. Figures Index

V. Tables Index

VI. Acknowledgements

This part is dedicated to all people, especially family and friends, who always support what I am doing. Thank you for being there and helping me to achieve my goals. Every single one of you is important to me in a special way. Without you I would not be where I am right now, in every single aspect of life. Remember that in the same way you can always count on me.

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Yours,

Marvin

1. Introduction

1.1 Problem: Digitalization – a real estate industry challenge

Undoubtedly e-commerce has changed the world since the beginning of the 2000s. Revenues have been rising to over \$4.1 trillion, as well as countless companies have been entering the market with different business models, to not only trade goods and services online, but also use the internet and digitalization to make the world more efficient (Statista, 2022). Some industries were fast to adapt to that trend, while traditional industries such as the construction and real estate industry have been falling behind for a long time. However, companies and industries had to accelerate their approach to digitalization due to the COVID-19 pandemic. Businesses had to adapt to changing market conditions such as different approaches to work with colleagues, access, security, etc. (Amankwah-Amoah, Khan, Wood, & Knight, 2021). Not only companies but also consumers have been hit by the pandemic changing and accelerating their behavior and acceptance for digitalized goods and services (Zwanka & Buff, 2020). The real estate and construction industry remain at the point of the internet in the year 2000 considering the evolving world of information and connectedness. Although people are at the edge of being able to automate their grocery shopping through the internet of things or even manage all their household appliances via smartphone applications there has not been a service that allows homeowners to manage their homes in a centralized way. Homeowners have a list of topics they need to manage such as taxes, insurance, financing, electricity, telecommunication, water, internet, heating, etc. Currently, all mentioned topics are usually single-handedly treated in Germany. For every item, people have different points of contact or applications to manage their home. Therefore, people are having piles of documents and data in unstructured ways, which they need to organize to analyze their costs. After analyzing the data, homeowners need to either conduct their own research or get in touch with the respective contact (e.g., insurance broker, bank, electricity company, etc.) for the service they want to optimize. Therefore, it is difficult to have an overview of all running costs and makes owning and managing a home time consuming. On top of that homeowners need to invest time to optimize and compare the cost/performance ratio to the wide range of different products and services available.

1.2 Solution: B2C Private Asset Management Platform

Given the situation described above the solution to this problem is a business model that enables homeowners to manage their homes efficiently on a single platform. The greater vision is to

develop an asset management (AM) platform to manage and optimize the whole life cycle of a property from the construction to the sale or deconstruction. Examples are cost management, maintenance plans, sale, financing, and living.

As there is a lot of research that has been conducted on AM and digitalization in the business-related sector and very little to no research in the sector of privately owned homes this research opens new doors to understand the relevance of the home as an asset, consumer behavior as well as the willingness of people using digitalized platforms with sensitive personal data.

This master's thesis aims to test if the business idea of an AM platform holds against hypotheses and assumptions that are critical for business success. The prerequisite that will be tested is that homeowners have trust in such an online platform and that the value created for the consumer is saving them time, money and increases transparency around their property. Another condition to be tested is that if consumers will recommend the service to their friends, family, etc. Finally, the top features of the first MVP will be defined. Therefore, the following research questions have been defined:

RQ1: Are homeowners willing to use an AM platform to manage their property?

RQ2: Is an AM platform perceived as trustworthy and value-creating to homeowners and has a significant impact on the decision-making of using and recommending such a service?

RQ3: What features would the first AM platform have as a go-live version validated through the lean start-up approach?

2. Business Conceptualization & Modelling

The business' name is "casama". The name is a composition of the words "casa" (word for house in several Latin-based languages) and "ama" (acronym for asset management). Asset Management has been a tool for real estate investors for decades. However, when it comes to managing the own home there has never been a commercial tool to do so. A first scratch design of casama can be seen in Figure 1. The concept behind an asset management platform for private used homes is to give people the possibility to: (1) track, analyze and potentially optimize costs; (2) store and access data and documents in one single place; (3) manage and access contracts of different services around the house, such as insurance, financing, oil/gas, telecommunication, electricity, etc.; (4) maintenance and budget planning through uploading of building information modeling data or historical estimations; (5) accessibility to specific news around owning a property such as taxes, changes in policies around insurance, etc.; (6) connect homeowners to craftsmen if there is something to renovate at the house; (7) valuation of the property and home as well as getting certifications when the owners want to sell it; (8) alerts on price increases/decreases for oil and gas. The vision is to have all important aspects of owning a home bundled on a single platform.
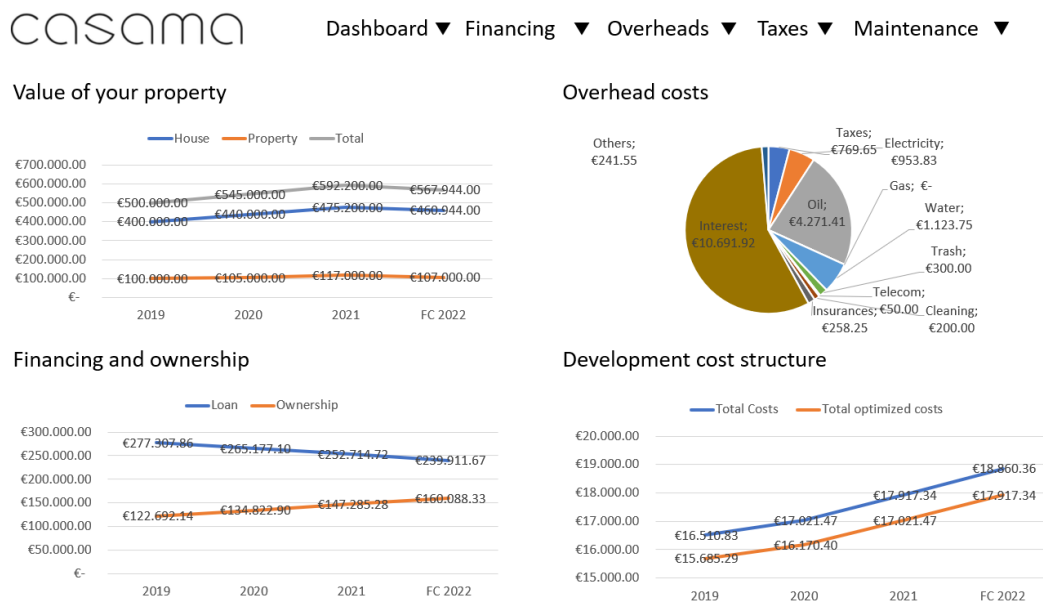
Figure 1: First PowerPoint scratch of the casama platform

Nowadays, people have several distinct partners to talk to, to manage all the different services and products around their home. The AM platform (AMP) that will be designed within this thesis on the other hand will be designed to be a one-stop shop for all topics around the property.

casama is designed as a B2C free-to-use platform for homeowners. The AMP is planned to generate revenues by acting as a price comparison platform. While analyzing running costs for clients the platform will be working together with insurers, banks, oil/gas/telecommunication companies, etc., and refer products that are suitable so property owners can optimize their cost structure. By referring products of third-party companies casama will earn affiliate commissions as revenue streams. A business model visualization can be seen in Figure 2. Furthermore, the goal is not only to compare prices, but rather to make the process customizable, trackable, projectable (into the future), and efficient.
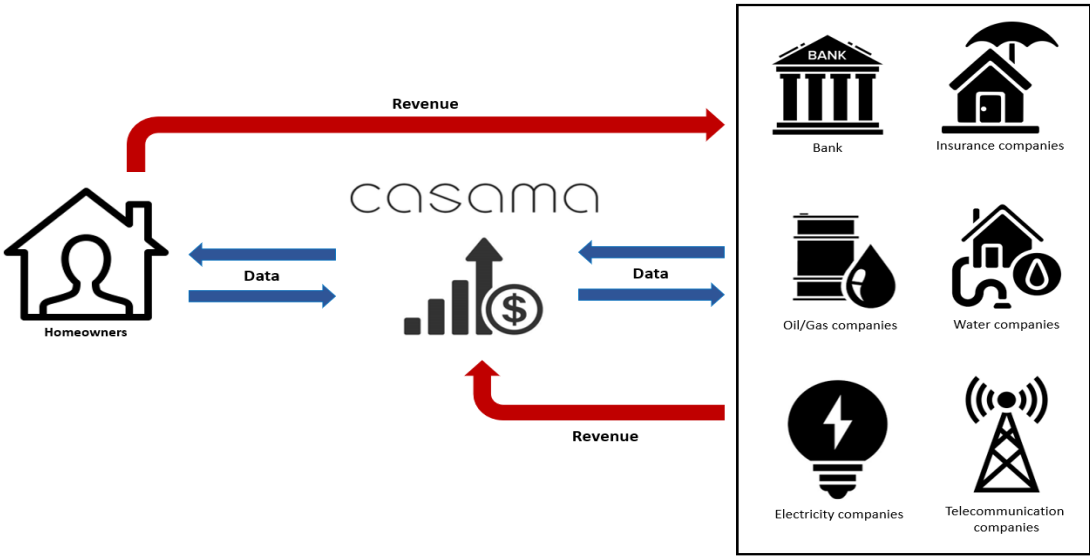
Figure 2: Business model of casama

The German e-commerce market is still growing by double digits (>23%) hitting a market revenue of over 72 billion euro in 2020 (Statista, 2022). The COVID-19 pandemic accelerated the trend for digitalization and e-commerce to a great extent. While people had to stay at home, the usage of online services and platforms rose to new heights (Amankwah-Amoah, Khan, Wood, & Knight, 2021). As price comparison websites have been existing almost since the internet has been invented there are already established market players such as Check24. Check24 is the German market leader for comparison websites. The company was founded in 1999 and generated €500 million in revenues in 2016 (Die Deutsche Wirtschaft, 2022). Check24 is offering a website where people can compare services and products, such as loans, hotels, flights, insurances, etc., without having to compare prices to other websites. A differentiating factor of casama from other price comparison webpages is that it is not only comparing prices but also adding value to homeowners through the product features mentioned at the beginning of this chapter.

3. Literature Review

Fundamentally, asset management and price comparison platforms have been used in a different way than the business concept introduced in this thesis. casama requires more data to put in to get the full advantage of an asset management tool. As people are rather confidential about data concerning their private life the theoretical part starts with how to create value in an e-business. To understand the basics of how people build confidence in using an online tool that requires sensitive data, theories about motivation and trust will be laid out to understand what makes people act in a certain manner. This chapter lays the foundation to compare theory to the research conducted within this thesis as well as the applicability of theory in an e-business.

3.1 Property Management / Real Estate Asset Management

To start explaining and discussing asset management and property management (PM) there needs to be a differentiation and definition of these attributes as there are many synonyms in the real estate industry. Property management is only applied in the sector that is correlating in some way with real estate and construction. Asset management on the other hand is a term that can be used in many industries such as banking, real estate, investment, or even in general for companies that own assets. However, within this thesis, we are focusing on the real estate industry. *"Asset managers and property managers are those responsible for managing the maintenance, repair, and renewal work. It is their collective responsibility to maximize the effect of expenditures as well as to maximize the value of their assets over the asset's service life"* (Vanier, 2001). The asset manager, Vanier describes, is the person to make major strategic decisions and planning (timeframe: >5 years). While on the other hand, the property manager is rather responsible for operations as well as tactical planning. Operations in this context is defined with a timeframe <2 years and tactical planning with a timeframe of 2-5 years. Asset managers and property managers work together to establish the optimal life cycle usage of respective assets (Vanier, 2001). *"Property management can be considered as some simple operations serving buildings"* (Zhou, Xu, & Zavadskas, 2019). This is another definition of property management that corresponds to the basis defined by Vanier. In this context, casama can be described as an asset management tool as well as a property management tool. As described in chapter two the concept is to cover the management of short-, mid-, and long-term inquiries of homeowners. Short-term decisions can be maintenance plans and changes of insurance contracts, while long-term decisions are characterized by financing or sale of the property. Therefore, casama will be referred to as property management platform and asset

management platform. As asset management and property management in the real estate industry are intentionally used in a business context such as investors or funds there is no literature to be found on these topics for privately owned and occupied properties. Consequently, this chapter will be an iteration of how AM/PM is defined in a business context and narrowed down into the concepts of digitalization.

