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STRATEGIC DEVELOPMENT, ETHICAL AND LEGAL INTEGRATION OF AI IN
RECRUITMENT: A CASE STUDY OF JOBMATCH IN THE GERMAN GIG ECONOMY

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Abstract

This paper explores JobMatch, an AI startup operating in the recruitment sector in Germany. It covers three key aspects: applying the Business Model Canvas for AI startups, analyzing the evolving EU legal landscape for AI, and building a business case for JobMatch. This work focuses on AI-powered recruitment optimization for Generation Y/Z in the gig economy, ensuring compliance with regulations and ethics. This concept is intended to serve as a guide for AI-centric companies to integrate AI ethically, considering regulatory compliance and ethical standards in their business models for future success.

Keywords

Artificial Intelligence, Biases and Discrimination, Business Model Canvas, Business model, Business Plan, Customer Journey, Data Protection, Digital business, Entrepreneurship, Ethics, EU, Europe, European Commission, European Parliament, Financial modelling, Financial Viability, Forecast, Future of Work, GDPR, Germany, Governance, Innovation, Job Solution, Law, Legislation, Liability and Accountability, Market Opportunity, Market Overview, New product development, Operations, Problem Statement, Recruiter App, Risk, Security, Solution, Startup, Success Factors, Target Group, Value Proposition.

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Abbreviations

AI	Artificial intelligence
EU	European Union
GDPR	General Data Protection Regulation
BDSG	Bundesdatenschutzgesetz
BSI	Bundesamt für Sicherheit in der Informationstechnik
DPO	Data Protection Officer

1. Introduction

1.1. Motivation

From chatbots to robotics and cyber security: Artificial intelligence (AI) is already being used by companies and organizations around the world to optimize processes or gain economic advantages (Wuttke, 2023). Although the history of artificial intelligence dates back well into the last century, AI applications did not reach people's everyday lives until around 2011, for example with voice assistants such as Apple's 'Siri' (Bosch Global, 2018). Since then, scientists have continued to work on the development of artificial intelligence and only recently showed what is possible with the help of the technology. With ChatGPT, the US startup OpenAI has triggered a real hype since its launch in November 2022 (Lenssen, 2023). The chatbot is applicable through voice or text and is especially useful for interactive applications, serving as a wellspring of ideas, inspiration, or assistance in organizing texts beforehand (brisant.de, 2023). In coming years, however, the use of AI systems will not be limited to dialog management: experts are convinced that the intelligent analysis of high volumes of data will lead to innovative and lucrative business models. They also believe that AI will have an important impact on many industries and influence business models (Lenssen, 2023). In order to remain competitive, companies must therefore familiarize themselves with the technology. It can be assumed that technological developments will continue to have a major impact on society - also with regard to the world of work. This strong development in terms of ongoing digitalization - particularly in the environment of work - presents new challenges for employers. The correct and well-founded use of new technologies is proving to be an important factor in being a successful employer (Petry & Jäger, 2021). Conversely, employees must have certain digital skills to be able to assert themselves on the labor market. It is crucial for companies that their employees are able to work with AI-based tools (Chichester & Giffen, 2019). This ongoing digitalization means that companies no longer only use the "classic" analogue application

process when recruiting staff. The "classic" application process consists of application documents in paper form and a personal interview. The suitability of the candidate is determined on the basis of this personal interview. Today, most companies use the digital application process by accepting applications exclusively by e-mail or via forms in their own applicant management system. Applicant management systems are software applications with which the application process can be handled efficiently and in a process-optimized manner (Verhoeven & Goldmann, 2020, p. 9). The higher acceptance of digital applications is due to the cost and time savings for both companies and applicants. The postal route of several days is spared and costs for paper and postage are saved. It is clear that digital applications have already established themselves in most companies (Petry, 2019). This trend towards digitalization goes hand in hand with the increased use of AI in business and working life (Verhoeven & Goldmann, 2020, p. 9). There is an ongoing change in digital communication. Chatbots are already being used on a large number of websites to respond to applicant inquiries. CVs can be read by AI-based systems and entered into applicant management systems. For the "human" recruiter, all that often remains is the final selection of suitable candidates (Petry, 2018, p. 51). Nevertheless, there are always drawbacks to such benefits. These include bias and discrimination in the application process and issues with the use of private data. Hence the legal landscape is trying to ensure safe usage of AI systems. This thesis will explore these instances in more depth.

1.2. Problem Statement

The problem of the time-consuming application process, especially for mini-jobs and temporary work, can be reduced by using AI in innovative software solutions. With the increasing popularity of part-time and mini-jobs in Germany, simplifying the recruitment process is becoming increasingly important (Rabe, 2022). Many people are looking for flexible work for a better work-life balance or as an entry into the labor market (McKinsey Global Institute,

2016). AI integrated into the recruitment process can efficiently match candidate profiles with job offers, provide personalized recommendations, and speed up the hiring process. This technology has the potential to quickly and accurately match numerous vacancies with applicants' needs and qualifications. Considering the legal changes related to mini-jobs, AI-powered job matching can support compliance with fair pay and social protection legislation (Fagan et al., 2014). Startups using AI can optimize the application process and ensure fair pay and social protection for workers, which is crucial in the expanding gig economy in Germany. AI plays an important role in simplifying the recruitment process for short-term, project-based jobs or freelance work that is offered via online platforms and apps.

Following the COVID-19 pandemic, companies are focusing on cost-effective hiring by moving away from face-to-face interviews and on-site assessments due to cost and time constraints (Cox, 2020). This has led to a digital transformation in recruitment and an increasing use of AI to assess applicants (Statista, 2020, Appendix 1). Filling positions quickly is particularly important, especially given the increasing demand for mini-jobs and temporary positions in Germany (Statista, 2022a). Lengthy recruitment processes could trigger or accelerate an economic recession by increasing the number of unfilled vacancies (Statista, 2022b). Sectors such as transportation services, delivery services and the creative industries are particularly affected.

Many people in Germany use online job platforms and apps for temporary work (Deloitte, 2023; Pew Research Center, 2021), where AI simplifies the application process. Workers are looking for diverse work opportunities that meet their needs, contributing to the projected gross volume of the gig economy, which is expected to reach 455.2 billion US dollars in 2023 (Statista, 2022; Appendix 2). This trend allows individuals to have more control over their schedules and sources of income, while employers can manage fluctuations and participate in special projects. To meet the demands of employers and employees in the gig economy, application processes

need to be optimized. AI-based platforms can efficiently match job seekers with temporary positions and thus contribute to a faster matching of supply and demand (Baethge et al., 2019). Studies confirm the continuous increase in online job searches and the use of platforms (Zils, 2014; Statista, 2021, Appendix 3).

The main goal is to simplify the connection between job seekers and companies, especially for temporary work, as manual job searches and applications via multiple channels can be time-consuming. In Germany, despite the widespread use of smartphones for job searches, few apply directly via mobile devices, indicating untapped market demand. Statista (2020) shows that over 90% of job seekers prefer to search for vacancies on mobile devices (96.4% in other companies and 94.1% in IT companies), with over 88% intending to apply via mobile devices (91.1% in other companies and 88.2% in IT companies) (Statista, 2020). The development of mobile-first applications with AI integration could significantly increase efficiency.

In addition to the challenges associated with the integration of artificial intelligence (AI) in recruitment processes AI startups face specific challenges regarding their business models. The Business Model Canvas, a proven tool for visualizing business models, can also be applied to AI startups. However, it is important to note that while the Business Model Canvas can serve as a tool for developing and analyzing business models for various startups, applying it to AI startups requires certain adaptations (Shevnina, 2022). The various segments that lead to business success for AI startups are primarily characterized by digital services, customers and the possibilities offered by the technology. The application of AI decisively shapes the business model of startups. Startups must therefore precisely take into account the unique challenges of AI integration, including data management, model development and ethical considerations. This ensures a targeted analysis and development of successful business models in the context of AI compared to conventional startups.

However, the increasing integration of AI in various areas of our society not only brings

numerous benefits, but also poses significant legal risks and ethical concerns. The application of AI systems is not only used in human resources, but in a wide range of other areas such as healthcare, finance, law and other sectors, leading to challenges in terms of data protection, discrimination, liability and transparency (Barton & Pöppelbuß, 2022).

The use of AI algorithms can lead to unpredictable outcomes that raise legal liability issues. If decisions are made on the basis of AI-based predictions or analyses, liability in the event of errors or biases in the algorithms could present a complex legal issue (Oletzky & Reinhardt, 2022). In this context, there is a risk of violating data protection regulations if AI systems collect and process sensitive personal data without taking appropriate security safeguards. This could lead to non-compliance with data protection laws and potentially result in legal consequences (Vogel, 2022). Another significant risk is the potential for discrimination by AI algorithms. If they are trained on historical data that reflects pre-existing prejudices or inequalities, they could reinforce or reproduce these prejudices and thus lead to discriminatory decisions (Wachter, Mittelstadt et. al., 2021). The above-mentioned legal risks and ethical concerns related to the use of AI technologies are not limited to specific sectors but affect a wide range of applications and services. These challenges urgently require clear and comprehensive regulations to minimize the risks and ensure the responsible use of AI (van Giffen, Borth et. AI, 2020).

To return to the context of recruitment and the labor market, the integration of AI in recruitment processes further exacerbates these challenges. The use of AI for candidate assessment and selection could lead to potentially discriminatory decisions that contradict legal requirements and ethical principles. These dangers emphasize the need for increased regulation, monitoring and further development of AI applications in recruitment to ensure that they are effective, fair, transparent and ethical (Carstensen & Ganz, 2023). Due to the ever changing nature of AI, legal bodies are having issues in keeping up with integrating laws as efficiently hence leading to an increasing gap between legislations and AI ethical usage. Nevertheless, international

government bodies like the EU are working thoroughly on creating a safe legal framework (de Almeida et al., 2021). For example, the EU is proposing an AI Act and Germany wants to integrate specific regulations for their “AI made in Germany” certificate.

Further analysis will focus on how AI startups successfully design their business models using the Business Model Canvas and which unique factors are crucial for success in this industry. The research will highlight the specific requirements and challenges that differentiate AI startups from other industries and how these companies can successfully operate in the fast-paced and innovation-driven AI landscape. Ultimately, further research is needed on all the topics mentioned to be able to assess the impact of such innovations on the labor market and develop them successfully.

2. Objectives

This thesis focuses on the development of a solid business plan for a startup based on AI. The focus is on an in-depth examination of various aspects that highlight the opportunities and potential risks of the widespread use of AI in companies.

The paper starts with a thorough analysis of the opportunities and risks in the widespread use of AI. It then explains the distinct considerations in developing a successful business plan for AI startups versus non-AI companies, highlighting key differences. The Business Model Canvas is used as a tool to outline the practical application at JobMatch.

The following section pays particular attention to managing these risks and the necessary regulatory measures at national and European level. Topics such as unclear liability issues in AI system decisions, data protection issues in sensitive data processing, algorithmic bias and the need for clear legal standards and ethical principles for AI deployment are explored. Ensuring accountability, privacy, fairness and regulatory compliance is critical to increasing trust in AI technologies and minimizing potential legal conflicts. This analysis predicts

potential developments in regulations and laws and their impact on JobMatch's business idea. The third section focuses on the use of AI in the field of recruitment. The innovative business idea of JobMatch is presented, which aims to solve long-lasting recruitment processes. A detailed business plan will be developed, outlining potential solutions to this problem and highlighting the prospects of success through the implementation of this idea. In particular, the recruitment processes for short-term jobs in the German gig economy are analyzed to show how targeted AI approaches can make the application processes more efficient for companies and workers, which could ultimately lead to time and cost savings. This comprehensive investigation considers different perspectives and hypotheses to provide a comprehensive insight into possible solutions and to explore the scope of these innovations.

