

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

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

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20/12/2023

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.

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

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Abbreviations

AI	Artificial intelligence
EU	European Union
GDPR	General Data Protection Regulation
DSA	Digital Services Act
DMA	Digital Markets Act
FAICP	Framework for AI Cybersecurity Practices
ENISA	European Union Agency for Cybersecurity
OECD	Organisation for Economic Co-operation and Development
CCGAI	Coordinating Committee for the Governance of Artificial Intelligence
GPAI	Global Partnership for AI
PAI	Partnership on AI
ISO	International Organization for Standardization
IEEE	Institute of Electrical and Electronics Engineers
IEC	International Electrotechnical Commission
BMWK	Bundesministerium für Wirtschaft und Klimaschutz
BDSG	Bundesdatenschutzgesetz
BfDI	Bundesbeauftragte für den Datenschutz und die Informationsfreiheit
BSI	Bundesamt für Sicherheit in der Informationstechnik
DMPA	Deutsche Patent- und Markenamt
MDR	Medical Device Regulation
SME	Small and medium-sized enterprises
DPO	Data Protection Officer
DPIA	Data Protection Impact Assessments

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. Al, 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. 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.

7. 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.

7.1. 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.

7.2. 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.

7.3. 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.

7.4. 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.

8. 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.

8.1. 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.

8.2. 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.

9. Artificial Intelligence-driven Recruitment in the Gig Economy: Comprehensive market analysis and operational implementation on the example of JobMatch

By Claire Marie Valentine Bäuerle

9.1. Solution

After explaining the application of the Business Model Canvas for AI startups and the existing legal risks when using AI, the business idea of JobMatch is now presented. The analysis is based on the Business Model Canvas but goes beyond this. All nine important segments can be found in the comprehensive chapters. The business idea of JobMatch, aims to offer an innovative solution for rapid connections between applicants and companies based on the “perfect match” concept. It plans to leverage AI with algorithms and machine learning to optimize recruitment processes. AI can then utilize text analysis algorithms to analyze resumes, cover letters, or company profiles. This assists in identifying relevant key qualifications and skills and automates the alignment with user search criteria. Additionally, through the integration of AI in messaging functions, automated responses or suggestions for frequently asked questions will be provided. This will enhance communication between employers and applicants, expediting the exchange of information.

The app design and functions are inspired by popular dating apps such as Bumble and Tinder, which are known for their large German user base (Tinder & Bumble, 2021) ⁷. It plans to offer different value proposition like a familiar interface and intuitive design that allows users to swipe through job offers or applicant profiles. This simplified swiping system allows mutual reviews and expressions of interest, providing meaningful connections. The strength of the platform should lie in customizable filters that allow both candidates and companies to refine their search for the perfect professional partner. The filter function will enable candidates to

precisely outline their career preferences, e.g. type of job, working hours, location, and other relevant factors. By using these filters, candidates will receive customized job offers that are precisely tailored to their criteria. Companies will also benefit by defining specific qualifications and criteria to efficiently find suitable candidates. This aims to streamline the candidate selection process, saving time and effort while increasing the probability of finding the ideal candidate.

In the next step, JobMatch plans to improve communication between employers and job seekers by introducing an in-app messaging and video chat feature that facilitates discussions and provides deeper insights into each other's needs. This intends to simplify job interviews and selection processes. Furthermore, JobMatch plans introducing a rating and review system that allows users to rate potential employers or job seekers based on previous feedback. This will promote transparency, trust and informed decision making on the platform and ultimately fairness and quality of collaboration. The market strategy for JobMatch aims to maximize the app's online and offline presence, continuously expand the user base, promote the platform, and consistently meet the needs of the target group. Social media platforms such as Instagram, TikTok and LinkedIn will play a central role in increasing the online presence of JobMatch. With paid ads and organic content, the aim is to engage the target audience with success stories, informative blog posts and updates on trends in the gig economy. Exploring influencer marketing is also part of the strategy to increase credibility and reach.

The offline marketing strategies will include targeted posters in highly frequented areas of Berlin's main train stations to address commuters directly and highlight the benefits of JobMatch. This physical approach is intended to increase brand awareness and attract new users. In addition, active participation in regional events and job fairs is planned, providing opportunities for face-to-face demonstrations, Q&A sessions and introductory events to enable hands-on experience with the app. Collaboration with relevant companies and organizations,

such as co-working spaces, will facilitate promotional events, while partnerships with educational institutions and employment agencies will enable workshops to integrate JobMatch into education and job search. The continuous collection of user feedback within the app leads to constant improvements, ensuring that the app continues to be optimized and adapted to the evolving needs of the job market.

The end objective is to establish JobMatch as a leading platform for gig economy job seekers and employers. This involves creating an efficient digital space that seamlessly connects individuals with fitting job opportunities, leveraging the advantages of digitalization and social networking.