Strategic asset management in a real estate context can be compared to creating a business plan with its strategy for a property. As an example, a fund owns a building and wants to develop, maximize profits, and potentially exit at some point of time. Several models can be used to execute strategic planning for real estate such as the model of the strategic business planning process (Kotler & Keller, 2022) or model for developing asset management strategy (Nieboer, Heeger, & Van der Haak, 2016). Both concepts are closely related to each other, which can be seen in Figures 3. The goal of the owners is to make and maximize profits, keep the houses in a good condition, meet tenants' needs, etc. (Smid & Nieboer, 2007).
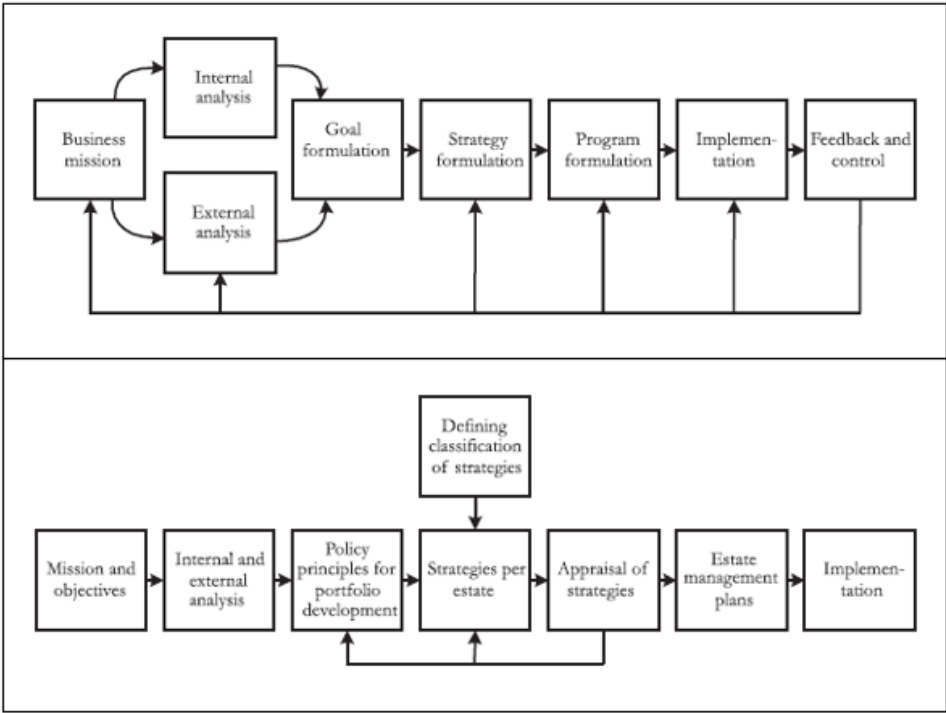

Figure 3: Top: Kotler's Model of strategic business planning; Bottom: Nieboer's Model for developing an asset management strategy (Smid & Nieboer, 2007)

The fundamental difference between professional landlords to homeowners is that landlords are generating revenues and trying to maximize profits through efficient cost management. Homeowners on the other hand are not generating revenues but still trying to save money and time. In further research, the scope will be determined how homeowners want to manage their property.

Asset Management in real estate can have various forms. It can be done digitally via tools that are designed for such a purpose, via Excel sheets, or simply with pen and paper. For this article, the focus will lay on the digitalized version of asset management as a theory to be tested for privately owned and occupied homes.

3.2 Price comparison platforms and their effects on consumers

Price comparison webpages (also called web aggregators) serve the purpose to compare prices of all kinds of products. Initially, the user is specifying the product, which enables the website to find all product matches. The user can compare offers efficiently as well as save money (Laffey, 2008). Estimating the market size of price comparison tools is challenging as the services range over various industries. Nevertheless, revenues are estimated to reach €3.9 billion in 2018.[1] In total, more than 70% of Germans use price comparison tools. 60% of the consumers use the service for informative purposes, while 34% are using the tools with a direct purchase intention. According to previous research, 40% of Germans own overpriced contracts, as well as 72% of people interviewed, have at least purchased once using a price comparison tool. However, consumers usually use more than one comparison tool to get information (Arnold & Schneider, 2018). Examples of savings that have been recorded in interviews that are relevant to this thesis are power (average savings of €416 per four-person household per year), gas (average savings of €760 per four-person household per year), and broadband (average savings of €407 per person per year) (Arnold & Schneider, 2018). The following figure shows how comparison websites work:

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[1] Analysis of 114 major players in the industry in Germany (Arnold & Schneider, 2018)
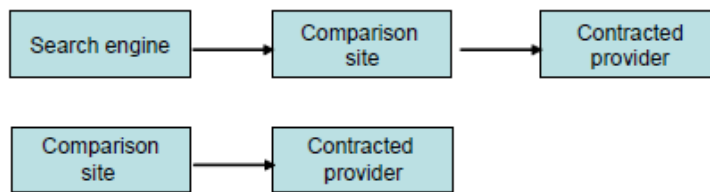
Figure 4: Value chain of comparison websites (Laffey, 2008)

There are up- and downsides to the business model of a price comparison site. As a benefit, empirical research has shown, that for example prices of goods on Amazon dropped significantly since web aggregators have been used (Chevalier & Goolsbee, 2003). The same effect also has been discovered in the life insurance industry (Brown & Goolsbee, 2002). From an economical perspective, markets have become more efficient through the usage of web aggregators, which means that prices were decreasing through higher competition (Moraga & Wildenbeest, 2011). Other benefits can be seen in time efficiency in gathering information as well as saving money. Criticism arises on the other hand through the business model itself. Online comparison websites are getting paid through commissions for referring customers. It has been shown that companies are passing these fees on to the consumer instead of lowering their margins. This brings the contrary effect to the benefit shown above. The cost for consumers of having a time-efficient information gathering machinery is that there could be the possibility that prices shown by web aggregators are not the lowest that can be found (Ronayne, 2015). As the described way of selling products is an indirect sales channel, more companies want a slice of the margin, which is why indirect sales channels are not as efficient as e.g., direct sales channels.

Consumers are influenced in the way they purchase goods by the effect of accessing information on the internet. Studies that already have been examined in 2001 show that not only consumers' price sensitivity increases with the usage of price comparison sites but also the sellers' competition in prices (Degeratu, Rangaswamy, & Wu, 2001). In general, it has been proven that consumers' decision to purchase a good is dependent on the interpreted price rather than the objective price. The objective price is the actual price of a good. The interpreted price can be explained by the adaption theory: consumers judge the actual price of a good in comparison to adaption price levels that are cognitively anchored (Helson, 1964). Another important attribute to predict consumers' behavior is the value perception of the good they are buying (Monroe & Petroshius, 1981). This concludes that consumers are evaluating the purchase of a

product/service by the difference of the interpreted price to the objective price (Monroe & Chapman, 1987). The researchers Jung, Cho & Lee (2014) analyzed the effects of price comparison websites to consumers' price and value perceptions. *"First, the effect of price comparison site occurs differently on price and value perceptions. Price perception seems to be influenced by the price comparison site information regardless of the difference in product category whereas value perception is influenced by the price comparison site information contingent on product type"* (Jung, Cho, & Lee, 2014). Comparing offline and online price and value perceptions of consumers both findings have the same results. Considering these results, it can be assumed the more user data web aggregators have the easier it is to generate revenues.

3.3 Value creation in e-business

There are multiple theoretical frameworks of value creation. Each of them has a different approach of how value can be created on different levels of firms' activities. Innovation as a value creator has been discovered by Schumpeter (1934). Schumpeter established several instruments of enhancing value creation through innovation as e.g., introduction of new goods, creation of markets, reorganization of industries, discovery of new supply sources, or new product methods (Schumpeter, 1934). Another popular theory is Porter's value chain framework. The value chain analysis discoverers activities with immediate impact on value creation in addition to supportive activities. The value chain analysis guides through four steps: (1) definition of the business unit; (2) identification of crucial activities; (3) definition of products; (4) discovery of value within an activity (Porter, 1985). A third theory is the concept of the strategic network by Gulati, Nohria, & Zaheer (2000). Strategic networks are defined by firms cooperating in a strategically important manner. Such cooperation is formed through alliances, joint ventures, partnerships, and other activities that bond companies to each other stably (Gulati, Nohria, & Zaheer, 2000).

Previous research has defined how to add value most effectively to an e-business. The following figure shows the four core attributes to value in that correlation with its sub attributes describing the action needed to add value. Value within this framework has not only been defined in relation to the company itself but also for the consumer, or any other part within the line of transactions (Amit & Zott, 2001).
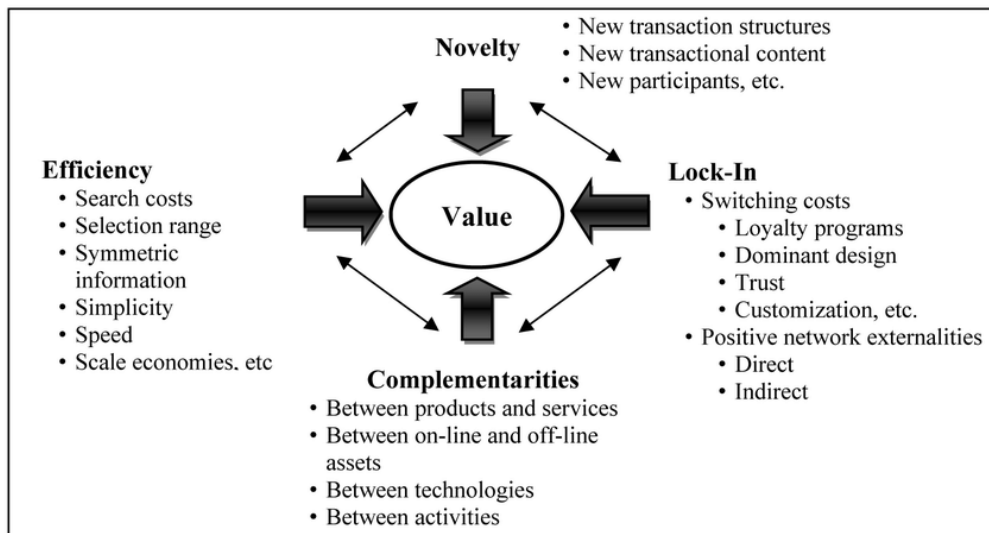
Figure 5: Sources of value in creation in e-business (Amit & Zott, 2001)

The framework in Figure 5: Sources of value creation in e-businessFigure 5: Sources of value in creation in e-business shows the interdependence between all value-creating attributes. Thus, it is predefined that if one characteristic is being neglected all others and the value in total will decreases as well. The more efficient an e-business is the more value it adds to the firm and its customers by saving time and money. A complementary bundle of goods/technologies/activities/assets always adds more value compared to using these separately. Consumers value an offer higher if they have a bundle of products instead of only having one option (Brandenburger & Nalebuff, 1996). This statement interacts with the theories of strategic networks described previously. Lock-in is described by the frequency the consumer interacts with an e-business as well as the resulting incentive for strategic partners to build on a strategic partnership. That results in a higher value and increased willingness to pay for customers as well as lower opportunity costs for the firm and its partners. Novelty describes value creation comparable to Schumpeter's (1934) approach through innovation. Innovation in an e-business context can be achieved through new customer structures, transaction formats, markets, products, content, etc. (Amit & Zott, 2001).