In recent years, the labor market in Germany has increasingly focused on flexible forms of employment such as mini-jobs and part-time work. This development is reflected in forecasts that show a growing interest in short-term work opportunities and a growing gig economy in Germany (Statista, 2022). Studies by the German Federal Statistical Office indicate robust growth in the app market of around 6.34% (CAGR 2022-2027), which points to continuous expansion and growing demand for innovative work solutions. As early as 2022, mobile apps in Germany generated total sales of around EUR 3.06 billion in 2021. In 2022, this figure rose to 3.43 billion (Statista, 2022). Against this background, the following hypothesis is made:

“The market entry of JobMatch in Germany against the current flourishing labor market and increasing demand for flexible working conditions holds considerable growth potential for the short-term employment sector.”

The hypothesis is based on the assessment that the German market represents a promising environment for the introduction of JobMatch. By targeting mini-jobs, part-time work and the

gig economy, in combination with a thriving app market, it is assumed that JobMatch can make a significant contribution to closing the gap between job seekers and companies. A detailed investigation of this market and the specific needs of the target groups could help to further clarify and validate the market entry and growth potential of JobMatch.

Moreover, the attraction of flexibility in work and the increased interest in short-term and part-time employment, especially among young jobseekers, is now more recognizable than ever (Denzel, 2023). Generations Y and Z are known for their increased affinity for mobile solutions, especially with regard to job search, which is why the following hypothesis can be put forward (Karácsony, Izsák, et al., 2020):

„ Given the attraction of flexibility and the support of Generation Y and Z for mobile job search solutions, JobMatch is expected to experience rapid acceptance and adaptation among young jobseekers and companies in Germany. ”

Given the trend towards temporary and flexible employment opportunities, as well as the increasing importance of mobile applications for job search, the study of user acceptance and adoption of JobMatch is of great importance to gain insights into the potential effectiveness and relevance of this platform in today's labor market. Through this analysis, potential trends, challenges and opportunities for the platform can be uncovered. This can not only deepen the understanding of the effectiveness of JobMatch, but also provide valuable insights for future developments and the optimization of similar platforms.

The integration of artificial intelligence (AI) into the recruitment process is also having a significant impact on the way employees and companies work. It is becoming evident that traditional recruitment methods no longer meet requirements in view of the increasing need for flexibility and adaptability (Dijkkamp, 2019). The following hypothesis has therefore been

formulated:

„The integration of AI in recruitment processes has a significant impact on the way workers and companies work, their flexibility and employment patterns. “

The premise of this hypothesis is based on the observation that the integration of AI into recruitment processes holds enormous potential by increasing the speed, accuracy, and personalization of job placements. In particular, the growing "gig economy" and the trend towards short-term, project-based employment relationships as well as the increasing use of online platforms for job offers underline the need for efficient and agile job placement (Kuhn, Meijerink, et. Al., 2021). It is expected that investigating this hypothesis will not only provide insights into the effectiveness of AI in recruitment, but also highlight potential impacts on the employment landscape and working patterns (Mukherjee & Krishnan, 2022). By analyzing the impact of AI-enabled recruitment technologies on workforce flexibility as well as on the adaptability of companies, a deeper understanding of changes in the labor market could be gained. This could help to develop more effective strategies to improve the recruitment process and enable a more accurate matching of supply and demand in the labor market.

The increasing integration of AI technologies in general is a promising innovation without a doubt. However, it also poses legal and ethical challenges, especially in terms of compliance with laws and regulations (Beck, 2020). Hence, a comprehensive overview and understanding of the current laws and regulations established at the EU level and German national level, with a specific focus on those directly linked to the perils of AI The following hypothesis therefore requires thorough investigation:

„The increasing regulation and governance of AI in the recruitment industry will be a challenge for JobMatch, but at the same time requires the creation of ethical guidelines and compliance measures. “

Given that JobMatch will be founded in Germany, this goal ensures a thorough understanding of the specific legal framework related to AI perils, filling a current gap in available resources. This is critical to ensure that the platform is not only efficient and user-friendly, but also meets ethical guidelines and complies with legal requirements. The hypothesis provides an anchor point for research by pointing out potential problem areas and creating a foundational understanding of the regulatory landscape within the European Union and Germany. It encourages an investigation into the dangers of AI in general and the necessary governmental safeguards and European legislation already in place to understand how JobMatch can meet these requirements while providing innovative solutions for the recruitment sector.

A deep exploration of this hypothesis can also help develop best practices and recommendations for other companies or platforms facing similar recruitment challenges using AI. Ergo, generating a comprehensive report that serves as a blueprint for AI startups and entrepreneurs, outlining all pertinent AI-related regulations and considerations during the founding phase, especially those related to the perils of AI. This aspect is of great importance as it could not only improve the performance and success of JobMatch, but could also contribute to the development of industry standards that promote the acceptance and application of AI in the recruitment sector.

To summarize, this thesis describes the strategic foundation for JobMatch, an innovative AI-driven startup in the German recruitment industry. It navigates the opportunities and risks of AI and outlines a unique business plan. The study predicts significant growth potential within the evolving German labor market, tapping into the technological preferences of Generations

Y and Z. The thesis emphasizes the transformative impact of AI on recruitment and highlights the need for compliance with evolving regulations and ethical standards. It is intended not only to serve as a guide for JobMatch, but also to provide a blueprint for AI-centric companies that promote ethical integration of AI into recruitment. This work not only outlines JobMatch's journey, but provides a course for conscientious AI innovation in recruitment and is a crucial step towards thoughtful and impactful AI integration in the industry.

3. An introduction to the literature

As mentioned above the rapid evolution of AI has ushered in a new era of technological advancement, particularly in the realm of startups. This brief literature review showcases our most important topics which are crucial aspects shaping the success of AI startups, encompassing the adaptation of the business model canvas, pertinent European and German regulations, and their implications on emerging ventures. By navigating these intricacies, we aim to construct a comprehensive business plan for the AI startup JobMatch.

Success Factors of AI Startups: Understanding the success factors inherent in startups and AI startups is paramount for sustained growth and innovation. Literature suggests there are nine main building blocks for the Business Model Canvas which encompass: the value proposition, customer segments, channels, customer relationship, revenue streams, key resources, key activities, key partnerships and cost structure (Osterwalder et al., 2010). The ability to navigate these elements is crucial for AI startups to thrive in a dynamic and competitive landscape. Key literature documents include reports on proven success factors of startups and in depth analysis of the business model canvas.

Adaptation of Business Model Canvas for AI Startups: Traditional business models provide

a framework for success, yet the unique nature of AI startups necessitates adaptation. Drawing on the literature, this thesis explores how elements of the business model canvas, such as value proposition, customer segments, and revenue streams, are uniquely tailored to suit the dynamics of AI enterprises. Special attention is given to considerations like data acquisition, customer knowledge, and the intricacies of delivering AI-driven value.

European and German Regulations on AI with regard to AI dangers: As AI technology advances, so do the regulatory frameworks governing its deployment. European regulations, notably in Germany, play a pivotal role in shaping the ethical and legal landscape for AI startups (Campbell, 2019). This section reviews existing laws, with a focus on GDPR implications, ethical guidelines, and other pertinent regulations shaping the responsible use of AI. Key literature resources include legal documents and proposals by the European Union, European Commission, European Parliament and the Bundesregierung.

Implications of Regulations for AI Startups: While regulations aim to ensure responsible AI practices, they also pose challenges for startups. Given strict data protection and liability laws, startups must exercise caution from the outset, as breaches of these regulations can incur high costs. The literature review delves into the potential implications of these regulations on the operations and strategic directions of AI startups such as JobMatch.

JobMatch - An AI Startup: JobMatch is introduced to ground the exploration, positioning itself to navigate the complex landscape under discussion. By applying insights from the extensive literature review, an examination is conducted to assess how JobMatch aligns with identified success factors and legal considerations, providing a practical lens through which to comprehend theoretical concepts.

JobMatch Business Plan: Building on the insights gained, a concise business plan for JobMatch is constructed. This includes considerations of its unique value proposition, revenue model, target market, customer journey and strategies for compliance with relevant regulations. The business plan serves as a tangible application of the theoretical insights garnered from the literature review. Furthermore, it serves as a blueprint for other AI startups in the future.

This literature review synthesizes current knowledge on the success factors of AI startups, the adaptation of the business model canvas, and the regulatory landscape in Europe and Germany. By applying these insights to a real-world scenario with JobMatch, we bridge the gap between theory and practice, providing a comprehensive foundation for understanding and navigating the multifaceted challenges and opportunities in the AI startup ecosystem.

4. Methodology

The methodology used in this thesis includes a comprehensive and extensive search of various academic databases, legal documents, and market analyses. The primary objective is to discern the success factors, potential perils and legal dimensions associated with artificial intelligence (AI), with the ultimate goal of formulating a robust business plan for the AI startup, JobMatch. This investigative approach involves a conscientious examination of existing literature, industry reports, and legal frameworks to extract valuable insights crucial for guiding the strategic development of the AI venture.

The research design is anchored in the synthesis and analysis of existing studies conducted by scholars and experts in the AI field. By aggregating and scrutinizing this knowledge, the thesis aims to make a meaningful contribution to the existing body of research, fostering a comprehensive and holistic understanding of the current state of AI knowledge. Through this process, the research endeavors to identify key trends, challenges, and opportunities that will

inform the strategic decision-making processes crucial for the success of JobMatch in the dynamic landscape of artificial intelligence. The search strategy utilized for this work includes the following keywords and search terms: “Artificial Intelligence”, “Business Model Canvas”, “Success Factors”, “Legislation”, “Law”, “Germany”, “EU”, “Europe”, “European Parliament”, “European Commission”, “GDPR”, “Data Protection”, “Regulations”, “Biases and “Discrimination”, “Liability and Accountability”, Security, “Ethics”, “Risk”, “Governance”, “Financial Forecast”, “Entrepreneurship”, “Forecast”, “Future of work”, “Digital business”, “New product development”, “Financial Viability”

4.1. Selection Criteria

Selection criteria for relevant literature are explicitly defined, encompassing research articles, market analyses, surveys, and legal documents focusing on AI. Specific inclusion and exclusion criteria are established to ensure the quality, importance and relevance of the selected literature. The inclusion criteria consist of up-to-date articles encompassing a broad range of AI topics to formulate a comprehensive view to answer the above mentioned hypotheses. Specifically for legal documents, an inclusion criterion is that the articles considered should not be older than five years. Similarly, the data used for the market analyses for the potential of JobMatch is not older than five years to assure accuracy. This criterion is implemented to uphold the accuracy of the provided data and ensure the relevance of the contributions made. Exclusion criteria are studies that did not focus on AI, startups, or current digital legislations.

4.2. Primary method of data collection

The primary method of data collection involves a thorough review and analysis of existing studies, surveys, and documents pertaining to AI success, challenges, and implications for startups with regard to legal significance. These include research from the European Parliament, European Commission, McKinsey, Statista, and analysts in the artificial intelligence field. The literature is systematically categorized into themes such as success factors for AI startups,

European laws to combat the dangers of AI and the business plan of the startup JobMatch. Utilizing a qualitative synthesis approach, such as thematic analysis and content analysis, this study aims to identify patterns, trends and contribute new findings and recommendations to the existing body of research.

The findings have been synthesized and structured by subtopic to provide a comprehensive overview of the present research status regarding the subject. takes into account investigations from diverse research fields, including economics, psychology, sociology, computer science, and management.

4.3. Ethical Consideration

Ethical considerations are paramount throughout the review process, emphasizing the responsibility to accurately represent and cite the work of other researchers. Proper citation and referencing are integrated into the literature review to uphold academic integrity. To strengthen the validity of the findings, a triangulation approach is applied, such as cross-verifying information from different sources. This method allows for the identification of areas of consensus and divergence within the existing literature

Reflection on the implications of the synthesized findings for the AI industry and the establishment of a startup is integral to the methodology. This includes considerations of how legal insights derived from existing research can be applied to the strategic and operational aspects of the startup venture JobMatch. Furthermore, the insights gained from identifying success factors will not only establish foundational objectives for any AI startup but will be particularly crucial for optimizing Job Match's launch.

