Empowering Organizational Feedback with Artificial Intelligence: Business Model Validation and Future Opportunities of a Qualitative Analysis Platform

Work project carried out under the supervision of:

Advisor: Hugo M. Aguiar

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

Empowering Organizational Feedback with Artificial Intelligence: Business Model Validation and Future Opportunities of a Qualitative Analysis Platform

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19/12/2023

Abstract

This thesis explores the integration of Large Language Models (LLMs) in Human Resources to improve employee feedback processes. It examines challenges in analyzing qualitative feedback in large organizations and proposes *Thrivio*, an AI-driven Minimum Viable Product (MVP), as a solution. The research combines a comprehensive literature review, mixed-methods empirical research, and the development and testing of *Thrivio*. Focusing on enhancing HR decision-making through AI analytics, the thesis presents a novel bottom-up approach to employee feedback, culminating in a market strategy and future roadmap for *Thrivio*, thereby contributing to the field of impact entrepreneurship and innovation.

Keywords: Artificial Intelligence, Organizational Feedback, Qualitative Analysis, Platform Development, OutSystems, User Interface Design, Data Visualization, Feedback Collection Methods, User Experience Design, Sentiment Analysis, Human-Computer Interaction, Testing, Text Analysis, Business Plan, Low Code, No Code, SaaS, Large Language Models, Opportunity Identification

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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List of Abbreviations

ABBREVIATION	DEFINITION
API	Application Programming Interface
E.G	Example Given
ET. AL.	Et Alia (and others)
HRM	Human Resource Management
I.E.	id est (that is)
MVP	Minimum Viable Product
RAD	Rapid Application Development
UI	User Interface
USP	Unique Selling Point
UX	User Experience
SAM	Serviceable Available Market
SME	Small to Medium Enterprise
SOM	Serviceable Obtainable Market
SOTA	State-of-the-art
TAM	Total Available Market

1. Empirical Research (Group Part)

1.1. Research Background

Before this thesis, the inception of a chatbot tailored to identify sentiments and provide guidance on well-being was borne from a project to develop a mood-tracking diary application within the university setting. Early dialogues on this venture brought to light the intricate regulatory web that such an undertaking would entail. This insight necessitated a strategic shift, sparking the pursuit of a feasible solution that promised tangible benefits. The emergent hypothesis posited that such a tool could potentially bolster employee satisfaction.

This hypothesis set in motion a series of comprehensive (yet non-scientific) interviews which honed the initial concept and signaled the onset of a more systematic and methodical research phase. The prelude to our empirical investigation, termed the 'pre-work' stage, initiated even before we embarked on the literature review and defined the overarching problem statement. The aim was to sketch a preliminary outline of the challenges and opportunities inherent to our proposition, indirectly steering the course for our ensuing research endeavors.

Embracing the scientific rigor of 'Phase 1', we already gained valuable insights from the initial literature review, enabling the articulation of a problem statement. This phase sought to verify the existence of a tangible problem or need within the domain, setting the stage for a potential solution. Concurrently, this process also served to validate the identified issues, thus laying a robust foundation for this thesis.

Despite the fruitful exchanges during the pre-research dialogues, the advent of the actual thesis work was marked by a plateau in novel knowledge acquisition. Both the undertaking of a survey with employees and the problem interviews with decision makers continued until there was no

observable value-add. After gaining these insights, we moved on to ‘Phase 2,’ where we again surveyed decision makers to close any knowledge gaps that had arisen from ‘Phase 1’ insights. This phase also focused more specifically on requirements for product development.

In synthesis, this Chapter is a prologue to the dual-faceted nature of our research journey, unveiling the theoretical framework and the empirical undertakings that culminate in the proposal of the solution: *Thrivio*. This Chapter not only elucidates the rationale behind the strategic pivot from our original mental health chatbot concept but also charts the course for the forthcoming exploration into the tool's potential to elevate workplace satisfaction. The subsequent section will expand upon the research methodology and the evolution of the concept, underpinned by a graphic overview encapsulating the entire empirical research scope including the foundational pre-research phase. (Figure 1) (AI Microsoft 2023)