3.4 Usefulness

In general, the term usefulness is defined as either being effective or helping you to achieve a specific goal (Cambridge Dictionary, 2022). However, the general definition is only the tip of the iceberg regarding theory studied in different areas that have a relation to usefulness. Usefulness in relation to innovation can be seen as relative advantage over the state of the art

or a competitor (Keil, Beranek, & R., 1995). Further, relative advantage has been a main factor in the adoption of an innovation, which can be seen in a positive correlation between these two factors (Tornatzky & Klein, 1982). Another study in relation to IT adoption discovered that users had their own perception of usefulness. This perception is the basis of comparison to existing practices to define its usefulness (Cale, 1979). To dive deeper into acceptance of IT systems many studies have shown that usefulness is a driver of acceptance itself (Sledgianowski & Kulviwat, 2009). An example can be seen in the adoption of online banking services. Several risk factors, as well as established positive factors such as ease of use, usefulness, and perceived benefit, have been tested to research acceptance of online banking systems. In this example, all the attributes mentioned had a significant impact on adoption rates (Lee, 2009).

3.5 Trust Theory

There are numerous definitions of trust depending on the context (sociology, psychology, marketing, communication, etc.) it is used. In the context of this thesis trust also needs to be differentiated into offline and online interactions as previous research has shown evidence of a higher magnitude of risk, uncertainty, and dependency in online interactions (Kautonen & Karjaluoto, 2008). By general definition, trust is seen as the ability *"to believe that someone is good and honest and will not harm you, or that something is safe and reliable"* (Cambridge Dictionary, 2022). In interhuman trust research in the areas of psychology and sociology, it has been proven that trust is an essential part of human interaction (Lewis & Weigert, 1985) as well as being one of the most desirable human qualities (Rempel, Holmes, & Zanna, 1985). Based on business relationships, it has been shown that trust increases a firms' performance (Shapiro, Sheppard, & Cheraskin, 1992). Trust in general can be subcategorized into emotional and logical behavior. On the one hand, the logical side of trust is a calculation that results in gains or losses depending on the trust, that has been invested. However, on the emotional side trust is defined by the exposure that one shows to other people, which is believed not to be exploited negatively (Yamagishi & Yamagishi, 1994).

Trust has been defined differently various times depending on the researchers' field of work. The difference between the offline to the online sphere is that the user has no control over the other party (Kautonen & Karjaluoto, 2008). Lack of control implies that the user is making himself vulnerable. Vulnerability is one of the key principles of trust, where one party is making

itself vulnerable to the other party with the expectation that it will not be exploited. Other attributes that are within the structure of trust are reliability, security, competence, dependability, honesty, and timeliness (Grandison & Sloman, 2000). The user trusts that the counterpart, which can be a service provider or a webpage, will provide a specific service in a reliable, timely, and secure manner and that it has the competence to execute professionally and honestly.

There have been several studies on the consumers' evaluation in trusting a website. In 2001, a study by Scribbins analyzed to what extent webpages in the health and finance sector share firms' information such as location, ownership, contact information, etc. (Scribbins, 2001). Since then, there has been a lot of development in the legislation concerning internet-related data usage and disclosure. In 2016 the DSGVO has been introduced, which is a law that has been passed on the usage of consumer data (European Data Protection Supervisor (EDPS), 2022). In general, users have a higher level of data protection nowadays than ever before also resulting in their increased affinity to interact within this environment. Further characteristics that consumers use to evaluate websites are contact information (Fogg, et al., 2002), information usefulness and accuracy (Eysenbach & Kohler, 2002), privacy policy (Associates, 2002), frequency of updates (Fox & Lee, 2002), company appearance (Fogg, et al., 2002), recognition (awards/endorsements) (Fogg, et al., 2002).

3.6 Motivation Theory

Research in psychology shows two fundamental theories of motivation: dualistic theory and multifaceted theory (Reiss, 2012). The dualistic approach defines motivation through extrinsic and intrinsic motivation (Ryan & Deci, 2000). A person's performance of acting in a certain way without having an external influence, but rather just because of own interest is called intrinsic motivation (White, 1959; De Charms, 1968). Extrinsic motivation is described as acting in a certain way to achieve an instrumental goal as e.g., pay raise, winning a championship, and any other goal that has a certain value to a person (Vroom, 1964; Mitchell & Biglan, 1971). The multifaceted motivation theory on the other hand is based on more determinants for motivation such as power, fear, hunger, greed, etc. (Jackson, 1984; Reiss & Havercamp, 1998). The dualistic motivation theory has been used in further studies related to

the willingness of people to adapt to information technology (IT). Therefore, this research will also be based on the dualistic motivation approach.

To further narrow down motivation theory relative to the thesis' research area it needs to be explained how people adapt to innovation in IT in relation to one's motivation. Empirical research has explained that people adopt IT due to network effects, relation to pleasure, and goal persuasion (Lin & Lu, 2011). A considerable number of research that has been conducted in the past are based on the Technology Adoption Model (TAM), introduced by Davis (1989). TAM was constructed to explain and measure adoption of technologies from a consumer point of view. The model includes the dualistic motivation theory. Another important factor for the usage of TAM is that it simplifies technology acceptance through the analysis of two attributes: usefulness and ease of use (Pontiggia & Virili, 2010). The factor "usefulness" is related to extrinsic motivation whereas "ease of use" is related to intrinsic motivation and the pleasure of pursuing an action (Lin & Lu, 2011). Furthermore, it has been proven that one's perceived benefit influences the way how and if new technologies are adopted long-term (Kim, Chan, & Gupta, 2007). It is noticeable that theories about value creation, motivation theory, and trust theory all correlate and affect each other.

3.7 Word of Mouth

Initially, word of mouth (WOM) has not been easy to define as there are many influential factors (Nyilasy, 2005; Carl, 2006). First studies regarding WOM speak of *"face-to-face communication about a brand, product or service between people who are perceived as not having connections to a commercial entity"* (Arndt, 1967). However, the Association of National Advertisers defined WOM commonly as the performance of consumers supplying information to other consumers (Association of National Advertisers, 2022). WOM marketing (WOMM) in correlation to these definitions is seen as the promotion of natural consumer-to-consumer communication (Meiners, Schwarting, & Seeberger, 2010). WOMM is a substitute for conventional marketing methods (Trusov, Bucklin, & Pauwels, 2009; López & Sicilia, 2013). The difference between conventional marketing operations to WOM is its interactivity. WOM has not been constructed by a company but rather is constructed by consumers within an interaction (Gilly, Graham, Wolfinbarger, & Yale, 1998). Although it has been accepted in the broad mass that WOM is important for growing business, documentation on profitability only has been researched in different industries and scenarios a decade ago due to its complexity. Thus, previous research has stated that WOM affects e.g., book sales (Chevalier & Mayzlin,

2006), movie sales (Liu, 2006), and growth of networking sites (Trusov, Bucklin, & Pauwels, 2009), etc. Furthermore, research has shown that WOMM generated its value through market expansion and customer acceleration (Libai, Muller, & Peres, 2013).

Initial theories studied WOM in the offline world are discussing purchasing behavior, decision-making process influenced by WOM, etc. (Brooks, 1957; Dichter, 1966). The internet with its capabilities has given marketers the chance to access, operationalize and analyze WOM creating transparency on a different level (Kozinets, de Valck, Wojnicki, & Wilner, 2010). It has also been proven that WOM through internet portals affects sales of products (Hinz, Skiera, Barrot, & Becker, 2011). Even though the internet brings transparency and speed to the marketing process, previous research exhibits that most of the effects of WOM originate from the offline world (Association of National Advertisers, 2022). That market research has been proven through studies that show principal distinctions between online and offline WOMM (Lovett, Peres, & Shachar, 2013). One of the reasons for the correlation between the effectiveness of WOMM and the offline world is the realness of the interaction and the connectedness of the people having the interaction (King, Racharla, & Bush, 2014). WOMM on the internet is mainly affected by four factors: (1) communal norms; (2) character narrative; (3) communications forum; (4) marketing promotion elements (Kozinets, de Valck, Wojnicki, & Wilner, 2010).

4. Methodology

Price comparison websites are already a proven business model. Most of them, find their value to the customer in saving money and time. However, few of these businesses have tried to bring value through further benefits such as a personalized, platform-based approach. An example is the company "CLARK". The firm's business model is based on being a price aggregator while consumers are entering their insurance information on their platform. The entered data will be analyzed, and the client receives cost optimization suggestions (Clark.de, 2022).

This chapter will describe the research model and the hypotheses gathered from theory. Subsequently, the research approach, the measurement scale, and the sample itself will be explained.

4.1 Research Model

In general, TAM is the foundation of this research, as motivation theory is one of the main factors in the decision why people adopt the new technology. Intrinsic motivation could be seen by early adopters that are feeling joy in exploring new technologies or innovations. Extrinsic motivation could be seen by users that want to save time or money. The research conducted will shed light on the motivation users have to adopt the proposed technology.

The underlying research model has been designed based on the structural equation model (SEM). The research model is exhibited in Figure 6. SEM is a statistical methodology that is used in many fields such as biology, economy, medicine, etc. Usually, SEM is used for models that are not directly measurable or consist of complex constructs. Therefore, this methodology considers error measures for all variables (Raykov & Marcoulides, 2000). The whole model is based on constructs/factors/latent variables and indicators having an impact on these constructs. Indicators are variables that measure latent variables. Theory previously defined factors as oval-shaped, while indicators are shaped as rectangles (Weston & Gore Jr., 2006). Latent variables, also referred to as theoretical constructs, typically have no method to be measured. Consequently, several indicators are used to measure such a construct as well as the construct's relation to each of the indicators (Nachtigall, Kroehne, Funke, & Steyer, 2003). Within the research model presented in Figure 6, the indicators are questions from the survey that has been used to retrieve data that is going to predict the latent variables (independent variables). *Concept*

Attractiveness, *Usefulness*, *Value Creation*, and *Trust* represent the independent variables predicted by the respective indicators. These latent variables are used as indicators for the latent variable *Total Benefit Added*. The construct called *Total Benefit Added* is also used as an independent variable to be predicted as well as a dependent variable to predict *Adoption*. The same procedure is used with *Adoption* to predict *Recommendation*. These relationships as well as their dependence on each other will be calculated within the SEM. SEM was chosen due to previous research on customers' purchase intention online (Njite & Parsa, 2005) and offline (Hellier, Geursen, Carr, & Rickard, 2003), its usage in business research in general (McQuitty, 2004), research on value creation and adoption intention (Bagozzi & Yi, 2012) and its relation to TAM (Davis, 1989).