In conclusion, the methodology underscores the importance of a rigorous literature review process, providing a foundation for understanding AI success, challenges, legal considerations and creating a prosperous business plan.

5. Definitions

This chapter serves to clarify and define basic terms in order to create a basis for a coherent understanding in the following chapters. It aims to create a standardized understanding of key concepts that will enable the reader to have a consistent understanding in the following sections.

5.1. Artificial Intelligence

Although AI has emerged as a hot topic in all areas of society and the economy in recent years, there is still no standardized or generally applicable definition for the term. However, there are many definitions that are intended to illustrate AI. One of the first definitions stems from John McCarthy, who is considered one of the pioneers of artificial intelligence and in 1955 described AI as the goal of developing machines that act as if they possessed intelligence (Ertel, 2016, p. 1).

This is where the component of comparability and approximation to human intelligence comes into play. A special feature of human intelligence is the ability to adapt to environmental conditions by learning and adapting behavior. This ability distinguishes human intelligence significantly from machine intelligence (Ertel, 2016, p. 2). Machine learning, as a sub-area of AI, will also be discussed later in this section. Basically, it is about understanding the mechanisms of thinking and intelligent behavior and implementing this ability in machines. The model for the development of intelligent systems is human decision-making and rational action (Castro & New, 2016).

Another pioneer in this field is the mathematician Alan Turing, who developed the Turing test in the 1950s. This test was designed to check whether a machine was able to think independently by having a test person communicate in writing with a human and a machine. The test person then had to judge which chat partner they thought was the human. The machine passed the test if at least 30 percent of the test subjects thought the machine was the human chat partner. To date, no program has successfully passed this test. So if the Turing test is used as

the basis for defining intelligent behavior of systems behavior of systems, it should be noted that there is still no machine that is on par with human thinking ability (Ertel, 2016, pp. 4–8).

Stanford University's definition, which describes AI as a scientific field and computer technology inspired by how humans use their own nervous system and body for perception, learning, reasoning, and performing actions, also tends in this direction (Stone et al., 2016).

The research and further development of intelligent processes and neural networks draws on knowledge from brain research and cognitive science (Ertel, 2016, p. 3).

5.1.1. Differentiations within Artificial Intelligence

One of the most common differentiations focuses on the following three types of artificial intelligence, also based on human intelligence (Kreutzer & Sirrenberg, 2019, p. 20):

1. Weak artificial intelligence
2. Strong artificial intelligence
3. Super artificial intelligence

Weak AI is constrained to executing a task, reaching at least a human-level proficiency, like engaging in chess, furnishing customer information, or real-time analysis of several data records. The emphasis lies not in mimicking human capabilities but in addressing complex problems. Problem solving goes beyond human cognition and physical capabilities. Strong artificial intelligence, on the other hand, enables technology to optimize and overtake human capabilities. Above all, the ability to self-learn means that the trend is increasingly moving towards strong intelligence. This ability to learn by itself means that a system can grow its knowledge without outside help, using experience data, its own observations, and conclusions. This enhances its ability to solve problems. This skill is expected to lead to a super artificial intelligence that goes beyond the limits of human thought, emotion and action. The human brain would undergo significant improvement, greatly boosting human performance. Linked to this progress is the concept of transhumanism, which involves extending human biology with the assistance of computers. One example of this is the use of prostheses, which enable the

augmentation of impaired body parts and the replacement of destroyed functions using neurotechnological implants. To date, the majority of intelligent systems can be classified as weak intelligence (Kreutzer & Sirrenberg, 2019, p. 20).

5.1.2. Performance components of artificial intelligence

Kreutzer defines the areas AI, neural networks, machine learning and deep learning as performance components of AI (Kreutzer & Sirrenberg, 2019, p. 21).

5.1.2.1. *Neural network*

In order to understand AI, it is essential to deal with one of the most important elements of AI, neural networks. Neural networks consist of three different components, the training data, a model and an algorithm. Hence, the algorithm is able to train the model to eventually decode the patterns in the data. The aim is to imitate the function of a biological system. The term comes from neuroscience, where a neural network is seen as a link between neurons that serve specific functions within the nervous system (Kreutzer & Sirrenberg, 2019, p. 4). Artificial neural networks are based on the organizational principles and processes of biological neural networks and model them using mathematical formulas. Both biological and artificial neurons have the task of receiving, processing and forwarding information (Petry & Jäger, 2021, p. 226). A key feature of neural networks is that information processing is not linear. By connecting the neurons and the special function of processing, parallel processing takes place. Enabling the depiction of complex relationships within the original information, it becomes crucial for neural networks to independently acquire an understanding of these connections. Facilitated by experiential data, commonly referred to as training data, the systems are nourished. A neural network consists of several layers, whereby only the input layer contains raw data. Each subsequent layer is fed with the output from the preceding layer rather than the original data. The AI system gains insights from each transition between layers. The final year, known as the output layer, produces the result's output. The system therefore trains itself in the course of using the original data and rules. This process is known as machine learning (Kreutzer

& Sirrenberg, 2019, p. 4).

5.1.2.2. Machine Learning and Deep Learning

Learning algorithms are the base of AI. Machine learning therefore involves the use of algorithms (so-called self-adaptive algorithms) that are capable of self-improvement and are therefore able to learn independently without further configuration by programmers. This requires high volumes of data (so-called big data) that is of high quality and serves as training material. The learning process takes place using training data that is fed into the system. Input data is then used to review and improve the basis for decision-making. Feedback data should enable a further improvement in performance with regard to experience already gained (Kreutzer & Sirrenberg, 2019, p. 6). The more training data there is, the better it is. For example, facial recognition software optimizes itself when thousands of faces are presented from different angles with different facial expressions. The system arrives at increasingly reliable statements and each new input is an additional learning factor (Petry & Jäger, 2021, p. 228). Deep learning refers to a special form of neural networks and is to be understood as a subset of machine learning. AI systems have the capacity to handle a more extensive array of data resources, diminishing the requirement for substantial initial data preparation by humans. Moreover, frequently, more precise outcomes can be provided compared to traditional machine learning procedures. “Deep” indicates the significant number of layers in the neural network. (Kreutzer & Sirrenberg, 2019, p. 5).

In the process of deep learning, specific networks are established to capture extensive input data and analyze it through multiple layers. Optimization occurs through even more expansive internal structures within the neural networks, identifying deep patterns and deep patterns and connections that tie together the present data points. The AI system learns from its own encounters and has the capability to associate fresh input data with the already existing data. The machine progressively learns to construct complex concepts from more simple components. (Kreutzer & Sirrenberg, 2019, p. 8).

5.2. Recruitment

Recruitment is the process of actively identifying, attracting, evaluating and hiring qualified individuals for open positions in a company. It includes various steps aimed at finding, screening, interviewing and selecting candidates who have the necessary skills, qualifications and characteristics to fulfill specific roles within the company. Types of recruitment include:

- **Internal recruitment:** this involves filling vacancies with people already working in the company. This can include promotions, transfers or lateral hires.
- **External recruitment:** Focuses on sourcing candidates from outside the company. This includes methods such as advertising vacancies, using recruitment agencies, job fairs and employee referrals (Sarwary, Faizi; et. al., 2022).
- **Online recruitment:** This type of recruitment uses the internet and digital technologies to attract and hire candidates (Hangartner, Kopp; et. al. 2021). It includes various strategies, such as:
 - **Job boards:** Platforms where companies advertise vacancies and individuals can apply directly online. Examples include Indeed, LinkedIn, Monster and Glassdoor (Zhao, von Delft; et. al., 2020).
 - **Company websites:** Companies often advertise vacancies on their websites and allow applicants to apply directly via the careers page of the website
 - **Social media:** Use of social platforms such as LinkedIn, Facebook, Twitter and Instagram for job postings, networking and contact with potential applicants.
 - **Online networking:** Integration into professional networks and forums to find suitable candidates and advertise vacancies.
 - **Applicant Tracking Systems (ATS):** Software used by companies to manage the hiring process, including receiving applications, reviewing resumes and tracking candidate progress (Kroll, Veit; et. al., 2021).

Online recruitment has revolutionized the hiring process by making it more accessible, efficient and cost-effective. It allows employers to reach a larger pool of applicants, facilitates faster communication between recruiters and candidates, and streamlines the application and selection process. Finally, recruitment methods can vary depending on the needs of the company, the industry and the resources available. Employers often use a combination of internal and external recruitment methods and use online platforms to target and engage with potential candidates (Piwowar-Sulej, Wawak; et. al., 2023).

5.3. Gig-economy

The gig economy is the essence of a modern working world in which short-term, flexible working relationships take center stage. In this environment, individuals - called gig workers - perform temporary or project-based jobs that are largely facilitated by digital platforms or mobile applications. These platforms act as facilitators, matching these workers with clients or customers looking for specific services or tasks (Konrad & Pekruhl, 2017).

One of the most important aspects is the incomparable flexibility it offers. Gig workers can set their own schedules and choose jobs that suit their preferences and lifestyle, allowing for a better work-life balance (Zölch, Oertig; et. al., 2023). Technology is at the heart of the gig economy: digital platforms such as Uber, Airbnb, Upwork and TaskRabbit play a central role by seamlessly bringing service providers and consumers together. These platforms streamline transactions and communication, creating a streamlined way to get work done. Gig workers are typically classified as independent contractors or freelancers, which means they are responsible for their own taxes, insurance and benefits. However, they often do not have the traditional benefits of employment such as health insurance, retirement plans or paid vacation (Plöger & Keuneke, 2021). The gig economy encompasses a wide range of services, from transportation services (e.g. ride-sharing) and food delivery to freelance work in areas such as writing, graphic design, programming and consulting. These jobs are often offered on an on-demand basis to

meet immediate needs and provide convenience to consumers. This phenomenon is not limited by geographic boundaries. It is global and allows individuals to work across borders and organize work remotely. This opens up the possibility for companies to access a larger talent pool and provides opportunities for remote working (Crouch, 2019).

Nevertheless, the gig economy faces criticism and challenges. Gig workers are often affected by job insecurity as they do not have stable, long-term employment. They often do not enjoy the benefits and protection that regular employees enjoy. Critics also argue that the lack of labor protections in this model could lead to worker exploitation. The impact of the gig economy is profound. It is changing traditional work structures and giving rise to discussions about labor regulations and social protections in response to the rapidly changing nature of work (Behl, Rajagopal; et. al., 2022).

5.4. Startups

Startups are innovative and dynamic companies that strive to bring groundbreaking solutions, products or services to the market. They are characterized by their affinity for disruptive innovation and aim to address specific market gaps or unmet needs in unconventional ways. These companies embody the entrepreneurial spirit and are driven by the passion and vision of their founders to make a difference in their respective industries (Horne & Fichter, 2022).

5.4.1. Key characteristics of startups

As innovative companies, startups have certain characteristics that make them stand out in the corporate landscape. These defining characteristics include their operational style and their approach to creating transformative solutions. Understanding these key attributes provides insights into the dynamic nature and unique essence of startups on the road to success.

Innovation and problem-solving form the basis of every startup. They thrive on new ideas and unconventional strategies that aim to overcome existing challenges or fulfill unmet needs. This relentless pursuit of innovation drives startups to offer unique, innovative solutions that

outshine existing alternatives. Agile working and adaptability are the foundation of startups. In a fast-moving, constantly evolving ecosystem, startups show remarkable flexibility (Cuntz & Peuckert, 2023). They respond quickly to market feedback, adapt to change and overcome unforeseen obstacles. This agility allows them to change their strategies or adapt their offering in real time to changing market demands. Risk and uncertainty play a major role in the startup landscape. These companies operate in a terrain full of uncertainties, including aspects such as market acceptance, revenue generation, competition and scalability. Success depends on the ability of founders and teams to take calculated risks while effectively managing and mitigating these inherent uncertainties. Entrepreneurial leadership is a hallmark of startups. Visionary entrepreneurs are at the head of these ventures (Weber, Beutter; et. al., 2022).