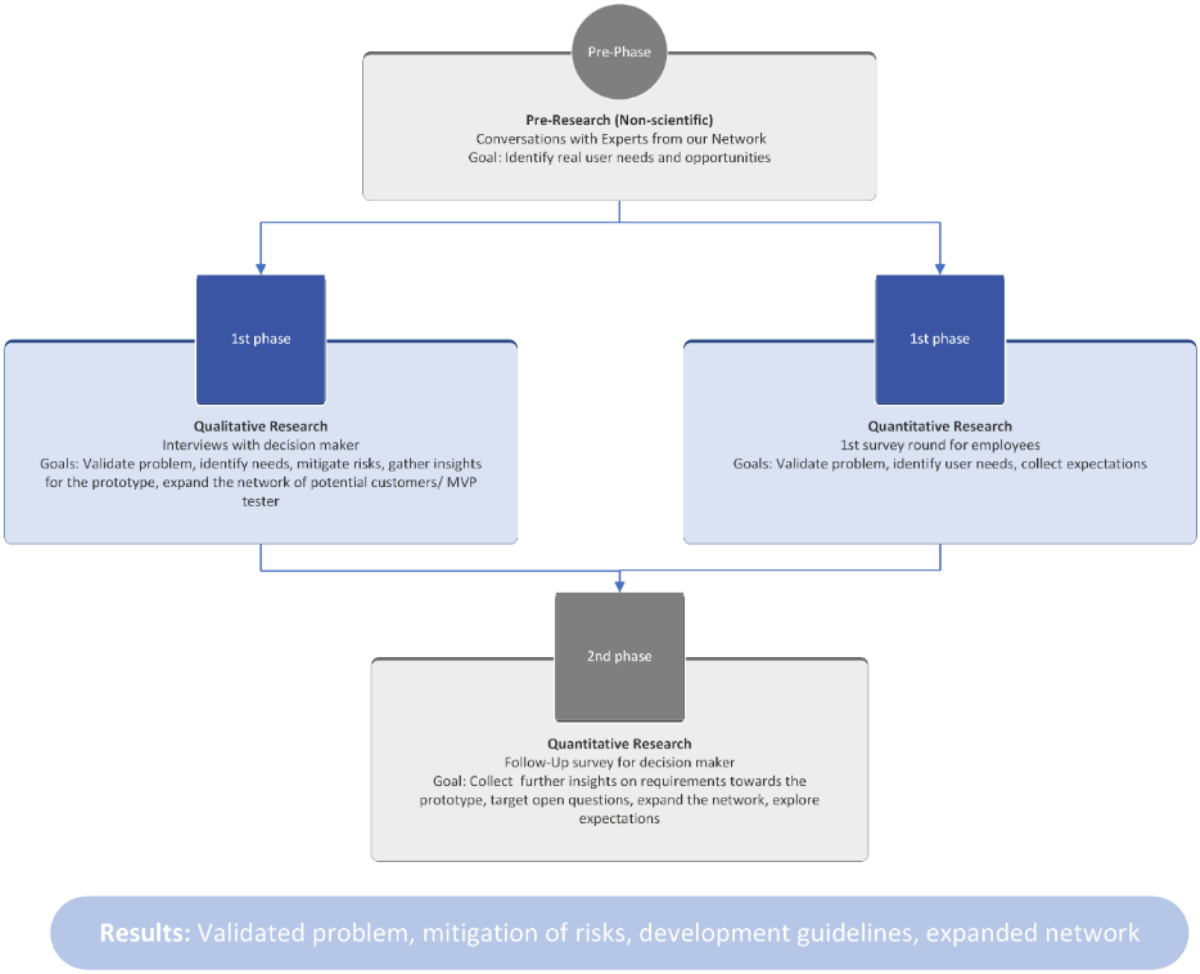

Figure 1: Empirical Research Structure

1.2. Research Methodology

The primary research for this project is designed to mitigate risks associated with the final product. This involves validating the perceived problems from the perspectives of key stakeholders, understanding the needs and desires of employees and decision-makers, and refining the prototype accordingly. The research also seeks to affirm product development stages by interviewing industry professionals in AI-mediated processes or new technology development. These experts, while not direct users or customers, offer invaluable insights for risk mitigation in product development.