The model has been developed to predict questions related to all latent variables within this research model. The goal was to create a research process that shows different influences on the consumer and develops the dependencies on the *Total Benefit Added* until the consumer potentially is going into the *Adoption* of the technology. Different hypotheses have been defined related to the dependencies of the constructs that can be seen in Figure 6. These hypotheses will be explained in the following chapters.
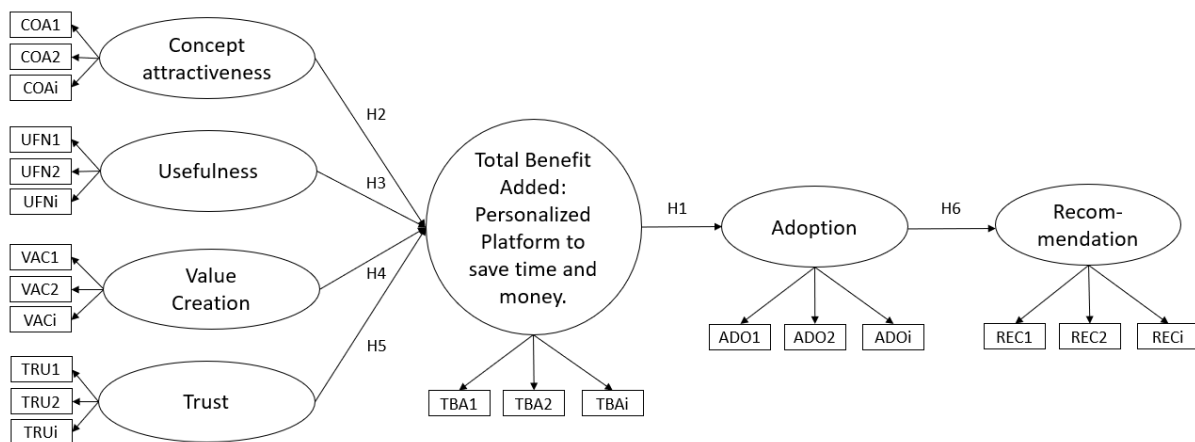

Figure 6: Research Model

4.2 Hypotheses

This chapter exhibits the hypotheses marked in Figure 6 as H1 – H6. All indicators (questions of the survey) can be found in appendix I and II. All hypotheses that have been retrieved from theory and the research model are displayed in the following list:

- H1: *Total Benefit Added* has a positive effect on *Adoption*.
- H2: *Concept Attractiveness* has a positive effect on *Total Benefit Added*.
- H3: *Usefulness* has a positive effect on *Total Benefit Added*.
- H4: *Value Creation* has a positive effect on *Total Benefit Added*.
- H5: *Trust* has a positive effect on *Total Benefit Added*.
- H6: *Adoption* has a positive effect on *Recommendation*.

H1 has been chosen since the *Total Benefit Added* to a service affects the *Adoption*. If the benefit has a positive effect on the adoption rate, then it is likely that the business model will work (within the tested group) – vice versa. The hypotheses H2 to H5 are derived from the constructs that influence the benefit for the consumer. The hypotheses state a positive effect of the latent variables on the *Total Benefit Added*. These hypotheses are important for several reasons. Firstly, it can be concluded which of the variables have positive and which have negative effects. Depending on these results the importance of different variables influencing the business model can be defined. Secondly, the validity of the business model in total can be researched. Thirdly, the most important influential factors can be cleared out and used to further emphasize the functionality of the business model. *Concept Attractiveness* is a general variable discussing how people generally think over a service that is constructed in such a way. *Usefulness* describes how useful the service offered in general seems to be for the audience. *Value Creation* compares different kinds of problems and their value to the business model in total. Depending on the answers about *Value Creation* and *Usefulness* the MVP will be developed accordingly. *Trust* as a variable is used to see which factors people are looking for to trust services/platforms/websites on the internet. H6 challenges the growth motor of the business idea. Are potential users willing to recommend the platform to friends, family, etc. This is necessary to see how the business concept would need to invest in its growth as well as if people generally are talking about such, potentially sensitive topics.

4.3 Data sampling, collection, and cleaning

To define the sample size Cochran's formula was used as it evaluates large populations (Cochran, 1977). This approach has been defined as a standard procedure to determine sample sizes for research. The population is defined by all individuals that are living within the DACH region (Germany, Austria, Switzerland), who are willing to own a home in the future or already own a home. The confidence level within this study is set to 95%. The mentioned confidence

level led to a z-score of 1.96. As casama is a product that has not been used within such a target group the presence of individuals within the sample that are willing to use such a service is relatively low. Therefore, the variability of the sample is defined at 30%. The margin of error (precision level) is set as 6%. Consequently, the following formula has been calculated to retrieve the sample size for this study:

$$n0 = \frac{z^2 * p * q}{e^2} = \frac{1.96^2 * 0.3 * 0.7}{0.06^2} = 225$$

All data for this research was gathered through an online survey. The data collection process was conducted through several channels including LinkedIn, Facebook, Instagram, Prolific, and WhatsApp. The survey took place from March 22nd to April 11th. Within this timeframe, a total of 351 responses were collected. After data cleaning the usable sample equals a total of 251 responses. A total of 34 individuals were ineligible to participate in the survey as these persons did not want to own a home. 66 responses cannot be taken into consideration due to failed attention checks, or too many responses had a gap in unanswered questions. Most times unanswered questions were demographic information, or the survey was canceled at some point in time, which makes the discrepancy too large to substitute this information with the sample mean.

Descriptive statistics about demographic data can be seen in Table 1. The sample had roughly 61% of male and 31% of female participants. Regarding the age most of the participants are between 25-34 years old (38,25%), 45 participants are between 35-44 years old (17.93%), 39 participants are between 18-24 years old (15.54%), 32 participants are between 45-54 years old (12.75%), and 27 participants are between 55-64 years old (10.76%). Educational degree divides into approx. 75% of participants having either high school graduation, bachelor's degree, or master's degree. Over 75% of participants are employed. Another 15% are students that are either working on the side or full-time students.

Table 1: Demographics of sample (Survey data)

Measure	Item	Frequency	Proportion (%)
Gender	Female	94	37.45
	Male	153	60.96
	Non-binary / third gender	2	0.80
	Prefer not to say	2	0.80
Age	< 18	0	0.00
	18-24	39	15.54
	25-34	96	38.25
	35-44	45	17.93
	45-54	32	12.75
	55-64	27	10.76
	65-74	9	3.59
	75-84	3	1.20
	>85	0	0.00
Country of Residence	Algeria	1	0.40
	Austria	16	6.37
	France	1	0.40
	Germany	221	88.05
	Ireland	1	0.40
	Portugal	9	3.59
	Switzerland	1	0.40
	United States of America	1	0.40
Education	Less than High School degree	22	8.76
	High School Graduate	47	18.73
	College but no degree	2	0.80
	Associate degree in college (2 years)	4	1.59
	Bachelor's degree in college (4 years)	85	33.86
	Master's degree	62	24.70
	Doctoral degree	8	3.19
	Professional degree (JD, MD)	21	8.37
Current Occupation	Student	32	12.75
	Student Worker	10	3.98
	Employed	192	76.49
	Unemployed	4	1.59
	Retired	13	5.18
	Total Number of Participants	**251**	**100.00**

4.4 Data Measurement

All questions of the survey can be found in appendices I and II. The constructs of *Total Benefit Added* and *Adoption* were adopted from Bagozzi & Yi (2012). All other indicators relating the research model were developed within the process of the thesis. The questionnaire is divided into nine categories. The categories are split into seven chapters that represent indicators of latent variables, as well as an introductory and demographics part. All questions, except for demographic and introductory questions, were measured on a 7-point Likert scale. The scale ranged from (1) "strongly disagree/useless/worthless/uncomfortable" to (7) "strongly agree/useful/valuable/comfortable".

5. General results and discussion

After cleaning the data set a two-step SEM analysis approach was conducted. The approach states the analysis of the models in both, the measurement model and subsequently the structural model (Anderson & Gerbing, 1988).

5.1 Measurement model analysis

The measurement model can be seen in the following figure. It can be noticed that the model has been optimized in several ways.
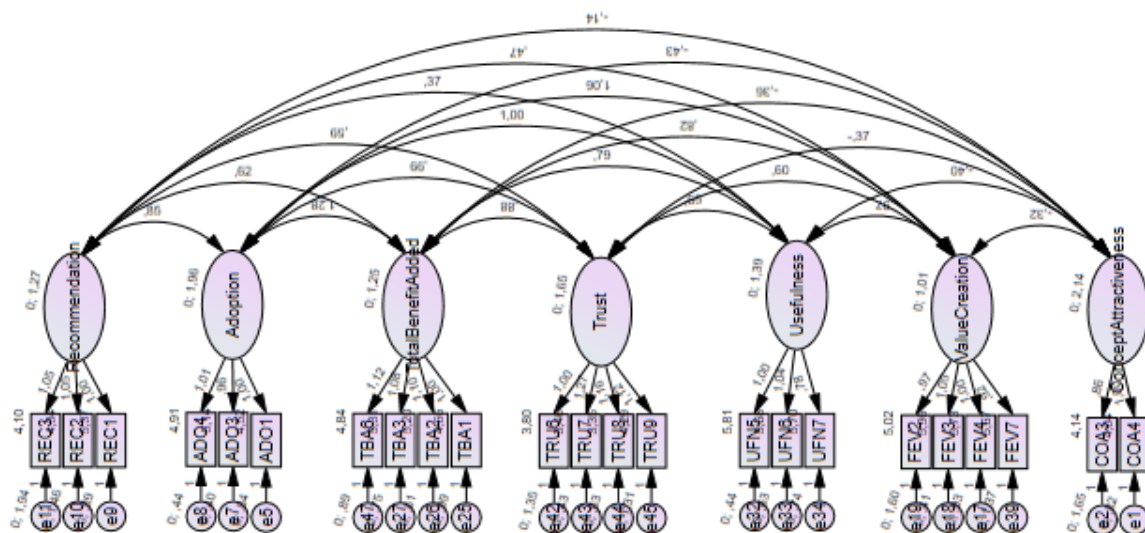
Figure 7: Measurement Model (SPSS AMOS; survey data)

Firstly, all the variables that had a factor loading below 0.51 on latent variables have been removed as this threshold is required for significance (Hair, Black, Babin, & Anderson, 2009). The effect of such an individual item would have had an impact on the latent variable of less than 51%. Secondly, the model fit was analyzed, and it could be seen that several indicators were not reaching a satisfactory level. Thus, there were two methods on how the model could be further optimized. First, there was the option to correlate items' error terms of the same latent variable to improve the model fit. The downside of this method is that the more error terms of items will be correlated the higher the probability that the model cannot be reconstructed anymore. In addition, researchers disagree if there should be any correlations within a confirmatory factor analysis (CFA) or SEM. The CFA is implemented to understand how the shared variance of variables within the model influences a factor or a latent variable.

20

Furthermore, correlations can cause problems with the interpretation of the measurement model (Bollen & Lennox, 1991). The other way of improving the model fit is by removing items in general to make the model smaller. This can be considered a more practical approach as it allows to prioritize items and have different approaches to the CFA. E.g., different features of the product or different problems of the users can be prioritized while the model fit will be improved. Due to its practicality, the second approach to increase the model fit was used in this CFA. All model fit measures are exhibited in Table 2.

Table 2: Model fit indices - measurement model (survey data)

Model Fit Indices	Source	Recommended Value	Measurement Model
CMIN/DF	Hair, Black, Babin, & Anderson (2009)	≤ 3.0	2.20
Normed fit index (NFI)	Bentler & Bonett (1980)	≥ 0.90	0.90
Comparative fit index (CFI)	Hatcher (1994)	≥ 0.90	0.90
Incremental fit index (IFI)	Meyers, Gamst, & Guarino (2005)	≥ 0.90	0.90
Root mean square error of approximation (RMSEA)	Byrne (2001)	≤ 0.08	0.07
Standardized root mean square residual (SRMR)	Hair, Black, Babin, & Anderson (2009)	≤ 0.09	0.06

The chi square of the model is 476.462 and the degree of freedom is 209 with a p-value of 0.000. The p-value is <0.05, which means it is statistically significant. This indicates that the hypothesized model significantly deviated from the observed model. Therefore, the significance of chi square can be disregarded. The NFI, CFI, and IFI are incremental measures of the goodness of the fit for a statistical model. These measures are not affected by the number of variables in the model (Bentler & Bonett, 1980; Hatcher, 1994; Meyers, Gamst, & Guarino, 2005). The NFI analyzes the difference between the chi-squared value of the hypothetical model to the observed model (Bentler & Bonett, 1980). The CFI analyzes the discrepancy between the hypothetical model and the data put into the model (Hatcher, 1994). RMSEA analyzes the sample size and looks for discrepancies to the hypothetical model. The lower RMSEA the better the model fit (Byrne, 2001). SRMR indicates the squared difference between the covariance matrix of the sample and the model (Hair, Black, Babin, & Anderson, 2009). As seen in Table 2 all measures of the model fit are meeting the requirements of previous theories, which is an adequate indicator for the fit of the model. Table 3 displays several statistics of the measurement model. It is also important for a good model fit that all variables are statistically significant.