5.4.2. Operational aspects and cultural dynamics

Operational aspects play a fundamental role in the development of startups and determine their path to success and their resilience in competition. One of the most important aspects for startups is securing initial funding. This financial support, which comes through various channels such as personal savings, angel investors, venture capitalists or crowdfunding platforms, is the lifeblood that fuels growth, facilitates product development, enables talent acquisition and facilitates the expansion of market reach (Sreenivasan & Suresh, 2023). Equally crucial is the emphasis on scalability and efficiency in startups. Smart startups strategically develop their business models with scalability in mind and aim for rapid expansion while skillfully managing their resources. By leveraging technology and pioneering processes, these companies organize their operations to scale efficiently and avoid disproportionate cost increases despite significant growth (Joseph, Aboobaker & KA, 2023).

Also, the cultural dynamics are a fundamental part of the startup ecosystem. Startups cultivate a vibrant and distinctive corporate culture that emphasizes innovation, collaboration, flexibility and a penchant for challenging traditional norms. These companies often operate as close-knit teams that share a common culture (Cockayne, 2019)

5.4.3. Challenges and potential outcome

Startups, despite their promise of innovation and growth, face significant challenges on their path to success (Trautwein, 2021). These challenges come in various forms: strong competition, financial constraints, market saturation, complex regulations and the constant need to present their value proposition. While a few startups manage to rise and become pioneers in their industry, a significant number of them struggle to achieve sustainable growth or profitability. Generally, startups stand for innovation, agility and risk-taking with the aim of revolutionizing industries and tackling critical problems. Their journey is characterized by resilience, adaptability and the pursuit of breakthrough ideas that have the potential to redefine the market landscape (Wiesenberg, Godulla, et al., 2020). These challenges underscore the dynamic and demanding environment in which startups operate, shaping their strategies and resilience as they strive for success.

6. Artificial Intelligence-driven Recruitment in the Gig Economy: Pricing, Roll-out Strategy, and Financial Insights on the example of Job Match

By Moritz Tim Kindermann

6.1. Pricing Strategy

After that, employers will pay a fee per post, with the option to purchase bundles and featured ads.

In the dynamic landscape of short-term and gig-economy recruitment, JobMatch emerges as a disruptive solution, revolutionizing the traditional hiring process. The platform's strategy focuses on quickly building a large user base, recognizing that its attractiveness hinges on the number of active employers and employees. This is crucial because the platform's value increases as more users join – employers have a wider selection of candidates, and job seekers have more opportunities.

To capitalize on these network effects and encourage widespread adoption, JobMatch adopts a low barrier to entry. For employees, the app will be free, aligning with the goal of rapid user acquisition. This free access is anticipated to drive high trial rates, making it easier for employees to join and explore the platform. However, to enhance their visibility and appeal to potential employers, employees can opt for additional paid services that promote or enhance their profiles.

Employers, on the other hand, are introduced to JobMatch with a compelling offer: the first job posting is free. This initial free access allows employers to experience the platform's benefits without upfront costs. Subsequently, a fee-based structure is implemented for job postings. Employers can choose from individual post fees or opt for cost-effective bundles and featured ads, offering flexibility and scalability based on their recruitment needs.

The revenue model of JobMatch is multi-faceted:

1. **Freemium Model:** This approach, with free registration for applicants and a free first

job posting for companies, lowers the initial barriers for both parties. The model then transitions to paid premium features, allowing JobMatch to generate revenue while providing value-added services.

2. **Subscription-Based Models:** JobMatch offers optional premium subscriptions for both job seekers and employers. These subscriptions provide additional features, improved visibility, and enhanced user experience, catering to the more dedicated and frequent users of the platform.
3. **Advertising Revenue:** The platform also explores revenue generation through paid advertisements at a later stage. This not only serves as an additional income stream but also offers relevant services and products to its user base.
4. **Advertising Revenue:** The platform also explores revenue generation through paid advertisements at a later stage. This not only serves as an additional income stream but also offers relevant services and products to its user base.

In terms of cost structure, JobMatch invests in:

1. **Development and Maintenance:** Significant resources are allocated to platform development, IT infrastructure, and ongoing improvements to ensure a seamless user experience.
2. **Personnel:** A dedicated team in areas like development, marketing, and customer service is crucial for the platform's success, entailing substantial salary costs.
3. **Advertising and Marketing:** A robust budget for both online and offline advertising campaigns is essential to build brand awareness and attract users to the platform.
4. **Operating Costs:** Regular expenses such as hosting, security, and other operational costs are key components of the cost structure.

In summary, JobMatch's pricing strategy is designed to quickly build a robust user base by minimizing entry barriers and offering value-added paid services. This approach, coupled with

a diverse revenue stream and a well-planned cost structure, positions JobMatch as a viable and competitive player in the gig economy recruitment space.

6.1.1. Employer Pricing

In order to provide companies and employers with the most attractive pricing model possible, posts on JobMatch are offered in packages. Specifically, one post costs 79 € to purchase. Another 10 packages cost 719 € and 50 posts 3,699 €, whereas 100 posts cost 7,499 €, which is the biggest discount. (Appendix 26: Customers) The aim of the discount is to generate traffic and to keep the price-performance ratio as attractive as possible, especially during the initial establishment phase. Our price range is positioned below the average of competitors with a similar pricing model, to acquire new customers as quickly as possible. (Glassdoor, 2019) The post remains visible in a running time of 4 weeks on the platform - an adjustment of this period later integrated. For relevant jobs, which should be filled as quickly as possible, a so-called boost function is integrated, which is somewhat more expensive in the price segment. While restaurants and cafés usually only need a few (one to two) posts, factory or warehouse positions are usually sought in a more extensive number - and several posts are therefore sought - at regular intervals.

6.1.2. Employee Pricing

The price and offer should also be made as attractive as possible for job seekers. This is achieved by being free of charge. But there will be a possibility to upgrade to monthly premium memberships that the job seeker can purchase for 2.99 €. (Appendix 28: Customers) Premium members have the option to boost their profiles, use advanced filters and search options as well as personalized job alerts. This is increasing their possibilities the perfect potential employers. The employee price model is kept the same during the initial launch phase and can be further expanded at a later stage. Additional access to exclusive resources, such as online courses, webinars, or workshops that can help them enhance their skills and improve their marketability, is to be mentioned as an example.

6.2. Roll-out / Go-to-Market

In this chapter, we unfold JobMatch's business plan, systematically segmented into short, mid, and long-term milestones. This structured approach allows for a clear roadmap of the company's strategic development and growth objectives over time.

6.2.1. Short-term – 2024

In the first six months, we are going to build the JobMatch Minimum Viable Product (MVP), which requires significant funding before launching. (Appendix 31: P&L) Our pre-seed funding will be consisting of the founders' own funds, followed by the seed funding of €1.5 Mio. In the beginning, it is critical to establish strong partnerships with two or three core customers in the gig economy that can give us continuous feedback on the MVP. These exchanges will allow us to increase our sales and build a user-friendly operable recruiting application. In the following 12 months, our marketing efforts will be focused on the Berlin metropolitan area. (Appendix 20: Marketing roll-out (first 6 months)) We will be outsourcing the application development for year 2024, later in fiscal year 2025 app management and development will be taken over by our IT department. Furthermore, marketing and sales are key factors in order to succeed in the first 6 months, therefore we will allocate a marketing agency budget in 2023. (Appendix 31: P&L) Consecutively, JobMatch will be promoted mainly via social media and search engine marketing. Furthermore, we will be acquiring advertising on public transport in Berlin to gain brand awareness in a bright local target group. (Statista, 2023)

6.2.2. Mid-term: Achieving Product-Market-Fit – 2025/2026

After a successful test phase and launch of the mentioned MVP, JobMatch wants to become aware of its product market fit. Looking at our marketing costs in 2025, the investments around social media advertising will be doubled from April to further increase awareness and registration numbers. Costs around billboard and search engine advertising will remain the same for now. (Appendix 20: Marketing roll-out (first 6 months))

With the data results from the first test phase, JobMatch will further strengthen its marketing

measures and expenditures. The soft launch in 2024 can be seen as the first test phase. To launch the business model effectively, especially at the beginning, it is essential that the awareness and satisfaction with JobMatch is spread further to increase its user rate both on the corporate client and the job seekers side. We must create a fast customer acquisition by means of an aggressive marketing strategy over the first years. (Appendix 21: Marketing (full 5 years)) At this point the product needs to be mature enough to satisfy our new customers, so we can create a loyal customer basis, which refers JobMatch to friends and colleagues. Also, JobMatch is increasing the number of employees - especially on the strategic and operational side - to save costs and make a profit. According to this, the staffing number will be tripled to 6 employees in 2024. (Appendix 22: Staffing) JobMatch will also count on cheap interns and working students as a cost saving strategy and effective channel for talent acquisition.

6.2.3. Long-term – Months – 2027/onwards

After achieving our short- and mid-term objectives, we plan to be cash flow positive by 2027. (Appendix 26: Cashflow) We aim to start scaling our business to gain the position of first movers in business and expand into the wider German market - more precisely the urban area of Munich. After this, we aim to extend our marketing into the cities with the largest workforce population, such as Düsseldorf, Frankfurt and Stuttgart. After this we will steadily expand into the rest of Germany. In this phase, we expect to have gained considerable user base of minimum 100.000 Users in 2028 with over 10.000 open job listings by 2028. (Appendix 25: Revenue Streams)

6.3. Financials

This section of the thesis presents an in-depth examination of JobMatch's financial model. Accompanied by detailed financial documentation, it offers a critical analysis of the startup's revenue streams, cost structures, and profitability projections. This analysis is essential in assessing the viability and long-term financial health of JobMatch in the AI-driven recruitment

market.

6.3.1. Assumptions

In the absence of reliable data sources, we used industry statistics and projections as a basis. The calculations are based on assumptions, taking market research and additional variables into account:

1. The serviceable market (company side) is composed of all companies using short-term workers, which are 45% of all companies existing in Germany, making up to 1,514,062 companies. (Appendix 34: Marketsize)
2. The serviceable market (employee side) is an approximate calculation, mainly relying on the part of the total German workforce that is made up of temporary employees and self-employed workers and the share of the German population that lives in the three main Urban areas of Berlin, Munich and Hamburg, with this, there are SOM is assumed to be 322.038 workers. (Appendix 34: Marketsize)
3. Based on current market figures and considering the varying capacity of part- and full-time gig jobbers, it is assumed that a gig jobber performs on average 6 gig jobs per year.
4. Newly acquired customers are multiplied by 1.20 to consider a word-to-mouth impact on sales of 20%. (Appendix 21: Marketing (full 5 years))

6.3.2. Costs

This section investigates the cost structure of JobMatch, providing a detailed breakdown of both fixed and variable costs associated with the business. Through an analysis of these cost categories, we gain insights into the financial foundations essential for the successful operation and scalability of JobMatch.