9.2. Market Overview

The detailed analysis in the market overview and its sub-chapters takes an in-depth look at the potential of our solution in the market landscape. In this context, we present a comprehensive representation of our target group and offer a granular understanding of their characteristics, preferences, and needs.

9.2.1. Market Opportunity

The JobMatch app will launch in Germany, a promising market with 44 million people in employment, including 3.5 million self-employed and 4.2 million temporary workers actively looking for new opportunities. Key cities such as Berlin, Hamburg and Munich will provide a good starting point for the launch, supported by an extensive knowledge of the attractiveness of the German market. The global app market shows robust revenue growth of 6.34% (CAGR 2022-2027), signaling continuous expansion (German Federal Statistical Office, 2023). Generations Y and Z show a clear preference for mobile applications in recruitment, with 38% and 54% respectively preferring mobile solutions (Uni Bamberg, 2020, Appendix 16). In 2020, the German market for online job advertisements is estimated at 1.8 billion euros. Key trends include the automation of recruitment processes, the entry of Generation Z into the world of

work and the rise of the gig economy (Ziprecruiter, 2023). The demand for short-term contracts and project-based work is steadily increasing (Statista, 2022). Despite numerous existing online job platforms such as Indeed, Stepstone, Monster, LinkedIn, and the Federal Employment Agency, many are still associated with time-consuming manual processes. Jobmatch will offer potential due to several factors:

Germany's leading position in the European economy and on the global labor market favors the idea of jobmatching given its diverse industries and constant demand for labor (European Commission, 2023; Federal Statistical Office, 2023). The ongoing skills shortage, particularly in hospitality, delivery, and care professions, makes it urgent for companies looking for employees (Regniet, 2023). Increasing digitalization and the widespread use of mobile devices in Germany make the environment ready for job search apps (Ghelber, 2022). By speeding up the matching process and focusing on precise matches, JobMatch will appeal to both companies and applicants and can therefore increase the efficiency of recruitment. The platform's approach, which is similar to the successful swipe method used by dating apps, could be well received by millennials and Generation Z (Moulton & Grover, 2023).

The emerging startup scene in Germany offers a favorable environment for JobMatch to evolve and benefit from the country's innovation-driven landscape (Berger-de León, Dörner, Flötott, & Henz, 2021). As the market welcomes new ideas and growth, this environment could significantly support the startup's expansion and position it favorably within the dynamic global app landscape.

9.2.2. Target Group & Key Partners

As already described in the upper part of the work, the business model canvas also includes a detailed analysis of the customer segments. The following customer segments were analyzed and considered for JobMatch: JobMatch plans to have two main target groups, each with different needs and requirements. The first target group consists of jobseekers who are interested in short-term, low-pressure jobs. This group typically includes people who are

looking for flexible employment opportunities, whether to earn a temporary income, improve their financial situation or simply use their time effectively. This can include various groups of people.

Many students look for a part-time job to supplement their income and manage their studies at the same time. They prefer short-term jobs because they are flexible and can be combined with their study plans. Similarly, part-time workers are looking for extra income without long-term commitments. This need for flexibility extends to various people, including parents who need to fulfill family obligations and freelancers who are looking for different sources of income. In addition, seasonal workers in sectors such as retail and agriculture are seeking short-term employment to meet specific seasonal demands, such as the holiday rush or harvest seasons.

The other main target group of JobMatch will be companies looking for temporary workers for short-term and low-stress jobs. Businesses such as restaurants, bars and cafés need additional staff at peak times to maintain service quality. Event planners are also looking for temporary staff for weddings, conferences, and trade fairs. Retailers often need seasonal staff during peak periods such as Christmas. Households may also need temporary staff for tasks such as cleaning or gardening. In agriculture, seasonal workers are needed for harvesting and special agricultural tasks. JobMatch aims to offer both job seekers and employers an intuitive platform that enables fast and efficient recruitment for short-term tasks. The focus will be on flexibility, efficiency and meeting different needs and expectations in these industries.

The platform intends to enable flexibility and efficiency in the labor market and addresses the specific needs of different target groups. The rise of the gig economy has led to a significant increase in gig jobbers, estimated at three million in Germany alone, with Munich, Hamburg and Berlin leading the way among EU cities in terms of gig jobbers (Eurostat, 2022). The main demographic in the target group will be Generations Y and Z, who are known for their online literacy. Given the widespread adoption of app-based work in the gig economy, JobMatch's

main target group will be likely to have a high adoption rate for mobile job search (Uni Bamberg, 2020). Notably, people aged 16-24 make up almost 30% of the gig economy in Europe, while 25–34-year-olds make up around 17%, which directs JobMatch's focus to these age groups (Ilo.org, 2021). The gender distribution among gig workers in Germany tends to be 61% women and 39% men (Hunt & Samman, 2019). Gig jobbers are primarily motivated by three key factors: the desire to save extra money, to fill income gaps and to enjoy time flexibility. According to PEW Research Center (2021), 68% of gig jobbers supplement their full-time employment with casual jobs, while only 32% pursue full-time gig work. The gig economy primarily comprises transportation-related tasks, with 58% of gig jobs associated with areas such as ridesharing (Mastercard and Kaiser Associates, 2019). Gig jobs are also prevalent in delivery services, cleaning, and hospitality (PEW Research Center, 2021). Demographically, 41% of gig workers have a high school diploma and 22% have a college degree. Based on this data three target groups can be identified for JobMatch: the flexible life-enjoyer, the determined future thinker, and the financially calm seeker.