Table 3: Statistics of variables (survey data)

Construct	Variable	Mean	Standard Deviation	P-Value	Composite reliability (CR)	Average variance extracted (AVE)
Concept Attractiveness	COA3	4.14	1.78	0.000	0.752	0.605
	COA4	4.04	1.71	0.000		
Value Creation	VAC2	5.02	1.59	0.000	0.789	0.502
	VAC3	5.96	1.23	0.000		
	VAC4	5.73	1.39	0.000		
	VAC7	5.67	1.49	0.000		
Usefulness	UFN5	5.81	1.35	0.000	0.857	0.668
	UFN6	5.68	1.46	0.000		
	UFN7	5.70	1.26	0.000		
Trust	TRU6	3.80	1.74	0.000	0.902	0.699
	TRU7	3.50	1.75	0.000		
	TRU8	3.35	1.68	0.000		
	TRU9	4.30	1.83	0.000		
Total Benefit Added	TBA1	4.66	1.49	0.000	0.878	0.643
	TBA2	5.20	1.46	0.000		
	TBA3	5.32	1.48	0.000		
	TBA6	4.85	1.57	0.000		
Adoption	ADO1	4.52	1.70	0.000	0.914	0.780
	ADO3	5.14	1.52	0.000		
	ADO4	4.91	1.57	0.000		
Recommendation	REC1	5.37	1.47	0.000	0.750	0.501
	REC2	4.34	1.70	0.000		
	REC3	4.10	1.84	0.000		

After proving the model fit the construct reliability and validity need to be analyzed. Construct reliability, also called composite reliability (CR), measures the internal consistency of the model's items (Netemeyer, Bearden, & Sharma, 2003). CR can be proven by omega >0.7 (Cheung & Wang, 2017). As seen in Table 3 all constructs confirm this condition. The purpose of construct validity is to analyze if and how a set of items measure a theoretical construct (Hair, Black, Babin, & Anderson, 2009). Therefore, construct validity can be divided into two analyses: (1) convergent validity; (2) discriminant validity. Convergent validity reports how well a construct is measured by the items describing it. Discriminant validity reports the degree of differentiation of a construct to the other constructs (Cheung & Wang, 2017).

The measurement of convergent validity was defined by previous studies into three reliability standards: (1) CR >0.7; (2) all indicator factor loadings >0.5; (3) average variance extracted (AVE) >0.5 (Bagozzi & Yi, 1988). Condition (1) was confirmed in the construct reliability. In Figure 7 the CFA shows that all factor loadings are >0.5 as well as stated in the model fit improvement, that all indicators with a factor loading <0.5 were removed. The confirmation of the third condition is exhibited in Table 3.

Table 4: discriminant validity measures (survey data)

	COA	ADO	REC	UFN	VAC	TRU	TBA
COA	**0.778**						
ADO	-0.210	**0.883**					
REC	-0.082	0.539	**0.708**				
UFN	-0.234	0.606	0.282	**0.818**			
VAC	-0.218	0.751	0.414	0.824	**0.708**		
TRU	-0.196	0.552	0.410	0.428	0.465	**0.836**	
TBA	-0.223	0.818	0.492	0.600	0.731	0.613	**0.802**

Discriminant validity will be assessed by having smaller correlation coefficients of two constructs than the square root of AVE of these constructs (Fornell & Larcker, 1981). The diagonal bold marked values in Table 4 are the square root of AVE. All other values are correlations between the constructs. In this analysis confirmatory issues for the following constructs can be found:

(1) *Usefulness*: the square root of AVE for *Usefulness* is less than its correlation with *Value Creation*.

(2) *Value Creation*: the square root of AVE for *Value Creation* is less than its correlation with *Adoption*, *Usefulness*, and *Total Benefit Added*.

(3) *Total Benefit Added*: the square root of AVE for *Total Benefit Added* is less than its correlation with *Adoption*.

All other results are following the standards defined by theory. However, previous studies argue that AVE often is too strict and states CR is enough proof to establish reliability (Malhotra & Dash, 2011). To further dig into discriminant validity a heterotrait-monotrait ratio of correlations (HTMT) analysis was conducted. HTMT measures similarity between latent variables with the requirement of its value being <0.9 (Henseler, Ringle, & Sarstedt, 2015). The output for HTMT can be seen in appendix III. The table in appendix III shows that *Usefulness* and *Value Creation* are nearly indistinguishable as the value is slightly above 0.9 being 0.903. All other values are confirmed by the HTMT analysis. Due to all analyses above discriminant validity can be seen as established in this study.

5.2 Structural model analysis

The structural model also shows a good model fit. The only slight violation of the model fit indicators was the NFI equals 0.87. As there is only one minimal violation for all model fit indices the structural model fit is accepted, and violations will not be considered.

Table 5: Model fit indices - structural model (survey data)

Model Fit Indices	Source	Recommended Value	Structural Model
CMIN/DF	Hair, Black, Babin, & Anderson (2009)	≤ 3.0	2.29
Normed fit index (NFI)	Bentler & Bonett (1980)	≥ 0.90	0.87
Comparative fit index (CFI)	Hatcher (1994)	≥ 0.90	0.92
Incremental fit index (IFI)	Meyers, Gamst, & Guarino (2005)	≥ 0.90	0.92
Root mean square error of approximation (RMSEA)	Byrne (2001)	≤ 0.08	0.07
Standardized root mean square residual (SRMR)	Hair, Black, Babin, & Anderson (2009)	≤ 0.09	0.06

A path analysis was conducted for the structural model. The SPSS AMOS output of the path analysis can be seen in the following figure. All other relevant data for this chapter is shown in appendix IV. The construct *Total Benefit Added* has a positive effect on adoption, which is statistically significant with $p_{TBA \rightarrow ADO} < 0.000$. Therefore, H1 is accepted. The constructs *Concept Attractiveness* and *Usefulness* have a slight negative influence on *Total Benefit Added*. However, both constructs are not statistically significant in relation to *Total Benefit Added* with $p_{COA \rightarrow TBA} = 0.550$ and $p_{UFN \rightarrow TBA} = 0.539$. Consequently, H2 and H3 are rejected. *Value Creation* and *Trust* have a positive influence on *Total Benefit Added*. Both constructs are statistically significant with $p_{VAC \rightarrow TBA} = p_{TRU \rightarrow TBA} < 0.000$. *Adoption* also has a positive effect on *Recommendation* that is statistically significant with $p_{ADO \rightarrow REC} < 0.000$. The hypotheses H4, H5, and H6 are supported.

To see how much influence each construct has on the endogenous variables the explained variance (R^2) needs to be tested. All independent variables (COA, VAC, UFN, TRU) explain 68.7% of the variance of the dependent variable *Total Benefit Added*. 72.6% of the variance of the construct *Adoption* can be explained by *Total Benefit Added*. As $R^2 > 0.5$ in the described latent variables they have a good explanatory value. On the other hand, *Adoption* explains *Recommendation* by 29.7%, which therefore is an indicator for low explanatory power.

Furthermore, it is important to look on which of the independent variables has what effect on the dependent variable *Total Benefit Added*. As already stated above the items *Concept Attractiveness* and *Usefulness* do not have a significant impact on *Total Benefit Added*. On the other hand, there is a direct effect of *Value Creation* (0.736) and *Trust* (0.298) on *Total Benefit Added*. The direct effect of *Total Benefit Added* on *Adoption* is also statistically significant and valued at 1.080.
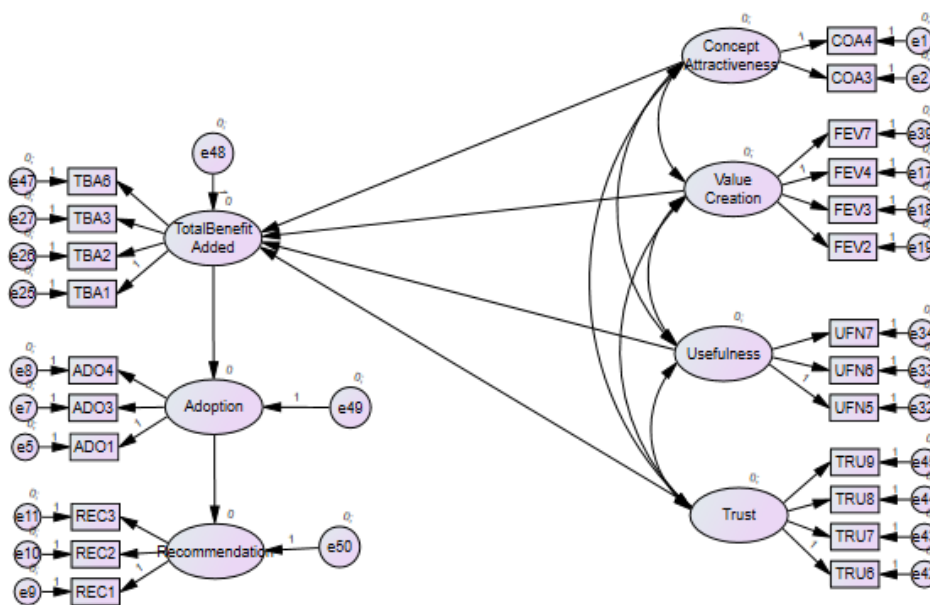
Figure 8: Path analysis results of the structural model (SPSS AMOS; survey data)

5.3 Discussion

This study can be seen as an initiation of further studies and getting insight into the field of private property management. The results show that people who are potentially willing to adapt to a PM platform are dependent on the *Total Benefit Added*. It can be noticed that 72.6% of the variance of *Adoption* can be explained by the *Total Benefit Added*. This is an indicator that people are open to new ways to manage their property as e.g., with an online tool or platform. This finding persists with the general trend in the construction and real estate industry in terms of digitalization. However, the most parts being digitalized currently are within a B2B background. Generally, price comparison platforms have arrived at the broad mass of consumers. Most of these platforms are not tailored for their users, but rather specialized on listing all items the market offers, to save time and money for the consumers. Results also show that the *Total Benefit Added* has a strong positive relationship with *Adoption* of 1.08. Hence, it

can be concluded that if *Total Benefit Added* increases by one unit, the users' adoption rate increases by 1.08. Bringing in the aspect of *Total Benefit Added* influencing the *Adoption* of users it is important to examine what attributes influence *Total Benefit Added* on price comparison platforms and interpret how it can be translated into problem solving product features consumers are willing to adopt to. Furthermore, this observation brings forth the assumption that time and money savings are important for users but there are also other problems they are facing as well as other product features they care about to have a higher adoption rate. More indication about this theoretical assumption comes from the fact that 70% of Germans use price comparison tools, but only 34% of these are having a purchase intention (Arnold & Schneider, 2018). It can be interpreted that price comparison tools are great for information purposes, but as soon as consumers are searching for products tailored to their needs, traditional web aggregators do not seem to be effective problem solvers.