6.3.2.1. Fixed Costs

For JobMatch several cost factors are important. Fixed costs are already incurred before the app launches in FY 25. The key positions accounting for the initial costs are made up of the

development of the app and website, salaries for the CEO and CFO, who are the founding members of JobMatch and are going to pay themselves wages a bit below industry average. Additionally, the registration of the business is causing costs before the launch of the app as well. (Appendix 24: Fixed Costs (excl. Salaries))

In the following four consecutive fiscal years, fixed costs can be clustered into the following: app & website development, founding, launch & legal costs, rent, salaries and other costs. (Appendix 30: Cost structure) While the first four cost blocks are of relatively equal size, HR costs account for 33% of the total costs. JobMatch is consisting of 21 employees by the end of fiscal year 2029, with its staff being a crucial part in the value creation, especially the IT-developers and the marketing staff. Salaries are calculated based on industry averages (except for the two founding member's salaries) and are multiplied by 1.4 due to regulatory required social expenses of 40% in Germany. (Appendix 22: Staffing)

6.3.2.2. Variable Costs

JobMatch's variable costs are solely composed of Marketing and Sales costs. To get attention and awareness for the new JobMatch service and to acquire new customers, JobMatch invests massively in Marketing and Sales. JobMatch's marketing activities are focused on Germany's three biggest cities: Berlin, Munich and Hamburg, starting with Berlin for its launch. Therefore billboards, being the only offline marketing action, named "Billboards", targeting Users, represent the highest spendings over the 5 fiscal years amounting to a total of 4.2 million € by the end of year 5. (Appendix 21: Marketing (full 5 years)) This measure of offline marketing is expensive compared to online measures; however, it serves to achieve increased general awareness of JobMatch outside of our key target groups and will hence incur customers that might not have been targeted otherwise. Secondly, marketing spends on social media are used to reach customers on Instagram, TikTok, and LinkedIn and amount to a total of almost 1.7 million € spent by year 5. Lastly, Search Engine advertisement amounts to around 1.2 million €. (Appendix 21: Marketing (full 5 years)) In total, Marketing and Sales costs make up 55% of

the total costs. (Appendix 30: Cost structure)

6.3.3. Revenue Evolution

JobMatch's revenue is mainly driven by our customer segment “employers”. This customer segment accounts for 92% of revenues. With decreasing CACs, our money spent on marketing leads to increasing customers, bringing in more revenue. Starting with revenues of 669.103€ in fiscal year 2025, JobMatch will achieve a revenue of 8,9 Mio. € by the end of FY 29. The evolution of revenue and costs will allow JobMatch to break even by FY 28, so 3 years after starting its operations. (Appendix 25: Revenue Streams)

6.3.4. Key Performance Indicators

Several KPIs are calculated and tracked as we conduct our business and value creation to ensure sustainable, long-term growth and to monitor our firm's financial performance. Over time, process performance metrics and sales metrics will be increasingly important to be considered in JobMatch's operations.

Retention Rate & Customer Churn Rate: Retaining customers is generally more cost-effective than acquiring new ones, making a solid retention rate vital for business sustainability. For newly launched mobile apps, like our platform, industry benchmarks suggest a typical retention rate hovers around 20% after 90 days (Localytics, 2017). Given the nature that the app is for free and employees often engage in short-term jobs, we anticipate a lower churn rate on the employee side. Consequently, we project an average retention rate of around 40% for the free service, which seems high in the first place, but even out at 25%. (Appendix 28: Customers)

On the employer side, retention rates are expected to be around 23% on average. We assume it's above the benchmark due to the recurrent nature of businesses hiring gig workers to address fluctuating staffing needs. Companies often engage in repeated transactions to fill temporary workforce gaps, leading to a stable user base on the employer side. (Appendix 28: Customers)

To address both dynamics, we propose a dual strategy. For employees, focusing on engagement through regular updates and new feature rollouts can help maintain interest. For employers, offering loyalty incentives and streamlined hiring processes can enhance retention. By implementing these strategies, we aim to optimize our retention rates within the expected industry norms..

Customer Acquisition Cost (CAC): CACs will be higher in the first years with the acquisition of new customers requiring larger investments in marketing. The branding and overall awareness of JobMatch must yet be built up, however, with an continuously increasing awareness of JobMatch will lead to lower CACs. Specifically, they will decrease from 30€ CACs in FY 24 (total average) to 25€ (total average) in FY 28, with employer customers being substantially more expansive than employee customers due to higher targeting costs. (Appendix 21: Marketing (full 5 years))

Revenue Growth Rate: The projected revenue growth rate for JobMatch is set to be rapid in its initial phase, with an expectation to double revenues in the first year – a 100% growth rate that showcases the platform's immediate impact and market fit. This remarkable upsurge is anticipated to continue, maintaining an average of 90% in the subsequent four years. The underlying drivers of this sustained, steep increase include aggressive expansion efforts and a strategic rollout. Beginning with Berlin, where brand visibility is crucial, JobMatch plans to establish a solid customer base. This success is then expected to ripple out to other major cities like Hamburg and Munich, where similar growth tactics will recruit new customers and broaden the platform's reach. These strategic moves, tapping into Germany's major economic hubs, aim to ensure that JobMatch not only captures but also retains a significant share of the market, reinforcing its rapid ascent in the competitive landscape of recruitment platforms. (Appendix 27: Growth Rates)

6.3.5. Profitability

After burning money in its first years, JobMatch will turn profitable in FY 27, 2 years after starting its operations in FY 25 and 4 years after launching its services and will have earned back its losses during FY 28, achieving a surplus of 638,418€ as cumulated profit. (Appendix 31: P&L)

As mentioned, the break-even point will be in FY 27, JobMatch will achieve this by continued spendings in effective marketing measures to recruit new customers, that will account for growing revenues and eventually overtake the expenses. Due to a lean operating structure, with only one office and an easily replicable roll-out strategy, JobMatch will remain and even increase its profitability and gain importance as the app for temporary and gig job searches on employer and employee side. The app is scalable to other geographies without any further major investments needed, other than regular maintenance of its app. Hence, while new geographies account for significantly more customers and revenue streams, the costs do not increase at the same pace and economies of scale hit in. This nature aligns with the growing hockey stick curve observed in the Cumulative Cashflow graph, indicating that JobMatch possesses the potential to achieve 'Unicorn' status in its industry. (Appendix 29: Cumulative Cashflow)

6.3.6. Cashflow

In the early phases, JobMatch's cash flow narrative is shaped by substantial upfront investments required for the development of the app and website, as well as the foundational expenses associated with establishing and registering the business. This initial period is marked by a negative cash flow, reflecting the absence of operational revenues.

As JobMatch enters FY 25, it encounters its inaugural revenue streams. Despite this financial milestone, the cumulative cash flow continues to deepen into the negative territory. This is due to the fact that the first influx of revenues is relatively modest and overshadowed by significant expenditures, particularly marketing costs aimed at establishing market presence.

Moving beyond FY 25, we observe a gradual amelioration of the cash flow situation. Each

successive year, the deficit in the cumulative cash flow diminishes, leading up to FY 28 when the cash flow is projected to pivot into the positive. This shift is attributed to revenues that are increasing at a more rapid rate than costs.

A notable turning point for JobMatch is forecasted for FY 27, where the operationally separate cash flows are expected to turn positive, ahead of the cumulative cash flow. This positive change is driven by the rising revenues, which are expected to surge ahead despite the concurrent increases in costs. These costs are associated with the expansion of the team and the enhancement of marketing efforts, which are strategic moves to amplify customer growth and extend the reach of JobMatch into new cities. The anticipation is that the growth rate of revenues will surpass these escalating costs, setting JobMatch on a path to financial sustainability and paving the way for the company to reach its potential as a market leader in the gig economy recruitment sector. (Appendix 26: Cashflow)

7. Limitations

There are various limitations that restrict the work. The first of these is the limited availability of literature that relates exclusively to artificial intelligence in the context of startups. A wider range of literature was found when referring to digital startups. This can lead to a lack of clarity, as it was partly inferred from digital startups to AI.

Furthermore, it is difficult to generalize success factors for AI startups because there are always individual challenges and circumstances that can only be applied to different contexts to a limited extent. In addition, the complexity of technologies and markets makes it difficult to generate a standardized solution approach.

Another relevant aspect is that some parts of this study are solely based on German literature, as the German market is the focus of the investigation. This could limit the transferability of the results to international contexts. The identification of success factors for AI startups should

therefore be viewed with caution, especially if the aim is to apply them to other countries or more global markets. Generalizing the results could be challenging due to the specific circumstances and dynamics in different markets.

While there exists a rich and rapidly expanding body of scholarship on AI, the scarcity of literature focused on European AI governance explicitly Germanys AI policies pose limitations in the research. Most importantly due to the ever evolving nature of AI, it is challenging for policies and legislations to keep up, thus finding the most recent laws passed is strenuous. Consequently, this means that after this thesis is published existing laws might have changed or there might be new legislations in place.

Developing the business plan for JobMatch presented unique challenges. One primary limitation was Market Predictability. The fluctuating nature of the gig economy, coupled with rapid AI advancements, makes it difficult to forecast market trends reliably. This volatility directly impacts our ability to accurately predict user behavior and demand, which are critical for strategizing market entry and expansion. In terms of Financial Projections, estimating revenue, costs, and profitability is inherently uncertain, especially for startups and new ventures. These projections are based on assumptions that might not hold true, leading to financial discrepancies. Understanding and aligning with Customer Needs and Expectations is also challenging. The target market for JobMatch – employers and gig workers in Germany – has diverse and evolving needs. Ensuring that our platform meets these varying requirements demands ongoing market research and user feedback in the future. Predicting how quickly JobMatch could scale in a competitive and dynamic market required a delicate balance between ambitious growth goals and the practicalities of market dynamics. These challenges highlight the need for a dynamic and adaptable business strategy, one that could evolve alongside market trends, technological shifts, and user preferences.

This thesis recognizes both the existing gap in research and the potential biases and limitations

within the current literature. The discussion of limitations addresses how these factors may impact the generalizability of the findings.

8. Conclusion

As we approach the conclusion of our comprehensive study, it is imperative to reflect on the journey undertaken through this research. This paper has methodically explored the “strategic development, ethical and legal integration of AI in recruitment: A case study of JobMatch in the German gig economy”, delving into various dimensions and intricacies that define this field. Our investigation was driven by the aim to strategically apply AI in recruitment, when aligned with ethical standards and compliance with evolving EU legal regulations, will significantly enhance the efficiency and market appeal of JobMatch in the German gig economy, particularly among generations Y and Z, leading to considerable growth and competitive advantage in the sector, and through rigorous analysis and experimentation, we have gathered insights that not only answer these queries but also contribute significantly to the broader understanding of gig economy dynamics, digital recruitment technologies, AI application in business, market strategy, consumer behavior adaptation, data privacy and regulation in the realm of AI.

The following conclusion section summarizes the key findings, discusses their implications, and situates them within the wider landscape of AI in the recruitment space. We propose recommendations based on our findings, aiming to provide actionable insights. As we summarize our key contributions, it is important to consider these results as both a culmination of our current understanding and a stepping stone for further explorations in this dynamic and ever-evolving field.

8.1. Market Entry and Growth Potential

The conclusion of the JobMatch business plan presents a compelling case for its strategic market entry and growth potential within Germany's promising short-term employment sector.

The plan is aligned with the current vibrancy and growth of the German labor market, where there's an increasing reliance on flexible staffing solutions, making JobMatch a timely and relevant player. Its design specifically serves to the growing demand for flexible working conditions, including gig jobs and temporary positions, enhancing its appeal and potential for widespread acceptance.

A key aspect of the strategy is its focus on gig economy trends, recognizing and addressing the needs of a significant workforce engaged in gig jobs. This alignment with both employer and job seeker preferences in the gig economy augments the platform's attractiveness. Additionally, JobMatch employs a strategic geographic focus, initially concentrating on the Berlin metropolitan area to efficiently utilize resources, build partnerships, and collect user feedback, laying a strong foundation for future expansion to other major cities.

Another vital component of the strategy is leveraging network effects. By adopting a free entry model for employees and an attractive pricing strategy for employers, JobMatch aims to rapidly build a substantial user base. This growing user base is expected to create a positive feedback loop through network effects, further enhancing the platform's value and driving sustained growth.

In conclusion, JobMatch is poised for significant growth in the German short-term employment market. Its entry strategy is not only timely but also intricately crafted to exploit the current labor market dynamics, with a keen focus on the flourishing labor market, adaptability to changing work conditions, tapping into gig economy trends, strategic geographic targeting, and harnessing network effects.

8.2. User Acceptance and Adaptation

The JobMatch business plan strongly supports the expectation of rapid acceptance and adaptation among young jobseekers and companies in Germany, thanks to its user-centric approach. Key to this acceptance is a targeted strategy aimed at young jobseekers, utilizing

popular online platforms like Instagram, TikTok, and LinkedIn, which aligns with the digital habits of this demographic. The platform's free entry model for employees boosts its appeal, especially among young professionals seeking cost-effective job solutions.