Appendix 17 shows a detailed overview of three personas with their specific characteristics. They are targeted at companies that are looking for short-term employees for uncomplicated tasks in various sectors such as manufacturing, agriculture, construction, transportation and leisure and hospitality.

To successfully address these customer segments, cooperation with various key partners will play an important role for the platform. The following ones should be considered: First, employers and companies represent a central partner group. Cooperations with companies from various sectors such as hospitality, retail, events, agriculture, and others are also highly relevant. These partnerships are fundamental as they will provide the platform with job offers and opportunities for users. Educational institutions are also important partners for JobMatch. Collaborations with universities, colleges and vocational schools will offer the opportunity to

reach out to students, offer part-time opportunities and promote the integration of JobMatch into career development programs. Co-working spaces and startup incubators are other key partners to reach freelancers, entrepreneurs and casual workers looking for flexible employment opportunities. The involvement of influencers and social media personalities on platforms such as Instagram, TikTok and LinkedIn will help to expand the reach and strengthens the credibility of the platform with the target group. Furthermore, job fairs and events can be used to present the platform, conduct demonstrations, and establish direct contact with potential users. Also, cooperations with public authorities or employment agencies will be important to publicize the platform and gain access to a larger pool of job seekers and employers. Technology and service providers are other important partners. Cooperation with them will enable continuous improvement of the platform's infrastructure, security aspects and AI functions. Close cooperations with these various partners are crucial to establish JobMatch as a leading solution in the field of job placement and recruitment.

9.2.3. Competitor Analysis

This chapter focuses on a detailed comparison evaluating different job-related software products, like 'Indeed', 'Monster', 'LinkedIn', 'Stepstone', 'Otta', and 'Government Solutions' (Appendix 19). Each row of the table denotes a unique feature like 'Matching algorithm', 'Video introduction', 'Gamification', 'One application for the whole process', 'Job listing', 'Resume CV', 'Mobile app', among others. For every feature, each software is marked with a checkmark (a green "V" for available features and a red "X" for unavailable ones) to show which features are incorporated in the software.

When examining the landscape of online job search platforms, several key players stand out as serious competitors alongside the innovative JobMatch platform. LinkedIn, StepStone, Otta, Indeed and Monster are established platforms that offer various features for job seekers and employers. LinkedIn, a prominent professional networking platform, stands out for connecting professionals and offering extensive job listings, resume uploads and search filters. JobMatch,

however, plans to stand out for its unique approach: automated job matching without the need for an active job search, a one-click application process via a smartphone app, and an emphasis on work flexibility. StepStone, like many of its competitors, offers comprehensive job listings and search functions. JobMatch will set itself apart by simplifying the application process through direct application via a smartphone app and fostering a work environment according to the needs of the evolving gig economy. Otta, which operates mainly in London, also uses a matching algorithm with swiping for jobseekers but does not have the option of direct application via a smartphone app. In contrast, JobMatch aims to enhance user accessibility and engagement by integrating video intros, gamification through swipe methods and a mobile-first approach to applications. Indeed, known for its extensive job listings and user-friendly interface, competes in a similar space to JobMatch. However, JobMatch's innovative automated application process and focus on flexible working arrangements intends to offer distinct advantages tailored to the modern workforce. Monster, another established platform, provides standard job search functionalities and resume uploads. JobMatch's standout features, such as its automated matching and one-click application method through a smartphone app, will set it apart, catering to users seeking streamlined and efficient job-seeking experiences.

To summarize, competitors such as LinkedIn, StepStone, Otta, Indeed and Monster offer different features and an extensive job offering, while JobMatch's goal is to occupy a niche by focusing on automatic job matching, one-click applications via smartphone and a focus on work flexibility in the gig-economy of Germany. At the end, JobMatch plans to increase user engagement through unique features such as video intros and gamification methods, making it a compelling alternative in the online job search platform space.

9.3. Customer Journey

The customer journey is an important tool for visualizing the customer's path to satisfying their needs. In view of the increasing fragmentation of delivery, purchasing and communication

channels, it is the tool of choice for gaining clarity about processes from the customer's perspective and serves to optimize resource allocation (Kuenen, 2018). The following paragraphs will describe the planned customer journey of JobMatches clients in more detail and along the five stages of the customer journey: awareness, consideration, decision, action, and loyalty (Quesitonpro.com, 2023).