The latent variable *Value Creation* has a direct effect of 73.6% on *Total Benefit Added*. Therefore, *Value Creation* has the biggest influence on *Total Benefit Added* out of all the independent variables. The items used within this construct have been reduced from eight to four, which is not only to improve the model fit, but also to have a practical approach to define product features of the first MVP. Nevertheless, all the initial items had factor loading significantly higher than 0.51, which indicates that these would have been relevant as well. This is a sign that people in general liked the idea how to bring value to manage their homes. On the contrary, it can also be an indication that such a product in general seems to be attractive with all its value bringing features in comparison to the way they are managing their home now. As described in previous theory the four sources of value creation in e-business are formed by (1) efficiency; (2) novelty; (3) lock-in; (4) complementarities (Amit & Zott, 2001). When these attributes are used in the case of casama relations can be noticed. People are not managing their homes efficiently but are rather using tools without automation functions. There is no comparable product within this target group of customers, which brings novelty. Lock-in describes how big the cost of switching services is as well as how often the users interact with the e-business. Consumers usually interact with web aggregators when a product is needed at that specific point of time. With a tool that offers ongoing automation, suggestions on how to increase savings, etc. traffic of recurring users will be higher as data can be used more efficiently and effectively. As casama is a free-to-use tool there is only the cost of time to switch tools. If created efficiently this market entry barrier will not be significant. Complementarities

can be found in the vision of the PM platform. Every aspect of the home will be built into features to have services and products that go hand in hand creating value for consumers. As all the four criteria for value creation in e-business are fulfilled it can be concluded that the business idea has the potential to be a successful venture if executed correctly. Other ways of *Value Creation*, in general, are met as well as e.g., Schumpeter's (1934) theory of innovation as value creation. As seen from traditional price aggregators, data shows that people think saving time and money as main selling points are important. The main difference is that it is tailored to each client's needs. Thus, it is important when casama will be implemented to work hand in hand with its first users to tailor the *Value Creation* to their needs and problems. This ensures that the value will be transferred to the total benefit of the service, which leads to a higher adoption rate.

Another aspect of how the *Total Benefit Added* is influenced depends on the *Trust* users put into the tool. To automate and generate tailored content the PM tool needs data. As data around home, financing, insurance, drawings, etc. are sensitive personal information *Trust* is a further key variable influencing the *Total Benefit Added*. In total, *Trust* has a direct effect of 29.8% on *Total Benefit Added*. Combined with *Value Creation* the independent variables explain 68.7% of the variance of *Total Benefit Added*, which implies strong explanatory value. The hypothesis that *Trust* has a positive impact on *Total Benefit Added* is accepted. All items explaining *Trust* have high factor loadings and thus, all the mentioned information are important factors to users. As mentioned in trust theory: trust depends on two parties depending on each other. In the online world it is not possible to influence the second party (website, tool, etc.), which is why trust is needed on an even greater level to gain *Total Benefit Added*. Therefore, the consumer expects characteristics such as reliability, security, honesty, competence, etc. It can be interpreted as people need to share private information to get the full usefulness and benefit out of the tool *Trust* needs to be guaranteed. If that case is examined properly the benefit added as well as adoption rates will be influenced positively to grow the tool. Furthermore, people are slightly unwilling to share information about themselves and their property. Participants were asked about their willingness to share information about financing, insurance, personal, and property. All means of these attributes were slightly below the medium as well as a high variance of >3 in all attributes. The only exception was property information: the people asked are rather willing to share property information than other information with a mean of 4.3. As *Trust* has a major effect on the *Total Benefit Added* and therefore also on *Adoption*, it needs to

be established from the beginning. If that cannot be guaranteed, the business idea could fail immediately. There are several ways to establish *Trust*. Firstly, the platform can be coded open source in several parts. This means that all people can look at the code of some specific parts of the platform. An example of that is how people upload their information. Instead of saving consumers' data an algorithm only searches for the data needed and fills it in automatically without saving it. To guarantee data will not be saved the code of this action can be open source. The downside of that method is that competitors can investigate the capabilities of the start-up. Another way of establishing trust is transparency. Every single aspect of the venture needs to be transparent and explained in detail, so consumers understand the business model and understand that no money will be earned with their private data.

On the other hand, three hypotheses need to be neglected: (1) *Concept Attractiveness* has a positive effect on *Total Benefit Added*; (2) *Usefulness* has a positive effect on *Total Benefit Added*; (3) *Adoption* has a positive effect on *Recommendation*.

Concept Attractiveness as a latent variable is not significant with p=0.550 and a direct effect on total benefit added of -0.020. Factor loadings of four out of eight items in the initial construct were below 0.5 and therefore not significant. In theory, a concept surges to be attractive and people are motivated to adopt it if there are network effects, pleasure is involved, or a goal can be pursued. It can be interpreted that participants of the survey do not relate pleasure in managing their homes. Contradictorily, there has not been a PM platform, which they used and could not benefit from network effects. Inspecting all the factors influencing the attractiveness and motivation it can be interpreted that people still want to pursue the goal of managing their home as most of them are doing with self-built and managed tools. Everyone has a different approach how to monitor, analyze, and save money. Only 12 out of 369 choices elected an online tool (banking and tax related) as a way of how they managed their property. 229 participants chose pen and paper or excel as their way of managing their home. Only 57 participants have never tracked costs or managed their homes in any way. This indicates that property management has been done but inefficiently and finds further support in why potential clients are seeing benefits in such a tool. Thus, the usage of a PM platform is depending on the extrinsic motivation of people to save time and money. In total it can be said that consumers do

not have intrinsic motivation in using a PM tool until now. As most of them have never actually used such a tool this factor could change over time.

Also, *Usefulness* was not statistically significant with p=0.539 and a direct impact on *Total Benefit Added* of -0.070. Previous theory suggested that *Usefulness* is a primary driver of acceptance in IT. Looking at the data people seem to doubt the *Usefulness* of a PM tool. While the participants assume such a tool would help them in managing their home, there are doubts about its *Usefulness*. The lack of significance of this latent variable can be interpreted that people are not convinced that the product is needed. As there has never been such a tool for privately owned property accompanied by the fact that no one ever has used such a tool, the "real" *Usefulness* cannot be predicted.

The last hypothesis assumed that *Adoption* has a positive effect on *Recommendation* of the PM platform. *Adoption* explains *Recommendation* only by R^2=29.7%, which states low explanatory power. The direct effect of *Adoption* on *Recommendation* is 0.45. Therefore, the hypothesis cannot be confirmed. Looking at the items themselves and the factor loadings it can be interpreted that people are generally willing to recommend products that are useful to them. But only because people adopt a certain product it does not mean that they are recommending it. It can be interpreted that a platform cannot grow through WOMM alone. This marketing method should be rather seen as an additional instrument for customer acquisition.

With the current data and analyses RQ1 can be confirmed. In total, most homeowners are open to try new ways of managing their home with the intention of experiencing the usefulness of the PM tool and then decide if they want to further interact with it. RQ2 can only be confirmed partially. An AM platform is perceived as value creating and has a significant impact on the decision if people want to use such a tool. Trust is a core element for homeowners to consider an online tool's usage. In opposition, the trustworthiness of such a tool needs to be proven and cannot be established as of now. The recommendation of users to potential future users also needs to be rejected due to the lack of statistical significance.

5.4 Limitations and future research

This master's thesis also has some limitations to consider alongside the results and its interpretations. However, all limitations offer the potential for future research. The initial research model chosen for this research has not fit well. Further optimization was examined so that the model was a better fit. Thus, further research could start with the optimization of the model through better variables, more participants, or other methods to enhance the fit of the model. Another possibility for future research could be the change of the research model to e.g., a multiple linear regression.

Secondly, there are limitations in the relation of the survey and its participants. There was only a short period of time (21 days) the survey took place. Furthermore, most participants come out of either three sources: Prolific, the author's social networks, or the society of homeowners. These factors are also a restriction for the results in total. The author's social network could be biased to answer the questionnaire in a positive way. Prolific participants are paid participants. The question to be considered is how seriously these participants take the questionnaire. Therefore, it makes sense to make a replica of this survey with a randomized sample to be able to determine if the gathered sample data would suit with population data. 53.79% of participants are within the range of age of 18-34. Consequently, most of these people probably do not own a home but rather want to own a home in the future. The fact that these people like the idea could convert them to future customers. Nevertheless, these people do not have experience in managing their own homes, which makes them a source that is not as reliable as people that are owning a home. For future research a sample needs to be used that is not biased with widespread demographics, to be able to replicate the population more accurately.

Lastly, as there has barely been research conducted within that field as well as there is no comparable product on the market for this target group the responses of the survey cannot be seen as facts. This limitation originates in the type of data gathering (online survey) itself as the product does not exist the research does not study the effect on a PM tool itself but rather on what people think without ever having used such a tool. To accelerate the development of the business idea practical research will be needed. Thus, interviews with participants trying the MVP as well as live data are necessary to dig deeper into private PM. Additionally, future research can be conducted that focuses on why people did not use PM tools until now in privately lived and owned property.

6. MVP development

Within this chapter, the lean start-up approach will at first be described to lay the foundation about the importance of building a venture hand in hand with its customers. Afterwards, different product discovery processes are going to be defined. Lastly, RQ3 will be answered by analyzing and interpreting data from the questionnaire chapters *Value Creation* and *Usefulness*. Finally, the building of the minimum viable product (MVP) will be described around these basics.

6.1 Lean start-up

There are plenty of reasons why start-ups fail as e.g., bad leadership, bad product-market fit, low number of customers, etc. Many Venture Capitalists (VC) use the metaphor of a horse race with the horses being associated as the start-up and the jockey as the founders. Most VCs are choosing a good founder over a business opportunity (Eisenmann, 2021). Other findings of Eisenmann (2021) were: (1) The founders had good ideas, but bad execution, and fellow founders are not able to perform. For that reason, the senior management is important to balance the lack of knowledge the founders bring to the table. (2) The start-up has a false start. The means of the false start are that founders did not fully commit to the lean start-up approach. Many founders claim to follow the lean start-up method, but most only adapt part of it. Entrepreneurs end up wasting time and money by not researching the customer's needs (Eisenmann, 2021). The solution to that is to first define the problem, then develop a solution to that problem, and lastly the validation of the solution.

The lean start-up method (LSM) has been introduced by Eric Ries (2011). The method describes how start-ups need to use experimenting techniques with their target consumers to successfully commercialize the company. Most importantly lean start-up describes how the start-up should build a series of MVPs with hypotheses built around them to research these. Then the founders decide if they want to preserve, pivot, or abandon the business model (Ries, 2011). Building an MVP means constructing an early version of the final product, which enables the founders to collect data and learnings about the product with a low amount of time and money put into the venture. Through the learnings gathered from experimenting the start-up can potentially pivot. This means changing the strategy without changing the vision (Contigiani & Levinthal, 2019). The process can be summarized in Figure 9:
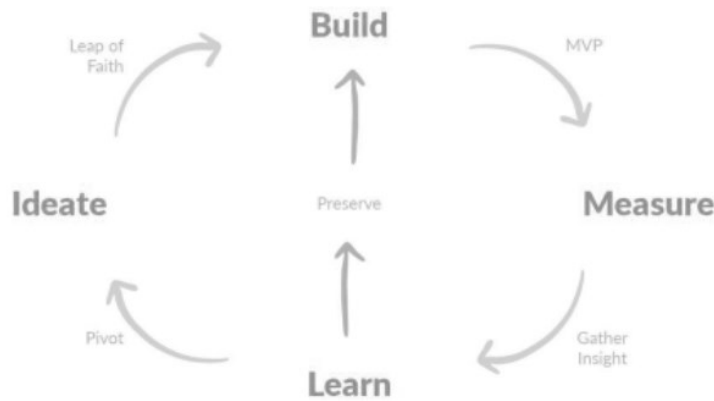
Figure 9: Build-Measure-Learn-Loop (Ries, 2011)

LSM shares principles of established concepts within management studies, such as lean manufacturing (Krafcik, 1988), design thinking (Archer, 1965), and agile development (Highsmith & Cockburn, 2001). All these theories highlight experiments as a key to navigate in an environment facing uncertainty (De Cock, Bruneel, & Bobelyn, 2020). A complementary tool for LSM is the business model canvas (Osterwalder & Pigneur, 2013). It enables its users to summarize, test, and redefine the business model hypotheses. A combination of LSM and business model canvas led to the creation of lean canvas, which is a tool to test all critical business assumptions fast (Maurya, 2022). This is the foundation for the product discovery process. The lean canvas of casama can be seen in appendix V.