Given the complexity of product development in today's world, a single-method research strategy would be insufficient. Hence, a mixed-methods approach, integrating both qualitative and quantitative data collection and analysis, was adopted. This approach is essential because it provides a comprehensive understanding that neither methodology could offer alone (Pole 2007). Mixed methods research, particularly when studying employee satisfaction and AI in HR practices, allows for a nuanced understanding of the distinct yet interconnected groups of employees and decision makers (Ivankova 2009).

Our mixed methods approach includes qualitative interviews and two quantitative surveys. The interviews aim to delve into the aspirations and opinions of decision makers and to extract feedback from industry professionals on developing new technology-focused processes. The quantitative surveys are designed to collect insights from employees and investigate decision-makers' sentiments beyond the previous interviews.

Data from each method will be analyzed using techniques suited to the respective data types. Qualitative data from interviews will undergo content analysis as per Mayring's method, while quantitative survey data will be subjected to appropriate statistical techniques based on the data's distribution. (Sandelowski 2000) This dual analysis will ensure that findings from one method validate and lay the groundwork for the other, providing a holistic view of the research question (Pole 2007).

Two hypotheses guide the first research phase, the first one for the quantitative and the second one for the qualitative strand:

1. Employees are expected to highlight deficiencies in current feedback mechanisms through surveys, indicating areas for enhancement.
2. Decision-makers are anticipated to identify shortcomings in existing feedback systems through interviews, suggesting avenues for improvement.

In sum, a mixed-methods approach over approximately three weeks conducted the primary research. Semi-structured interviews and self-administered surveys investigated the feedback process and the proposed solution's usability, feasibility, and added value. This cross-sectional strategy aims to gather extensive data within a limited timeframe to provide an interconnected perspective of both the employer and employee views, as well as the technical and entrepreneurial aspects of the project.

1.3. Qualitative Research

This thesis's empirical section utilizes qualitative interviews to understand the specific challenges and needs faced by growth-oriented start-ups and SMEs (small to medium enterprises) during the feedback evaluation process. This study is dedicated to confirming the identified issues and assessing the potential of the proposed solution within the target customer demographic, extending into entrepreneurial and technical opportunities. For in-depth analysis, Mayring's content analysis methodology is employed, offering granular insights by deconstructing the fundamental material into a validated summary. This condensation is crafted through a systematic technique, contingent on pinpointing key thematic categories consistent throughout the research database. (Mayring 1994)

1.3.1. Interview Structure

Embarking this structured qualitative research journey, our focus lies on decision makers in SMEs, utilizing Mayring's coding for a nuanced exploration of problem validation, needs assessment, and expectations for the prototype. This period of exploration is essential for an in-depth understanding of the problem, which will then allow us to identify suitable solutions. (Dorst 2001) Precisely, the target group of this study consisted of decision makers of SMEs, as this specific group has a significant influence on the feedback process, subsequent tool use, and the implications of collected data. The interview script was meticulously designed beforehand with specific intents behind each question. The full interview script can be found in Appendix 10.

1.3.1. Analysis of Interviews to Validate Challenges in SME

This Chapter presents an analysis of qualitative interviews conducted with various organizations using Mayring's qualitative content analysis method. The analysis revolves around five thematic units: Organizational Dynamics and Employee Well-being, Feedback Processing and Decision-making, Innovation Adoption and AI Integration, Evaluation Metrics and Strategic Alignment, and Impact Assessment and Future Outlook. These interviews were primarily relevant for analyzing the challenges companies face in collecting and utilizing qualitative feedback and validating them for the selection of fundamental features for the MVP. Therefore, this Chapter succinctly summarizes the core statements. The complete transcripts can be found in Appendix. 11.