Additionally, JobMatch offers attractively priced premium memberships, providing enhanced features such as boosted profiles and personalized job alerts, catering to the diverse needs of users. The importance of social media engagement is emphasized, using these platforms for effective brand awareness and user engagement. The business plan also highlights the significance of a user-friendly interface, akin to popular social apps, which enhances user experience and engagement.

Continuous feedback and iterative improvement are key strategies, with JobMatch forming strong partnerships for real-time user feedback, ensuring the platform remains adaptable and responsive. Furthermore, strategic hiring and talent acquisition, including the use of interns and working students, bring fresh perspectives and align with the platform's dynamic spirit.

In conclusion, JobMatch is poised for success in the German market, with its focus on user acceptance and adaptation evident in its targeted marketing, user-friendly design, and responsiveness to feedback. By aligning with the preferences of young jobseekers and offering a compelling value proposition, it is well-positioned for rapid acceptance and adaptation.

8.3. Impact of AI in Recruitment

The JobMatch business plan demonstrates the transformative impact of integrating artificial intelligence in recruitment. At its core, AI enhances job matching efficiency, ensuring precise connections between job seekers and opportunities with minimal manual intervention. Privacy is a key focus, with AI algorithms designed to protect sensitive user data, aligning with stringent data protection regulations like GDPR.

AI's role extends to adaptive optimization and user experience, allowing JobMatch to dynamically respond to user feedback and market shifts. This adaptability is crucial in the fast-

evolving gig economy. In terms of security, AI strengthens the platform's defenses and ensures compliance with evolving legal standards, integrating measures like encryption and two-factor authentication.

Furthermore, AI-driven predictive analytics empower JobMatch with strategic foresight, enabling proactive adjustments to market and user behavior changes. This foresight is vital for navigating the gig economy landscape. Operational efficiency and scalability, enhanced by AI, ensure that JobMatch can swiftly adapt to user needs and market dynamics.

Finally, continuous AI-focused training for employees underscores the commitment to staying current with AI advancements and their applications in recruitment.

In summary, AI profoundly influences JobMatch, from improving job matching and maintaining privacy to predictive analytics and operational agility, positioning it as a technologically advanced solution in the recruitment sector.

8.4. Legal and Ethical Challenges

Considering the multifaceted dangers that AI presents, governments play a pivotal role in safeguarding their citizens, industries, and the ethical use of AI. It is a dynamic and ongoing process, as the regulatory landscape continues to evolve alongside the rapid progress of AI technology. Due to this everchanging nature, it is vital for JobMatch to always be up-to-date and comply with current and future regulations.

Hence, JobMatch's business plan thoroughly addresses the increasing legal and ethical challenges in the AI-driven recruitment industry. A core focus is on adherence to the GDPR, the Germany BDSG - Federal Data Protection Act and German labor laws, ensuring platform integrity and user protection in compliance with minimum wage and working time regulations. This commitment to legal compliance is fundamental in establishing trust in the gig economy.

The plan also emphasizes the importance of clear terms of use and contracts with both employers and employees. This proactive measure is designed to create a transparent and accountable framework, delineating responsibilities and fostering fairness.

Moreover, JobMatch pledges to uphold non-discriminatory practices, aligning with the German General Equal Treatment Act. This commitment is reflected in the platform's design and operational strategies, contributing to an inclusive and equitable recruitment environment.

Data protection and security measures are another critical focus. Hence, to comply with the Federal Office for Information Security (BSI), the platform employs robust security protocols like SSL/TLS encryption, secure storage practices, and two-factor authentication. These measures ensure the privacy and protection of user data, a central concern in the digital recruitment process.

Additionally, JobMatch is committed to regular security checks, authorization management, appointing a DPO and continuous software maintenance, keeping the platform secure and up-to-date. Regular training for employees on security policies and privacy laws is integral, ensuring organizational awareness and adherence to evolving legal standards.

The plan recognizes the dynamic nature of the regulatory landscape, underscoring the need to adapt compliance and security measures to evolving case law and legislation. This proactive stance positions JobMatch to respond effectively to current and future legal challenges.

Finally, ethical guidelines and privacy preservation are central to JobMatch's strategy. The platform is designed to prioritize user privacy, ensuring the ethical use of AI in the recruitment process.

In summary, JobMatch demonstrates a holistic and proactive approach to addressing legal and ethical challenges in the recruitment industry. By prioritizing compliance with data protection regulations, labor laws, and ethical standards, and adapting to legal changes, JobMatch positions itself as a responsible and forward-thinking player in the evolving gig economy.

9. Recommendations

The recommendations for future research highlight potential avenues for further exploration based on identified gaps in the existing literature and analysis of the changing market dynamics. There are a few main areas of interest that future research could dive into further. These include longitudinal studies, comparative analysis and global perspectives.

9.1. Following up on the Conclusion

These targeted recommendations aim to ensure that JobMatch not only capitalizes on its current market position but also evolves in a manner that is sustainable, user-focused, and compliant with legal and ethical standards.

Regarding **its market entry and growth potential**, JobMatch should strategically extend its reach beyond Berlin to other key German cities, guided by data-driven insights from market research and user feedback. Broadening the platform's job types and sectors will attract a more diverse range of gig workers and employers, enhancing its market appeal. Additionally, forming partnerships with local businesses and educational institutions in these new regions will deepen JobMatch's market penetration, simultaneously boosting its visibility and credibility within these communities. This approach is vital for JobMatch's sustainable growth in the dynamic gig economy recruitment sector.

To enhance **user engagement** on JobMatch, a focus on gamification, AI-driven personalization, and community building is crucial. Implementing gamification elements like badges and points will encourage user participation and loyalty. Personalizing the user experience with AI, by offering tailored job suggestions, makes the platform more intuitive and user-friendly. Additionally, fostering a community through forums and events will not only enhance user interaction but also provide valuable feedback for platform improvement, thereby contributing significantly to JobMatch's growth and user retention.

For JobMatch, a sustained **focus on AI** research and development is crucial to maintain

technological leadership and enhance job matching accuracy. Transparency in explaining how AI algorithms function will build user trust and understanding. Additionally, forming an AI ethics board is pivotal to ensure responsible AI usage, aligning the platform with societal values, especially in areas like data privacy and fairness. This approach will solidify JobMatch's position as a trusted, ethically conscious player in the AI-driven recruitment space.

To navigate **legal and ethical challenges**, JobMatch should focus on three key areas: conducting regular legal audits to stay abreast of the fast-evolving AI and gig economy regulations, enhancing data transparency and user control to build trust and comply with privacy laws, and providing continual legal and ethical training for staff. These measures will ensure JobMatch remains compliant, responsible, and trusted in the dynamic AI-driven recruitment landscape.

9.2. Research related

Longitudinal studies are long-term observations that track the changing natures of the same individual or variable (Thomas, 2023). In this instance, longitudinal studies involving the tracking of performance and adaptations of AI startups over extended periods would provide valuable insights into the dynamic nature of the industry. Another longitudinal study could involve the progressive nature of European and German laws and regulations and how these will have an impact on AI startups and growing AI ventures.

A Comparative analysis between European and non-European AI startups can unveil region-specific challenges and opportunities. By comparing startups in different locations, it can also be identified how laws and regulations impact startups success. Hereby, highlighting the relationship between innovation and regulatory frameworks.

Even though global laws and regulations are briefly touched upon in this thesis it is imperative to formulate a **global perspective**, that considers cross-border collaborations and competition. Furthermore, if JobMatch will expand into other territories outside of the EU it is imperative

for them to also understand the success factors and laws and regulations in those markets.

Any of the aforementioned topics should be a focus for future research to provide a comprehensive understanding of the industry

10. References

10.1. Literature Review

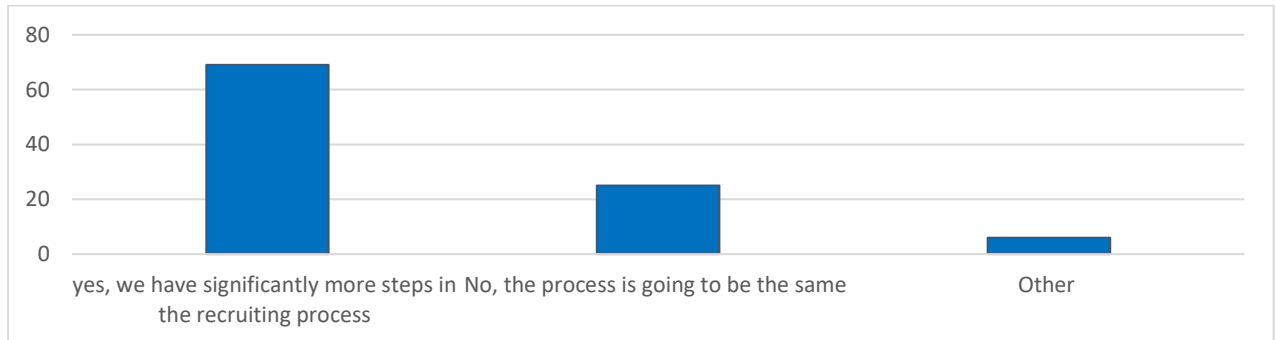
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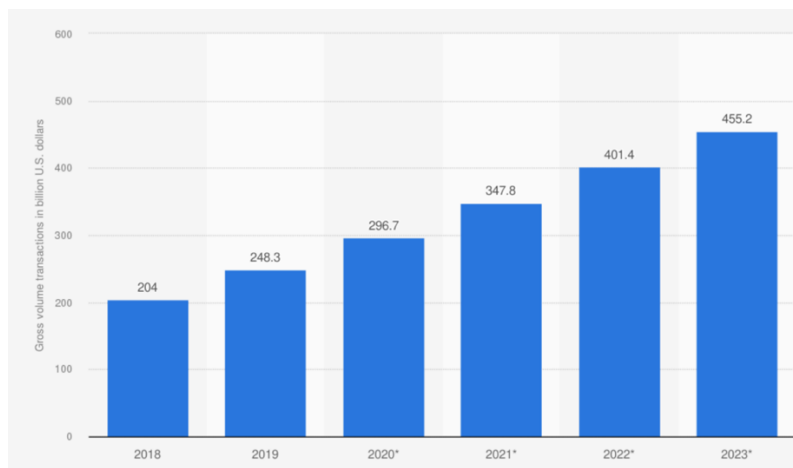
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11. Appendix

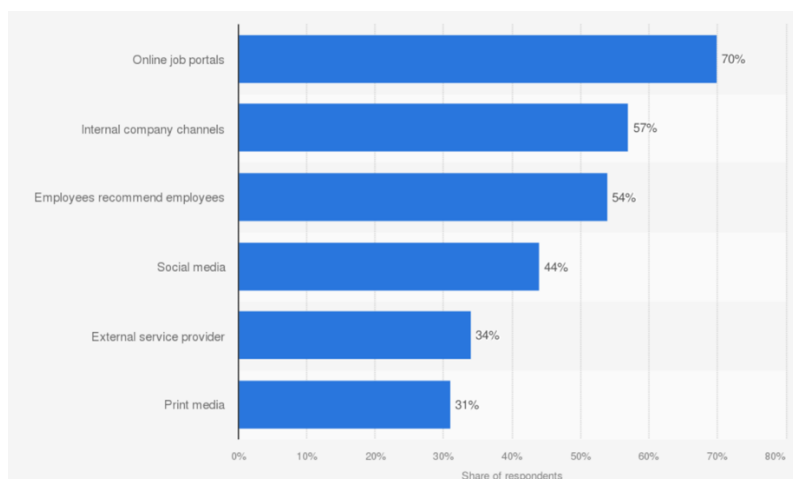
Appendix 1: Is the corona Crisis changing your recruiting process ? (Statista, 2020)



Appendix 2: Projected gross volume of the gig-economy from 2018 to 2023 (in billion U.S. dollars) (Statista, 2023)