6.2 Product discovery process

The product discovery process is needed to connect the business model with a customer-centric approach to define the product. The hypotheses used to define the business model with LSM are utilized to initiate the product discovery process. A previous study showed typical attributes and steps of the product discovery process: the process should be fast, contain research activities, continuous, time-boxed, cross-functional, and integrated with product road mapping. Similar to LSM the typical steps consist of: (1) alignment; (2) research; (3) ideation; (4) creation; (5) validation; (6) refinement (Muench, Trieflinger, & Helsler, 2020). There are several product discovery methods dependent on the field of appliance:

Table 6: Product Discovery Methods

Product discovery method	Field of Appliance	Source
User-oriented product development	Products with interface problems	Dahlman (1986), Rosenblad-Wallin (1985)
Beta Testing	Software, Consumer goods, Applications	Nielsen (1993), Dolan & Matthews (1993)
Lead user method	High and low tech industry	Urban & von Hippel (1988), Herstatt & von Hippel (1992)
Product/market fit	Tech Industry	Cagan (2018)

User-oriented product development starts with an analysis of the user and its requirements. The human factor stands in the middle of the analysis in relation to the usage itself rather than features (Rosenblad-Wallin, 1985). All requirements are transformed into measurable requirements. Lastly, the prototypes will be tested by the users and, if needed, further modification will be applied (Dahlman, 1986).

Beta testing on the other hand is a concept that comes into play in the last phase of the product development. It tests if the product is doing what it was determined to do in the environment of the customers (Nielsen, 1993). Prototypes usually are tested in a customer environment to see the customer satisfaction and the influence of environmental factors. The results are used to advance the product and eliminate faults/bugs. Software developers typically use this type of product discovery process (Dolan & Matthews, 1993).

The goal of the lead user method is to gather data from lead users (early adopters). The lead users are facing the predefined user needs, which are tested within this group. These needs are then generalized for the whole user group (Urban & von Hippel, 1988). The process of this method is divided into four steps: (1) specification of lead user indicators; (2) identification of lead users; (3) creation of products with lead users; (4) test of products on ordinary users (Herstatt & von Hippel, 1992).

Recent literature discusses how the product needs to meet the market needs. This measure is called product/market fit (Cagan, 2018). This theory describes that the venture needs to discover the consumer needs in an efficient and cost-effective manner. Therefore, Cagan (2018) defined four crucial risks that need to be assessed within the product discovery process: (1) Value risk: Is the client going to use or buy the product? (2) Usability risk: Is the client going to know how

to use the product? (3) Feasibility risk: Can the product be built? (4) Business viability risk: Is this specific solution working for the venture?

All product discovery processes exhibited above have similarities as e.g., customer focus in combination with product development in a constant loop of feedback and improvement. The master's thesis is focusing on defining the features that the consumers are valuing the most and define if they will use the product. This translates into the value risk if measured by Cagan (2018). Value creation has been confirmed so far in the analysis, which can be seen in chapter five. It has been shown that a property management platform for homeowners can solve the problem of managing homes more efficiently and cost-effectively through the increased benefit for the customer. To further examine the product discovery process first there will be the analysis of the features and whether they bring value to the users in comparison to the problems users are facing. After the analysis the most valuable features will be built into the first MVP if these can be considered significantly valuable.

6.3 Feature definition of the MVP

To launch a successful product, it is important not only to create a product with as many features as possible, but rather looking for problems of people within the context of the venture that need to be solved. Consequently, all participants of the survey were asked to answer two different categories of questions. The first one was the category *Usefulness* (UFN) and the other one was the category *Value Creation* (VAC). The difference between these two categories is that in one the questions aimed at the feature itself (VAC) and in the other the aim was to focus on a problem statement (UFN). The purpose behind that scheme was to see if there will be a difference between any of the two categories. First, the responses were verified and inspected visually. Then the data about *Value Creation* and *Usefulness* was analyzed. After these analyses, the data was compared and used as the basis of the definition of the features of the first MVP. For the analysis a Wilcoxon test was used due to the independence of the sample as well as there is no need for the samples to be distributed normally.
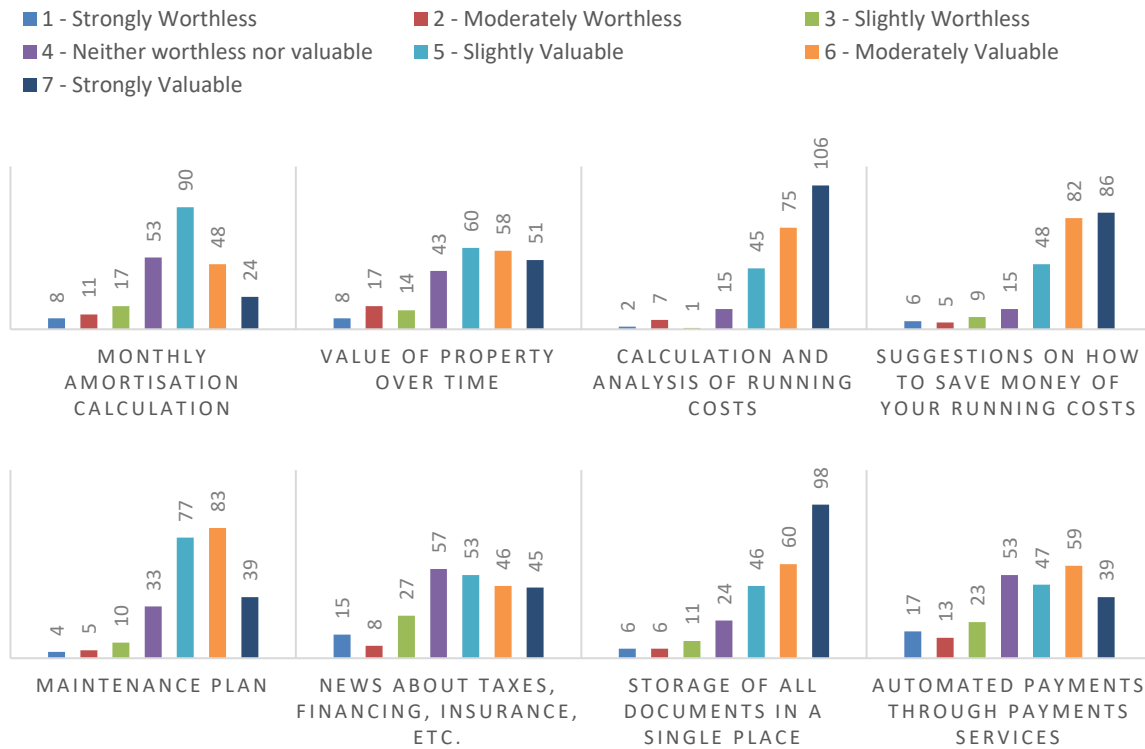
Figure 10: Value creation (Survey Data)

The null hypothesis for the items of the category *Value Creation* is defined by H_0: $\mu=4$ and the alternative hypothesis H_1: $\mu>4$. The p-value for all items was $p<0.05$, which is less than the level of significance of $\alpha=0.05$. Therefore, the null hypothesis can be rejected by all the items. This is an indication that the median is significantly >4. However, to define the most significant features the items with the lowest p-values and the biggest difference in the hypothetical and observed median were selected:

(1) Calculation and analysis of running costs: Mean = 6.0; Median = 6.0; SD = 1.24.

(2) Suggestions on how to save money of running costs: Mean = 5.7; Median = 6.0; SD = 1.39.

(3) Storage of all documents in a single place: Mean = 5.7; Median = 6.0; SD = 1.49.

Figure 11: Usefulness (Survey data)

On the other hand, the category *Usefulness* was analyzed the same way to see whether there is a difference between the two constructs. Here as well th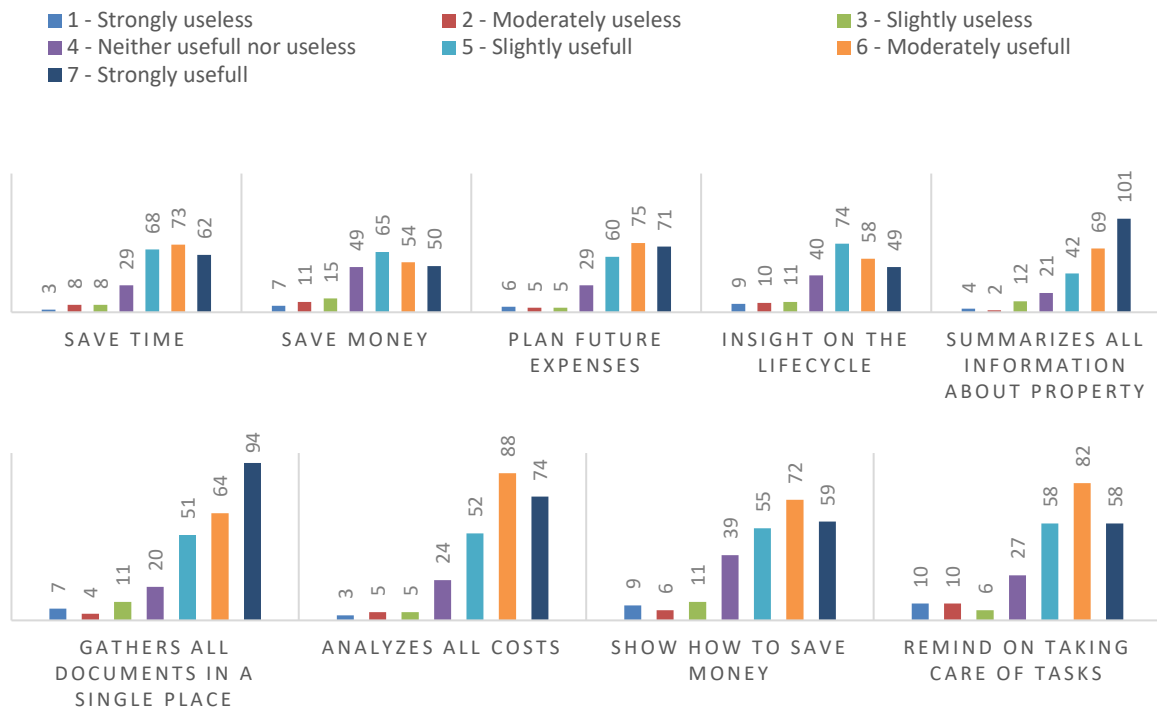e null hypothesis is defined as H_0: $\mu=4$ and the alternative hypothesis H_1: $\mu>4$. Same as above the p-value for all items is $p<0.05$. Therefore, the null hypothesis can be rejected. This indicates that the median is significantly >4. To have a direct comparison to the results of the features selected above the same measures are used to select the most significant items:

(1) Summary information in a single place: Mean = 5.8; Median = 6.0; SD =1.35.

(2) Gathers all documents in a single place: Mean =5.7; Median = 6.0; SD = 1.47.

(3) Analysis of running costs: Mean = 5.7; Median = 6.0; SD = 1.26.

It can be seen from both analyses conducted above that the results are almost the same. There is only one discrepancy within the top three that can be seen between the features participants of the survey wanted to the problems they are facing managing their property: VAC-item "Suggestions on how to save money on running costs" compared to UFN-item "Summary of all information in a single place". However, the problem of saving money on their running costs

was the fifth most important problem participants were facing. This ranking shows that the problems the participants are facing and the features the participants want to have in a property management platform are almost the same. Consequently, the features selected to be part of the first MVP and answering RQ3 are:

(1) Summary of all information in a single place.