9.3.1. Awareness

The app's user journey plans to begin with various touchpoints to increase awareness. JobMatch will target existing and potential users through a mix of online and offline ads to reach a broad audience. Online tactics such as targeted campaigns on relevant platforms, social media, and search engine marketing (SEM) will improve visibility through paid search ads. Social media marketing will ensure an active presence and encourages interaction with the audience. Interesting content such as blog posts, videos and infographics aim to increase the interest of the audience. In addition, job ads on multiple platforms will target job seekers and companies. Referral programs will provide users with an incentive to recommend the app to others and leverage word of mouth in their social circles. For certain demographics, traditional offline methods such as flyers, city billboards or radio advertising will also be considered. The integration of these different advertising approaches aims to effectively position JobMatch and create a positive initial impact on potential users. The main objectives are to attract attention, generate interest and successfully guide users through their journey.

9.3.2. Consideration

In the consideration phase of the user journey, potential customers actively compare services and products to meet complex job searches or temporary staffing needs. They conduct data-based research and look for accurate information to make their decisions, favoring substantive content over promotional material. This includes analyzing platform functionalities, user experiences and case studies of various similar solutions. To address these needs, JobMatch will adopt a data-driven marketing approach that emphasizes the efficiency of its algorithms

and stresses privacy measures to gain customer trust. Personalized success stories will illustrate the platform's effectiveness in solving specific job challenges, while clear communication about flexibility aim to ensure adaptability to different business needs. These benefits will be highlighted by focusing on efficient, accurate matching, a user-friendly interface, and cost-effective models, emphasizing overall affordability for clients.

9.3.3. Decision

Once potential customers will be convinced by JobMatch, they move on to the next phase. Users will be able to acquire the app via popular stores such as the Apple App Store or the Google Play Store. Employees will be able to register for free. For employers, the first placement of their job advertisement will be also free of charge. To get started, both must download the app, register with basic details and the employers will need to submit their payment information to ensure a smooth transition after the first trial. The app intends to enable job searches for employees and will give employers the opportunity to post ads and look for potential candidates. Users then have the option to go through an onboarding process for app navigation. JobMatch plans to maintain clear communication via emails, push notifications or in-app messages and provide updates and support throughout the trial period. The focus will be on ensuring a seamless transition to using the app through transparent communication and user support.

9.3.4. Action

The process within JobMatch intends to begin with job providers creating a detailed company profile, posting vacancies, and specifying the requirements. At the same time, job seekers will be able to create individual profiles in which they can specify their qualifications, skills, and preferences. The matching algorithm is then using this data to identify potential matches based on certain criteria such as experience, skills, industry, and location. The interface, which is planned to be based on dating apps, uses a playful swipe method for interaction, allowing users to express interest or reject potential matches. After successful registration, users will be

classified as marketing-qualified leads for JobMatch. After a match, the parties will be capable to communicate with each other to discuss job details, proceed with interviews, and provide feedback. Legal and regulatory matters between employers and employees will be managed independently by JobMatch to streamline operations and ensure compliance.

9.3.5. Profile Creation

Employer profiles on JobMatch start with the most important information: Company name, industry, number of employees and location, which form the core data for the matching algorithm. They then contain job-specific information such as title, type of position, brief duties and required skills. Additional details such as a required driving license can be added. Further details about the job include duration, working hours, salary, and additional benefits. Optionally, employers will be able to add a brief company overview, address, website link and contact information. Employee profiles on JobMatch will require personal information such as name, date of birth, place of residence and optionally a photo. Employees will have the option to control the privacy display settings so that the full last name and photo are only displayed after a successful match. Job seekers will be able to set a location radius for job filters. Contact information such as email and phone will be only available to employers after a successful match, so employees' privacy will maintain until they express interest in a position. The design of the platform will include models for job seekers, employers and matches that ensure a clear and immediate presentation of information (Appendix 18). Company logos will make it easier to quickly identify employers and improve the user experience. Strict security measures, including data encryption, access controls, regular audits, and a comprehensive contingency plan, will ensure the security of the platform. Further details on this topic can be found in the Compliance and Security chapter.

9.3.6. Determination of preferences

AI will be employed in the function of determining preferences by utilizing data processing of user information to develop personalized filters and preferences. Once users create a profile,

they will be able to set their preferences to narrow down their search for compatible work partners. Employers specify qualifications like technical skills, experience, and other relevant attributes. Employees define their ideal professional environment: preferred location, industry, availability for open positions and their duration, and desired job type. The geographical specification reflects regional job preferences, the selection of sectors corresponds to professional interests, and the availability specification relates to flexibility for temporary positions. The type of job further refines the search. Optionally provided salary expectations inform employers. These detailed preferences will facilitate the creation of tailored filters that enable a targeted partner search. This process intends to enhance the platform's efficiency for targeted matchmaking.