Appendix 3: Which recruiting channels do you use to hire new employees? (Statista, 2023)



11.1. Artificial Intelligence-driven Recruitment in the Gig Economy: Pricing, Roll-out Strategy, and Financial Insights on the example of Job Match

Appendix 20: Marketing roll-out (first 6 months) (Attachment Financialmodel)

Month	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Total: Jan-25 - Jun-25
Marketing roll-out (first 6 months)							
Instagram (Paid)							
Costs	2.000 €	2.000 €	2.000 €	4.000 €	4.000 €	4.000 €	18.000 €
Cost per click	0,70 €	0,70 €	0,70 €	0,70 €	0,70 €	0,70 €	0,70 €
Total Clicks	2.857	2.857	2.857	5.714	5.714	5.714	25.714
Conversion rate	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	
Generated customers	74	74	74	149	149	149	669
CAC							27 €
TikTok (Paid)							
Costs	1.000 €	1.000 €	1.000 €	2.000 €	2.000 €	2.000 €	9.000 €
Cost per click	0,20 €	0,20 €	0,20 €	0,20 €	0,20 €	0,20 €	0,20 €
Total Clicks	5.000	5.000	5.000	10.000	10.000	10.000	45.000
Conversion rate	3,4%	3,4%	3,4%	3,4%	3,4%	3,4%	
Generated customers	170	170	170	340	340	340	1530
CAC							6 €
LinkedIn (Paid)							
Costs	1.000 €	1.000 €	1.000 €	2.000 €	2.000 €	2.000 €	9.000 €
Cost per click	5 €	5 €	5 €	5 €	5 €	5 €	5,00 €
Total Clicks	200	200	200	400	400	400	1.800
Conversion rate	6,1%	6,1%	6,1%	6,1%	6,1%	6,1%	
Generated customers	12	12	12	24	24	24	110
CAC							82 €
Search Engine Advertising							
Costs for placement	4.500 €	4.500 €	4.500 €	4.500 €	4.500 €	4.500 €	27.000 €
Cost per click	3,43 €	3,43 €	3,43 €	3,43 €	3,43 €	3,43 €	3,43 €
Total reach	1.312	1.312	1.312	1.312	1.312	1.312	7.872
Conversion rate	4,6%	4,6%	4,6%	4,6%	4,6%	4,6%	
Generated customers	301	301	301	301	301	301	1807
CAC							15 €
Outdoor Advertising							
Costs	15.624 €	15.624 €	15.624 €	15.624 €	15.624 €	15.624 €	93.744 €
Views#1: Berlin main station	90.000	90.000	90.000	90.000	90.000	90.000	540.000
Views#2: Berlin ZoB	48.000	48.000	48.000	48.000	48.000	48.000	288.000
Views Total	138.000	138.000	138.000	138.000	138.000	138.000	828.000
Conversion rate	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%
Generated customers	276	276	276	276	276	276	1656
CAC							57 €
Extracalculation Billboards							
	Daily	Monthly	For 6 month	Total costs	People passing the stations daily	Assuming 30 % viewing the ad	
Berlin main station	€ 56,40	€ 1.692,00	€ 10.152,00	€ 15.624,00	300.000	90.000	
Berlin ZoB	€ 30,40	€ 912,00	€ 5.472,00		160.000	48.000	
Sales (Trade Fare)							
Costs for stand	0 €	4.000 €	0 €	4.000 €	0 €	4.000 €	12.000 €
Total reach		14.600		14.600		14.600	
Conversion rate	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	
Generated customers	0	29	0	29	0	29	88
CAC							137 €

Appendix 21: Marketing (full 5 years) (Attachment Financialmodel)

	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
Marketing (full 5 years)						
Instagram (Paid)						
Costs	0 €	36.000 €	64.800 €	116.640 €	209.952 €	377.914 €
Generated customers	0	1.337	2.407	4.332	7.798	14.037
CAC	0 €	27 €	27 €	27 €	27 €	27 €
TikTok (Paid)						
Costs	0 €	18.000 €	36.000 €	72.000 €	144.000 €	288.000 €
Generated customers	0	3.060	6.120	12.240	24.480	48.960
CAC	0 €	6 €	6 €	6 €	6 €	6 €
LinkedIn (Paid)						
Costs	0 €	18.000 €	32.400 €	58.320 €	104.976 €	188.957 €
Generated customers	-	220	395	712	1.281	2.305
CAC	0 €	82 €	82 €	82 €	82 €	82 €
Search Engine Advertising						
Costs	0 €	54.000 €	97.200 €	174.960 €	314.928 €	566.870 €
Generated customers	-	3.613	6.504	11.707	21.072	37.929
CAC	15 €	15 €	15 €	15 €	15 €	15 €
Billboards						
Costs	0 €	187.488 €	337.478 €	607.461 €	1.093.430 €	1.968.174 €
Generated customers	0	3.312	5.962	10.731	19.316	34.768
CAC	0 €	57 €	57 €	57 €	57 €	57 €
Trade Fairs						
Costs	0 €	24.000 €	24.000 €	24.000 €	24.000 €	24.000 €
Generated customers	0	175	175	175	175	175
CAC	0 €	137 €	137 €	137 €	137 €	137 €
Total costs	0 €	337.488 €	591.878 €	1.053.381 €	1.891.286 €	3.413.915 €
Total generated customers	-	11.717	21.563	39.896	74.121	138.174
CAC	0 €	29 €	27 €	26 €	26 €	25 €
Total costs	0 €	337.488 €	591.878 €	1.053.381 €	1.891.286 €	3.413.915 €
Adjusted customers	-	14.060	25.875	47.876	88.946	165.809
Adjusted CAC	0 €	23 €	22 €	21 €	20 €	20 €

Appendix 22: Target Group Distribution (Attachment Financialmodel)

Distribution of ads spent on each target group		
	Customer employees	Customer employers
Insta	100%	0%
TikTok	100%	0%
LinkedIn	30%	70%
SEA	80%	20%
Billboards	85%	15%
Trade Fares	0%	100%

Absolute number of customers reached acc. to target group & channel			
	Customer employees	Customer employers	Sum
Insta	29.911	0	29.911
TikTok	94.860	0	94.860
LinkedIn	1.474	3.439	4.912
SEA	64.659	16.165	80.824
Billboards	62.975	11.113	74.088
Trade Fares	0	876	876
Sum	253.879	31.593	285.472

Appendix 22: Staffing (Attachment Financialmodel)

Position	Staffing						Monthly salaries (SE = social expenses)		Annual salaries					
	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	Salary excl. SE	Salary incl. SE	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
Administration	1	1	2	3	3	3			29.400 €	58.800 €	85.050 €	148.838 €	167.442 €	188.372 €
CEO	1	1	1	1	1	1	3.500 €	4.900 €	29.400 €	58.800 €	66.150 €	74.419 €	83.721 €	94.186 €
Personal Assistant	0	0	0	1	1	1	2.500 €	3.500 €	0 €	0 €	0 €	53.156 €	59.801 €	67.276 €
Working Student	0	0	1	1	1	1	1.000 €	1.400 €	0 €	0 €	18.900 €	21.263 €	23.920 €	26.910 €
Finance	1	1	1	2	2	2			0 €	58.800 €	66.150 €	127.575 €	143.522 €	161.462 €
CFO	1	1	1	1	1	1	3.500 €	4.900 €	29.400 €	58.800 €	66.150 €	74.419 €	83.721 €	94.186 €
Accountant	0	0	0	1	1	1	2.500 €	3.500 €	0 €	0 €	0 €	53.156 €	59.801 €	67.276 €
Operation	0	2	3	5	6	7			0 €	100.800 €	132.300 €	276.413 €	370.765 €	484.386 €
IT Developer	0	1	1	2	2	2	3.500 €	4.900 €	0 €	58.800 €	66.150 €	148.838 €	167.442 €	188.372 €
Customer Service	0	1	1	2	3	4	2.500 €	3.500 €	0 €	42.000 €	47.250 €	106.313 €	179.402 €	269.104 €
Working Student	0	0	1	1	1	1	1.000 €	1.400 €	0 €	0 €	18.900 €	21.263 €	23.920 €	26.910 €
Marketing	0	1	2	3	3	4			0 €	50.400 €	122.850 €	155.216 €	174.618 €	217.974 €
CMO	0	0	1	1	1	1	3.500 €	4.900 €	0 €	0 €	66.150 €	74.419 €	83.721 €	94.186 €
Marketing Manager	0	1	1	1	1	1	3.000 €	4.200 €	0 €	50.400 €	56.700 €	63.788 €	71.761 €	80.731 €
Marketing Intern	0	0	0	1	1	2	800 €	1.120 €	0 €	0 €	0 €	17.010 €	19.136 €	43.057 €
Sales	0	1	2	2	3	4			0 €	50.400 €	103.950 €	116.944 €	203.323 €	296.014 €
Sales Manager	0	1	1	1	2	2	3.000 €	4.200 €	0 €	50.400 €	56.700 €	63.788 €	143.522 €	161.462 €
Sales Assistant	0	0	1	1	1	2	2.500 €	3.500 €	0 €	0 €	47.250 €	53.156 €	59.801 €	134.552 €
HR	0	0	0	1	1	1			0 €	0 €	0 €	53.156 €	59.801 €	67.276 €
HRM Manager	0	0	0	1	1	1	2.500 €	3.500 €	0 €	0 €	0 €	53.156 €	59.801 €	67.276 €
Total employees	2	6	10	16	18	21	35.300 €	49.420 €	88.200 €	319.200 €	510.300 €	878.141 €	1.119.471 €	1.415.484 €

Appendix 24: Fixed Costs (excl. Salaries) (Attachment Financialmodel)

Fixed Costs (excl. salaries)						
Position	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
App & Website						
App development	100.000 €	-€	-€	-€	60.000 €	-€
App maintenance	-€	3.000 €	3.000 €	3.000 €	3.000 €	3.000 €
Landing page	-€	600 €	200 €	200 €	200 €	200 €
Website application development	100.000 €	-€	-€	-€	60.000 €	-€
Website application maintenance	-€	20.000 €	20.000 €	20.000 €	20.000 €	20.000 €
Sum App & Website Costs	200.000 €	23.600 €	23.200 €	23.200 €	143.200 €	23.200 €
Founding, Launch & Legal						
Marketing Agency Fees	50.000 €	25.000 €	-€	-€	-€	-€
Legal Service	30.000 €	30.000 €	30.000 €	30.000 €	30.000 €	30.000 €
Licensing and permits	25.000 €	2.000 €	2.000 €	2.000 €	2.000 €	2.000 €
Sum Founding, Launch & Legal Costs	105.000 €	57.000 €	32.000 €	32.000 €	32.000 €	32.000 €
Rent						
Office rent	-€	34.560 €	57.600 €	92.160 €	103.680 €	120.960 €
Energy costs	-€	1.663 €	2.772 €	4.435 €	4.990 €	5.821 €
Sum Rent Costs	-€	36.223 €	60.372 €	96.595 €	108.670 €	126.781 €
Other Costs						
Operating and business equipment	4.000 €	22.000 €	28.000 €	44.000 €	40.000 €	48.000 €
Sales Material	-€	30.000 €	30.000 €	30.000 €	30.000 €	30.000 €
Cleaning service	-€	9.000 €	15.000 €	24.000 €	27.000 €	31.500 €
Insurance	-€	3.000 €	3.000 €	3.000 €	3.000 €	3.000 €
Sum Other Costs	4.000 €	64.000 €	76.000 €	101.000 €	100.000 €	112.500 €
Total fixed costs	309.000 €	180.823 €	191.572 €	252.795 €	383.870 €	294.481 €
Total employees	2	6	10	16	18	21