(2) Gathering of all documents in a single place.

(3) Calculation and analysis of running costs.

(4) Suggestions on how to save money on running costs.

6.4 MVP development

According to Cagan (2018), the prototype development is structured in two parts. First, the user prototype finds its purpose in simulating the features and processes. The advantage is the ease of building and testing of hypotheses. However, the disadvantage is that the user prototype is not able to gather data. The second type is the live-data prototype, which is aiming at collecting data to test the different kinds of risks described in chapter 6.2. Minimizing all the risks as well as gathering evidence that the product is scalable and finds acceptance in the market is needed before building a fully functional product due to waste of time and capital.

The first MVP of casama is being built with a low-code platform called Bubble. With this kind of service, it is possible to build prototypes with low cost and effort put in. Building a live-data prototype with this platform is not only preferable due to its ease of use, but also because an initial investment is not necessary. At the current stage, the property management platform casama is built with the following functions: (1) log-in; (2) gathering and calculation of running costs; (3) summary of all information on a dashboard. For further implementation of the features defined in the previous chapter, a technical versed co-founder will be needed. The implementation of these features will be built upon existing application programming interfaces (APIs) to simplify the structure as well as accelerate the development of the MVP.

7. Conclusion

This master's thesis is divided into two parts. First, a SEM was conducted to validate research questions (RQ1, RQ2) around the business model itself. The goal was to test if homeowners are willing to use a digitalized PM platform as well as answering hypotheses about the attributes *Value Creation*, *Usefulness*, and *Trust* having an influence on the *Adoption* to use such a tool. Also, the hypothesis has been tested if users would recommend the tool to potential users and therefore WOMM is a sufficient growth motor for the business. Homeowners have mostly not been using any kind of tool to manage their home but rather had their own way through Excel or pen and paper. It can be concluded that homeowners are willing to try new ways of managing their home with the focus on experiencing if such a tool is useful to them, which answers RQ1. Also, homeowners think that a PM tool is value creating having a statistically significant impact on the *Total Benefit Added* of the tool and the *Adoption*. It has been proven that homeowners need to have trust in the provider of such a tool to start using it. The recommendation of such a service cannot be seen as the single growth motor of the business idea. To be successful with the communication of such a product traditional marketing activities need to be implemented as well. Therefore, RQ2 can only be partially accepted.

The second part consists of an analysis, comparison, and evaluation of two approaches to define the initial product features of the first MVP (RQ3). The approaches are split to first let the homeowners evaluate features of the tool on their own and second let them evaluate problem statements of managing a home. From the analysis it can be concluded that the first MVP should focus on the basic functions of gathering and summarizing all data in one place, while automatically calculating the running costs and give suggestions on how money can be saved. In the next step the first prototype is being built with a no-code platform to gather first insights to live data of homeowners using a property management tool.

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VIII. Appendices

Appendix I. Indicators of the research model related to the latent variables

Latent Variable	Indicator	Description
Concept Attractiveness	COA 1	An asset management service helps me to manage my home.
	COA 2	Assistance managing my home would be a benefit.
	COA 3	I know the amount of running costs per year / per month of my home.
	COA 4	I know how much the running costs around my home increased / decreased within the past years.
	COA 5	I store all relevant documents around my home in a single place.
	COA 6	I store all documents around my home digitized.
	COA 7	I needed to teach myself all around managing my home on myself.
Usefulness	UFN 1	An AM platform is useful because it helps me to save time.
	UFN 2	An AM platform is useful because it helps me to save money.
	UFN 3	An AM platform is useful because it helps me to plan potential future expenditures.
	UFN 4	An AM platform is useful because it helps me to have an insight on the whole lifecycle of my property.
	UFN 5	An AM platform is useful because it summarizes all information about my property in one single place.
	UFN 6	An AM platform is useful because it gathers all documents about my property in a single place.
	UFN 7	An AM platform is useful because analyzes all costs related to my property.
	UFN 8	An AM platform is useful because it shows me how to save money.
	UFN 9	An AM platform is useful because it will remind me to take care of different things as e.g., payments, maintenance, etc.
Value Creation	VAC 1	Monthly amortisation calculation
	VAC 2	Value of property over time
	VAC 3	Calculation and analysis of running costs
	VAC 4	Suggestions on how to save money of your running costs
	VAC 5	Maintenance plan
	VAC 6	News about taxes, financing, insutance, etc.
	VAC 7	Storage of all documents in a single place
	VAC 8	Automated payments through payments services

Latent Variable	Indicator	Description
Trust	TRU 1	I trust tools on the internet depending on the provider of the web page
	TRU 2	I trust tools on the internet that have their head quarters within Europe
	TRU 3	I trust tools on the internet depending on the frequency these are updated.
	TRU 4	I trust tools on the internet depending on their privacy disclosure.
	TRU 5	I trust tools on the internet depending on the awards they have won as well as other recognition.
	TRU 6	Comfortable sharing Personal Information (Name, street, ZIP, etc.)
	TRU 7	Comfortable sharing Financing Information (Amount, interest rate, etc.)
	TRU 8	Comfortable sharing Insurance Information (payments, etc.)
	TRU 9	Comfortable sharing Property Information (number of rooms, size, year of construction, etc.)
Total Benefit Added	TBA 1	People who use an asset management tool to manage their own property save money.
	TBA 2	People who use an asset management tool to manage their own property save time.
	TBA 3	People who use an asset management tool to manage their own property are organized in a better way.
	TBA 4	People who use an asset management tool to manage their own property can increase the value of their home more easily.
	TBA 5	People who use an asset management tool to manage their own property stay up to date in a better way.
	TBA 6	People who use an asset management tool to manage their own property have a better control over their finances.
Adoption	ADO 1	I would like to use an asset management tool in the future.
	ADO 2	I believe that a majority of people use such tools to manage their homes.
	ADO 3	I believe an asset management tool is useful.
	ADO 4	I believe an asset management tool brings value.
Recommendation	REC 1	I usually recommend services and products to friends that I find useful.
	REC 2	I usually recommend things on the internet to people.
	REC 3	I often talk with people on how to save time and money.
	REC 4	I think finances are a very private topic and do not talk about it a lot.
	REC 5	In general, I talk with family, friends, and others about my home and things around it.

Appendix II. Other content of the survey

Introduction:

Dear participant,

the following survey is conducted as part of my dissertation for my MSc in Business (for non-business graduates) at Católica Lisbon School of Business & Economics.
All answers are anonymous and used for the mere purpose of the dissertation.
The duration of this survey is estimated to be 5-7 minutes.

The survey takes part in the field of private asset management and intends to gain knowledge of people who own or want to own a house in the future.

Between all participants, there will be a giveaway of 3x 20€ Amazon Vouchers. If you want to be part of the chance to win, put your email address in when asked at the end of the survey. Your email addresses will only be used for choosing a winner and will be deleted afterward.

Thank you very much in advance for your time and help!

Marvin Graf

Introductory questions:

Skip to

End of Survey if No Is Selected

Do you own or do you plan to own a house / property in the future?

○ Yes
○ No

How have you been managing your home until today? (Cost planning, maintenance planning, financing, purchasing of gas/oil/electricity, etc.)

☐ Excel
☐ Paper, Pen & Folder
☐ Multiple Partners
☐ Not at all
☐ No costs tracked
☐ Only tracked costs, when something had to be maintained, I then handled when it occured
☐ Online Tool

Display this question

If How have you been managing your home until today? (Cost planning, maintenance planning, financing...   Online Tool   Is Selected

What is the name of the online tool you have been using to manage your property?

[   ]

Explanation of an asset management tool in a B2C context:

An Asset Management Platform / Property Management Platform is a tool that can be used by individuals to manage their property. The following service would be free to use.

Actions you could possibly do with such a tool:
- Track, analyze and potentially optimize running costs
- Cost comparison for all relevant services around the property
- Store and access data and documents in one single place
- Manage and access contracts of different services around the house, such as insurance, financing, oil/gas, electricity, telecommunication, etc.
- Accessibility to specific news around owning a property such as taxes, changes in policies around insurances, etc.
- Mainenance and budget planning through uploading of BIM data or historical estimations.
- connect homewoners to craftsmen if there is something to renovate at the house
- Alerts on price increases/decreases for oil/gas

All important aspects of owning a home bundled on a single platform.

Demographic questions:

- Select the gender you most identify to
    o Female
    o Male
    o Non-Binary
    o Prefer not to say

- What is your age?
    o Under 18
    o 18-24
    o 25-34
    o 35-44
    o 45-54
    o 55-64
    o 65-74
    o 75-84
    o 85 or older

- What is your current occupation?
    o Student
    o Student worker
    o Employed
    o Unemployed
    o Retired

- What is the highest level of school you have completed or the highest level of degree you received?
    - Less than High School Degree
    - High School Graduate
    - College but no degree
    - Associate degree in college (2 years)
    - Bachelor's degree in college (4 years)
    - Master's degree
    - Doctoral degree
    - Professional degree (JD, MD)

- In which country do you currently reside?
    - List of all countries

Appendix III. HTMT analysis: SPSS AMOS output

	COA	ADO	REC	UFN	VAC	TRU	TBA
COA							
ADO	0.202						
REC	0.042	0.558					
UFN	0.237	0.636	0.274				
VAC	0.220	0.764	0.415	0.903			
TRU	0.197	0.585	0.437	0.452	0.511		
TBA	0.229	0.829	0.495	0.618	0.745	0.638	

Appendix IV. Path analysis: SPSS AMOS output

			Estimate	P-Value
TBA	<---	COA	-0.024	0.550
TBA	<---	VAC	0.736	0.000
TBA	<---	UFN	-0.067	0.539
TBA	<---	TRU	0.298	0.000
ADO	<---	TBA	1.080	0.000
REC	<---	ADO	0.449	0.000

	R^2
TBA	0.687
ADO	0.726
REC	0.297

Appendix V. Lean canvas of casama

Problem (List your top 1-3 problems)	Solution (Outline a possible solution for each problem)	Unique Value Proposition (Single, clear, compelling message that states why you are different and worth paying attention)	Unfair Advantage (Something that cannot easily be bought or copied)	Customer Segments (List your target customers and users)

Homeowners cannot manage their homes through a single platform. Instead, they need to talk to different points of contact to manage all costs, products, and issues around the home.
 	
- No single digitized platform
- Cost analysis is difficult and not efficient
- No efficient way to save money around the home
- Lot of time investment needed
	A platform that enables users to summarize, control, analyze, and change all data around their home with the ability to save money through the comparison of products. Instead of having X suppliers for gas, oil, electricity, telecom, insurance, etc., all can be managed through that platform.
	
	Key Metrics (List the key numbers that tell you how your business is doing)
	
	- Number of users
	- Number of users utilizing the broad variety of tools
	- Time spent on the platform per user
	- Revenue
		A single point of contact for homeowners to manage their property easily so they are able to save time and money as well as organize their homes more efficiently.	- No direct competition until date.
			- Only peripheral competition that is focusing on a single product.
			- As soon as homeowners put in their data to analyze costs there will be a high barrier to taking all the data to another provider.
			
			Channels (List your path to customers (inbound or outbound))
			
			- Initially: Direct contact
			- Further growth: Online
				- Age ranges to focus on:
				  - 25-34 years old
				  - 35-44 years old
				  → Millenials

Cost Structure (List your fixed and variable costs)	Revenue Streams (List your sources of revenue)
- Hours/head to find first clients - Hours/head to analyze and improve their cost structure - Platform, Infrastructure, Domain, etc.	- Comparison Platform – Revenue through affiliate marketing with partner companies of different industries, such as telecom, oil, gas, insurance, financing, etc.