AI-powered processing of user data will be used to analyze and comprehend these preferences. Using criteria such as skills, location preferences, work hours, and other relevant variables, AI will aid in refining the search for candidates and companies to deliver more accurate results. By analyzing and understanding these preferences, AI will be able to develop personalized filters to optimize the selection of potential work partners, thereby offering users a more effective and targeted platform.

9.3.7. Matchmaking

Similar to popular dating apps, JobMatch will present users on the employer or employee page with a stack of potential matches. If a company likes a potential employee's profile with matching characteristics, it can swipe right; similarly, if a potential employee likes a hiring company's profile and job characteristics, they can swipe right. Upon a mutual match, both sides will receive a notification. Optionally, in a later stage of the app development and as operations and finances mature, JobMatch could offer further membership plans that provide additional benefits, such as the ability to add specific information to the user profile. Ultimately, both parties will be able to communicate using either the JobMatch chat function or the online video call feature. AI can then be used to generate tailored suggestions for candidates and

companies by employing algorithms and machine learning. Based on user profiles, indicated preferences, and behaviors within the platform, AI will have the potential to suggest suitable job offers or candidates.

9.3.8. Loyalty

In the loyalty phase, JobMatch will focus on customer satisfaction and maintaining long-term relationships. After a successful placement, the platform will notify customers of the positive contract conclusion and will ask both parties to rate their experience. These optional ratings will be hidden in the profiles if desired. They will not only increase transparency, but will also provide an insight into quality and expectations in advance, thus promoting trust and transparency for both sides. To drive continuous improvement, JobMatch will actively collect feedback from customers, both post-hire and post-employment. This feedback will serve as an important source of information that will help JobMatch refine and adapt its services to the evolving needs of its users. Constant communication with customers, whether through updates, newsletters, or personal messages, will ensure that they feel valued and cared for.

Ultimately, JobMatch will rely on satisfied employers and employees recommending the platform to others and thus attracting new customers through positive word of mouth. The loyalty phase will not only be about building a loyal customer base, but also about driving business growth through referrals and recommendations.

9.4. Operations

In the dynamic environment of the gig economy, the Operations chapter is at the center of JobMatch's key activities . It focuses on the operational processes and growth management that will be essential for the efficient and sustainable success of the company.

9.4.1. IT-Operations

A well-designed and user-friendly front-end is crucial for mobile apps, especially for recruitment apps (Pallay, 2019). Optimizing the job search process is critical for customer retention, with front-end design being a key differentiator in a competitive market (Song et al.,

2020). It will significantly influence the user's perception of the credibility of the app and the quality of the jobs. An appealing backend and frontend design will be crucial. The backend will process data efficiently and use a matching algorithm to connect job seekers with suitable offers, prioritizing user privacy. The front end, on the other hand, should focus on simplicity and provide a clear, intuitive interface with easy navigation. Providing clear job listings, company details and user profiles are also important. Features such as search functions and swiping will improve engagement and create an effective platform for job seekers and employers. To ensure an optimal user experience during development, JobMatch plans to implement the following steps:

1. **Planning and wireframing:** Developing a plan for the overall structure and layout of the application creating a wireframe to visualize the user interface.
2. **Design:** Finalize the wireframes and design the user interface using tools such as Sketch, Adobe XD or Figma, selecting colors, typography, icons and other elements for visual appeal and usability.
3. **Development:** Creating the user interface using programming languages such as HTML, Cascading Style Sheets and JavaScript, ensuring responsiveness on different screen sizes and devices.
4. **Testing:** Testing the user interface thoroughly for usability, functionality and compatibility with different devices and browsers. (Mobile first approach)
5. **Optimization:** Optimizing the application after successful testing for speed and performance by compressing images, reducing file size, and minimizing HTTP requests for fast and smooth loading (Galyonkin, 2020).

9.4.2. Compliance und Security

In the context of compliance and security, JobMatch will have to prioritize compliance with legal provisions, especially the GDPR in Germany, to uphold platform integrity and user

protection (Bundesministerium für Arbeit und Soziales, 2023). JobMatch will have to establish clear terms of use and contracts with employers and employees to define their rights and obligations. Ensuring a non-discriminatory platform is in line with the German General Equal Treatment Act (Federal Anti-Discrimination Agency, 2022), which emphasizes equal treatment regardless of gender, age, race, or other protected characteristics. In addition, compliance with the Data Protection Act (Federal Ministry of the Interior, Building and Community, 2018) will be crucial to ensure secure handling of personal data in accordance with data protection regulations. To secure data transmissions, JobMatch plans to use SSL/TLS encryption, which protects information like a secure envelope that is only accessible to the intended recipients. Collected data will be stored securely on protected servers and will offer users the option of two-factor authentication for added account security. The matching algorithm will prioritize relevant data without revealing sensitive information, ensuring user privacy is maintained throughout the matching process. Regular security checks, careful authorization management and updated software maintenance will ensure the highest security standards. Ongoing security policy and privacy training for JobMatch employees will be central to organizational awareness as well as adapting compliance and security measures to evolving case law and legislation essential to meet the requirements of the platform.