Appendix 25: Revenue Streams

Revenue Streams						
Employees	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
Newly Acquired Customers	0	12.504	23.012	42.577	79.102	147.459
Recurring Customers	0	-	5.002	9.205	17.031	31.641
Premium Customers	0	-	1.250	2.926	5.471	10.160
Total Customers	0	12.504	29.264	54.708	101.604	189.261
Revenue	0 €	44.866 €	104.998 €	196.294 €	364.555 €	679.068 €
Employers						
Employers	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
Newly Acquired Customers	0	1.556	2.864	5.298	9.843	18.350
Retained Customers	0	-	320	589	1.089	2.024
Total Customers	0	1.556	3.183	5.887	10.933	20.374
Revenue	0 €	624.237 €	1.277.107 €	2.361.704 €	4.385.891 €	8.173.255 €
Total Revenue	0 €	669.103 €	1.382.106 €	2.557.998 €	4.750.446 €	8.852.322 €

Appendix 26: Cashflow

Cashflow							
	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 24 - FY 29
Revenues	0 €	669.103 €	1.382.106 €	2.557.998 €	4.750.446 €	8.852.322 €	18.211.975 €
Total revenues	0 €	669.103 €	1.382.106 €	2.557.998 €	4.750.446 €	8.852.322 €	18.211.975 €
Expenditures							
Marketing & Sales	0 €	337.488 €	591.878 €	1.053.381 €	1.891.286 €	3.413.915 €	7.287.948 €
HR	88.200 €	319.200 €	510.300 €	878.141 €	1.119.471 €	1.415.484 €	4.330.796 €
App & Website	200.000 €	23.600 €	23.200 €	23.200 €	143.200 €	23.200 €	436.400 €
Founding, Launch & Legal	105.000 €	57.000 €	32.000 €	32.000 €	32.000 €	32.000 €	290.000 €
Rent	0 €	36.223 €	60.372 €	96.595 €	108.670 €	126.781 €	428.641 €
Other costs	4.000 €	64.000 €	76.000 €	101.000 €	100.000 €	112.500 €	457.500 €
Sum Expenditures	397.200 €	837.511 €	1.293.750 €	2.184.318 €	3.394.626 €	5.123.881 €	13.231.286 €
	-397.200 €	-168.408 €	88.355 €	373.680 €	1.355.820 €	3.728.442 €	
Cumulated Cash Flow	-397.200 €	-565.608 €	-80.053 €	462.035 €	1.729.500 €	5.084.262 €	

Appendix 27: Growth Rates

Growth Rates						
	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
Revenue	0%	100%	107%	85%	86%	86%
Customers	0%	100%	131%	87%	86%	86%

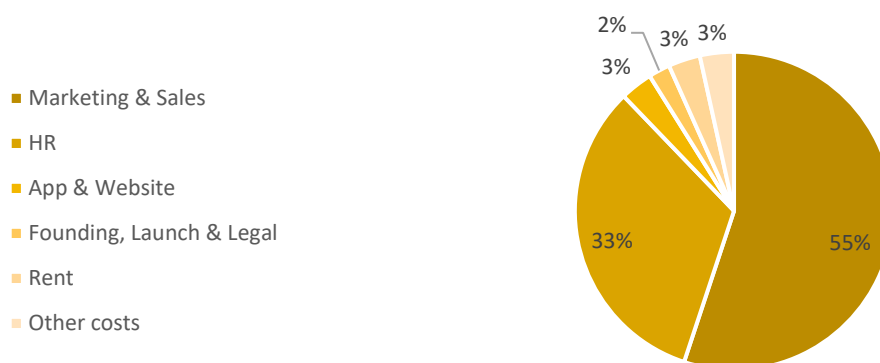
Appendix 28: Customers

Customers							
Customer Employers							
	Share	Sold Bundles	Membership Fee per	Relative Contribution	Churn rate	Retention rate	
JobMatch Business	84%	1.309	79,00 €	66 €	80%	20%	
JobMatch Business - 10	12%	181	719,00 €	84 €	77%	23%	
JobMatch Business - 50	2%	26	3.699,00 €	63 €	75%	25%	
JobMatch Business - 100	3%	39	7.499,00 €	188 €	75%	25%	
		Weighted Average		401 €	Weighted Average	23%	
Customer Employees							
	Share	User	Membership Fee per year	Relative Contribution	Churn rate	Retention rate	
JobMatch Free	90%	11.254	0,00 €	0,00 €	60%	40%	
JobMatch Premium	10%	-	35,88 €	3,59 €	90%	10%	
		Weighted Average		3,59 €	Weighted Average	25%	

Appendix 29: Cumulative Cashflow



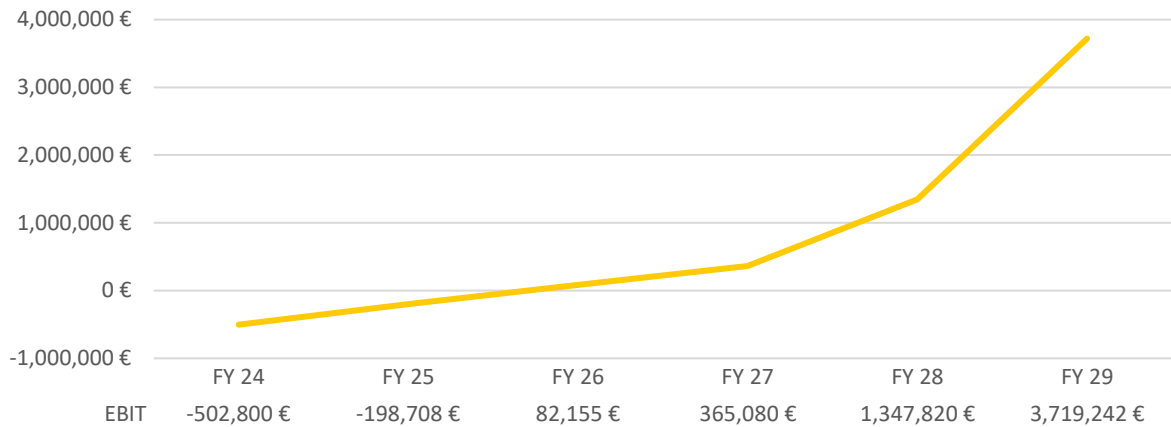
Appendix 30: Cost structure



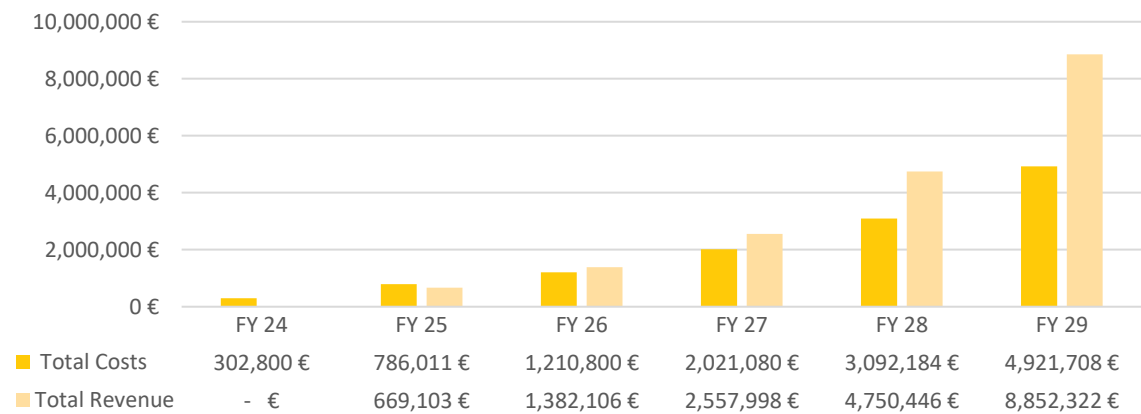
Appendix 31: Profit & Loss

	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
Total Revenue	- €	669.103 €	1.382.106 €	2.557.998 €	4.750.446 €	8.852.322 €
App development	100.000 €	- €	- €	- €	60.000 €	- €
App maintenance	- €	3.000 €	3.000 €	3.000 €	3.000 €	3.000 €
Website application development	100.000 €	- €	- €	- €	60.000 €	- €
Website application maintenance	- €	20.000 €	20.000 €	20.000 €	20.000 €	20.000 €
App Developer (IT)	- €	58.800 €	66.150 €	148.838 €	167.442 €	188.372 €
COGS	200.000 €	81.800 €	89.150 €	171.838 €	310.442 €	211.372 €
Gross Profit	- 200.000,00 €	587.303,20 €	1.292.955,53 €	2.386.160,10 €	4.440.004,30 €	8.640.949,90 €
Depreciation	600 €	3.300 €	4.200 €	6.600 €	6.000 €	7.200 €
Marketing	50.000 €	362.488 €	591.878 €	1.053.381 €	1.891.286 €	3.413.915 €
Marketing Agency Fees	50.000 €	25.000 €	- €	- €	- €	- €
Marketing Expenses	- €	337.488 €	591.878 €	1.053.381 €	1.891.286 €	3.413.915 €
Sales Material	- €	30.000 €	30.000 €	30.000 €	30.000 €	30.000 €
Other Costs	252.200 €	420.223 €	614.722 €	961.099 €	1.194.898 €	1.500.593 €
Founding, Launch & Legal Costs	105.000 €	57.000 €	32.000 €	32.000 €	32.000 €	32.000 €
Operating and business equipment	4.000 €	22.000 €	28.000 €	44.000 €	40.000 €	48.000 €
Cleaning service	- €	9.000 €	15.000 €	24.000 €	27.000 €	31.500 €
Landing page	- €	600 €	200 €	200 €	200 €	200 €
Licensing and permits	25.000 €	2.000 €	2.000 €	2.000 €	2.000 €	2.000 €
Insurance	- €	3.000 €	3.000 €	3.000 €	3.000 €	3.000 €
Rent for office + energy costs	- €	36.223 €	60.372 €	96.595 €	108.670 €	126.781 €
Legal Service	30.000 €	30.000 €	30.000 €	30.000 €	30.000 €	30.000 €
Salaries	88.200 €	260.400 €	444.150 €	729.304 €	952.028 €	1.227.112 €
Total Costs	302.800 €	786.011 €	1.210.800 €	2.021.080 €	3.092.184 €	4.921.708 €
EBIT	-502.800 €	-198.708 €	82.155 €	365.080 €	1.347.820 €	3.719.242 €
Tax (30%)	- €	- €	24.647 €	109.524 €	404.346 €	1.115.773 €
Profit	-502.800 €	-198.708 €	57.509 €	255.556 €	943.474 €	2.603.469 €
Cumulated Profit		-701.508 €	-643.999 €	-388.443 €	555.031 €	3.158.500 €

Appendix 32: EBIT



Appendix 33: Development Revenue vs. Costs



Appendix 34: Marketsize

Employer Customers													
	# Businesses	% of total businesses	Employees	% of total employees	# employees	Average employees / business	Assumed Bundle Size (Average; Posts / Bundle)	Bundle Prize	# Businesses	# Employees	Assumed % temporary & self-employed workers available (Average: 10%)	# Sold Bundles	Share in sold bundles
Microenterprises	2.921.871		87%	5.200.000	16%	1-10	2	1	79 €	65.742	117.000	11.700	84%
Small businesses	352.995		10%	7.200.000	22%	11-49	20	10	719 €	7.942	162.000	16.200	12%
Midsized companies	73.042		2%	5.250.000	16%	50-250	72	50	3.659 €	1.643	118.125	11.813	2%
Large enterprises	16.675		0%	15.500.000	47%	> 250	930	100	7.499 €	375	348.750	34.875	3%
				33.150.000						75.703		13.905	
Market Size - Customer Employers													
TAM	3.364.583												
SAM	1.514.062		45%										
SOM	75.703		5%										
Target Cities Germany (1st 5 years)													
	Population	Share of total population											
Berlin, Hamburg, Berlin	6.859.000	8%											
Germany	82.000.000	100%											
Market Size - Customer Employers													
TAM	42.090.000	[germany - employment 2013-2023 Statista]											
SAM	7.700.000	[germany temporary employees 2015-2021 Statista (openathens.net)]											
SOM	322.038	50% of Temporary Workforce in Target Cities											