9.4.3. Brand development and user acquisition

JobMatch plans to pursue a comprehensive marketing and sales strategy including different sales and communication channels to target brand development and user acquisition. The focus will be on two main segments: the demand side (job seekers) and the supply side (companies). By addressing both groups in a targeted manner, interfaces that have a positive impact on marketing expenditure will be created.

Social Media (paid): JobMatch plans to leverage social media effectively, targeting Gen Y and Z, who extensively use platforms like Instagram, TikTok, and LinkedIn. Instagram, dominant among our audience, serves as a prime marketing channel. TikTok, with its lower advertising

costs and growing popularity, presents a strategic opportunity (Excel info sheet). Despite higher ad expenses, LinkedIn attracts quality business clients, contributing to JobMatch's higher revenue (Boadum, 2023).

Offline advertising: In a further move, JobMatch is planning to use offline advertising, particularly billboard ads, to position the brand as the first choice for short-term workers and the companies that employ them. The rollout will start in Berlin and then extend to Hamburg and Munich, the cities with the highest density of gig workers in Germany. Special attention will be paid to central city locations such as bus and train stations.

Trade fairs: Participation in trade fairs, especially in a country with two thirds of the world's leading trade fairs, is another important part of the strategy. JobMatch aims to establish direct contact with the target group, attract companies and increase brand awareness (AUMA, 2020). At the same time sales team will actively target new customers, especially on the demand side. They'll engage in networking at business and job fairs, fostering connections and subsequent follow-ups. Additionally, JobMatch aims to solidify partnerships with key clients like delivery services, major construction and manufacturing firms, event organizers, and restaurant chains, positioning itself as the primary platform for short-term recruitment.

9.4.4. Operational efficiency and growth management

JobMatch takes a comprehensive approach to operational efficiency and growth management in the dynamic gig economy in Germany. The focus is on precise financial control that includes planning, budgeting, accounting, and effective resource allocation for sustainable growth. Networking and building partnerships with various organizations such as gig economy companies, industries, startups, recruiters, associations, and educational institutions play a crucial role. These collaborations aim to diversify the job offering and increase attractiveness for both employers and employees by aligning with JobMatch's strategic goals and target industries. Ensuring scalability and developing strategies to adapt to the growth of the platform will continue to be a priority and will require technical improvements and appropriate user

support. Optimizing internal processes will maintain high quality standards, which are essential due to growing demands. Agile growth management will enable JobMatch to adapt quickly to market developments, user input and changing trends in the gig economy. This adaptability will be fundamental to overcoming current and future challenges. JobMatch's strategy aims to combine operational efficiency and growth management to ensure sustainable success in the German gig economy.

To achieve this success, the company must first offer customers added value and therefore take certain key resources into account. These are basic inputs that should enable the company to operate, remain competitive and grow continuously to ultimately fulfill its value proposition. A wide range of key resources should be considered as they have a significant impact on the functioning and success of the company. This includes AI and algorithm expertise provided by specialized professionals. These experts are key to the development and continuous improvement of the company's job matching algorithms, which in turn increases the efficiency of the platform. Another important resource is the company's IT infrastructure. Powerful servers and robust security protocols play a crucial role in the operational security of the platform and the data security of users. Additionally, the company has significant marketing resources. It has a solid budget and expertise specifically dedicated to running marketing campaigns on various platforms. These resources are critical to increasing the company's brand awareness and expanding the reach of its services. Finally, the company places great emphasis on customer service. A dedicated team of customer service representatives is available to users to answer questions and resolve issues. This resource is vital to customer satisfaction and building long-term.

10. References

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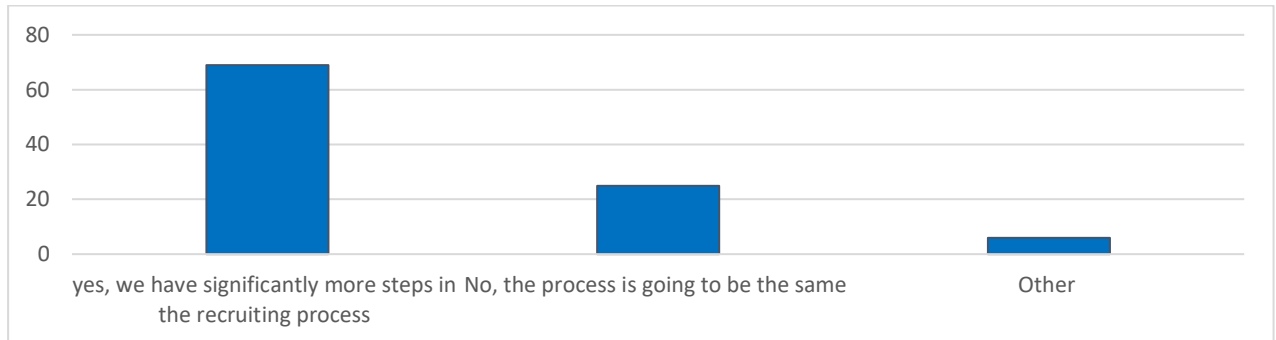
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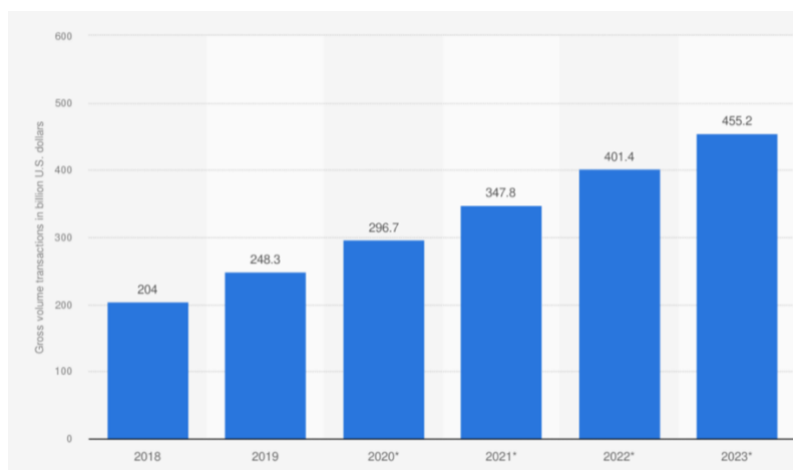
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11. Appendix

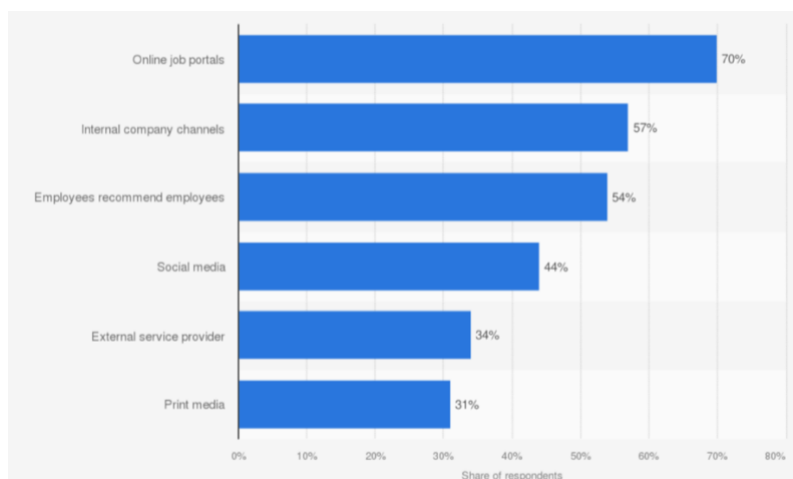
Appendix 1: Is the corona Crisis changing your recruiting process ? (Statista, 2020)



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

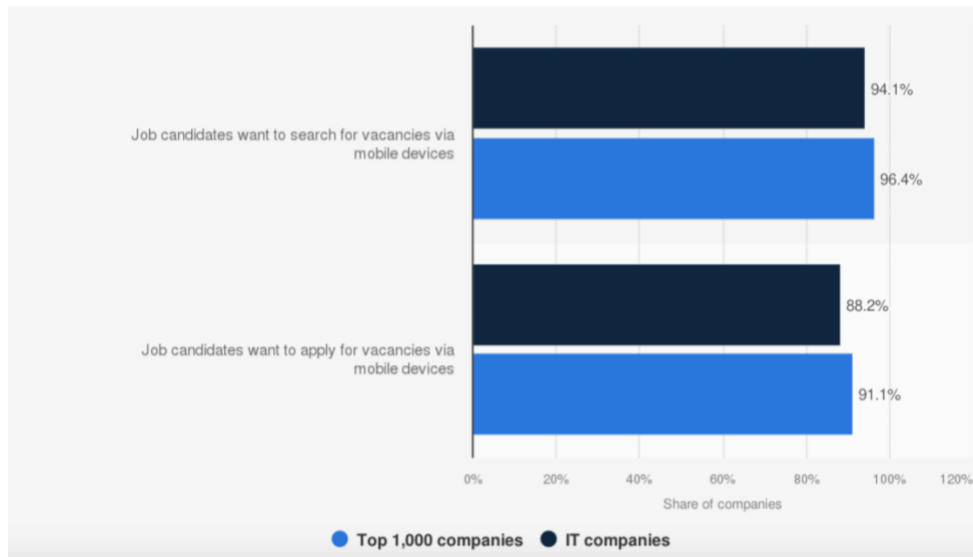


Appendix 3: Which recruiting channels do you use to hire new employees? (Statista, 2023)



11.1. Artificial Intelligence-driven Recruitment in the Gig Economy: Comprehensive market analysis and operational implementation on the example of JobMatch

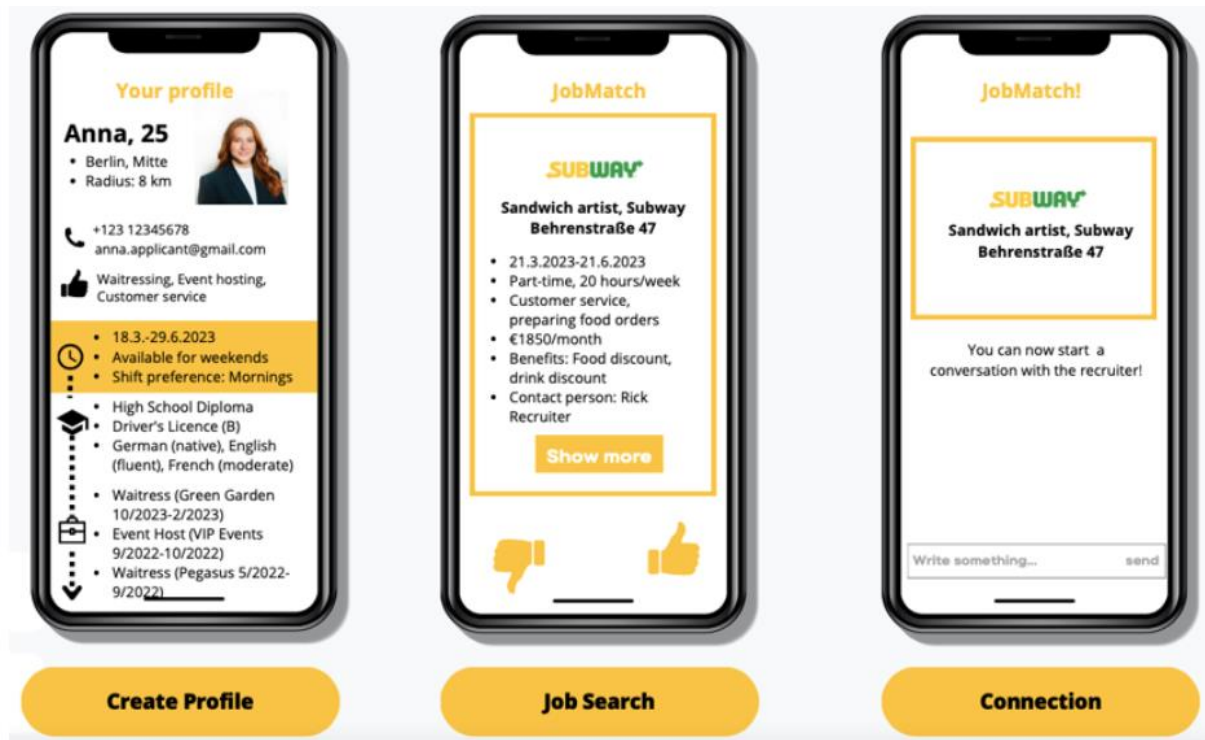
Appendix 16: Assessment of German Companies on actively recruiting candidates using mobile devices in 2020, by type of company (Statista, 2020)



Appendix 17: Target Groups Personas

	Age	Based in	Education	Occupation	Interests and values	Challenges
Persona A: The flexible life enjoyer	23	Munich	High School Diploma	Event hostess, other occasional jobs	Free time, flexibility, activities with friends	Finding contracts that focus shifts on weekends
Persona B: The determined future thinker	26	Berlin	High School Diploma	Gig jobber in restaurants, trade fairs and events	Investing, art exhibitions, starting a business in the future	Lengthy recruiting processes
Persona C: The financial peace seeker	33	Hamburg	Master's degree in art history	Part-time job in an art museum, providing grocery delivery services, ride-hailing services	Flexibility, not having to stress about financial livelihood	Not having a fixed amount of pay per month

Appendix 18 - Profile Creation (Front-End)



Appendix 19: Competitor Analysis

							
Matching algorithm	✓	✗	✗	✗	✗	✗	✓
Video introduction	✓	✗	✗	✗	✗	✗	✗
Gamification	✓	✗	✗	✗	✗	✗	✗
One application for the whole process	✓	✗	✗	✗	✗	✗	✗
Job listing	✓	✓	✓	✓	✓	✓	✓
Resume CV	✓	✓	✓	✓	✓	✓	✓
Search filters	✓	✓	✓	✓	✓	✓	✓
Mobile app	✓	✓	✓	✓	✓	✓	✓