Organizational Dynamics and Employee Well-being: The adaptability of organizations to employee needs, especially in hybrid environments, is crucial for maintaining a dynamic workplace. 5AM Agency emphasizes this through a strong company culture and initiatives like

regular meetings, impacting employee retention positively. "Creating a strong company culture is key," says Ole Besendahl (Besendahl 2023, 3), highlighting the importance of direct communication in ensuring well-being. (Besendahl 2023)

Feedback Processing and Decision-making: Feedback mechanisms in SMEs often rely on direct communication channels, as highlighted by BGA's approach to employee feedback. However, challenges in interpreting feedback without structured processes are common. Eduardo Mendes from BGA notes, "Interpreting feedback is challenging," (Mendes 2023, 2) underlining the need for effective feedback mechanisms in decision-making. (Mendes 2023)

Innovation Adoption and AI Integration: The readiness to adopt AI varies, with integration challenges being a significant concern. For instance, 5AM Agency's openness to AI is tempered by concerns over its integration with tools like Slack (Besendahl 2023). "AI should enhance, not replace, direct communication," suggests Henry-Yves Coco (Coco 2023) from Rameder, pointing to the need for AI to fit within the organizational culture.

Evaluation Metrics and Strategic Alignment: Metrics such as employee satisfaction are pivotal. Rameder uses employee satisfaction as a key indicator, aligning AI tools' strategic value with deeper feedback insights (Coco 2023). "AI can provide deeper insights into feedback," echoes Maija from Slush (Muntila 2023, 3), highlighting the strategic importance of AI in feedback analysis. (Muntila 2023)

Impact Assessment and Future Outlook: The potential impact of AI tools on organizational efficiency and employee engagement is significant. "AI tools could improve operational efficiency," notes Besendahl (Besendahl 2023, 3), while Slush anticipates AI enhancing employee engagement (Muntila 2023). The scalability and adaptability of these tools are essential for long-term success, as per the insights from Rameder (Coco 2023).

The interviews reveal a diverse landscape in how organizations approach employee well-being, feedback processing, and the adoption of new technologies like AI. While there's a clear recognition of the value of feedback in organizational dynamics, the methods of collecting and interpreting this feedback vary widely. The readiness for AI integration and its alignment with organizational culture and strategy are areas with mixed responses, suggesting a cautious yet curious attitude towards technological innovations. The analysis underscores the need for adaptable, culturally aligned tools that can seamlessly integrate into existing systems while enhancing employee engagement and decision-making processes.

This qualitative analysis using Mayring's methodology provided valuable insights into the current state and future potential of employee-focused strategies and technological integration within organizations. The findings from these interviews offered a nuanced understanding of the challenges and opportunities in enhancing organizational dynamics and decision-making processes, emphasizing the importance of aligning technological solutions with strategic goals and cultural values for sustainable growth and development.

1.3.2. Analysis of Interviews Assessing the Tech-Stack

As previously mentioned, we additionally managed to land some interviews with NLP experts and a founder of *Ora.ai*, a platform to ‘code’ your own chatbots just by simple prompts. To not overcomplicate and adhere to the thesis scope, the following part will very briefly state key findings from these interviews that have shaped the project’s development and business scope without coding as per Mayring. However, each transcript can be found in Appendix 10.

From the tech interviews with NLP experts Tameesh and Sanny, we derived essential insights into the development of AI-enhanced feedback systems. They emphasized the criticality of mitigating bias in NLP models, advocating for thorough parameter experimentation and the

strategic use of pre-existing models like OpenAI for practical scalability. A significant focus was also placed on the transformation of unstructured feedback into structured formats to facilitate deeper analysis. The challenges surrounding data privacy and nuanced sentiment analysis were also highlighted, underscoring the complexities involved in handling sensitive organizational feedback.

In contrast, the interview with Dennis, the founder of *Ora.ai*, provided a unique perspective that blended business strategy with technical acumen in the context of AI platforms. Dennis shared his experiences on pivoting product focus, illustrating the importance of a robust system architecture and the challenges faced in scaling and managing data efficiently for chatbot applications. He stressed the significance of quantifying qualitative data and the necessity of an iterative development approach. This approach prioritizes constant user engagement and feedback, advocating for starting with simple, user-centric designs to validate core features rapidly – an aspect that will be picked up on later in the scope of the thesis.

These insights collectively offer a brief, but comprehensive understanding of the current state and challenges in implementing AI tools for feedback analysis in growth startups and SMEs. They provide valuable guidance in our efforts to develop an efficient, user-centric, and scalable AI-enhanced feedback evaluation platform and the feasibility of its' potential features.

1.4. Quantitative Research

In transitioning from the decision-maker's perspective to that of the employees, our quantitative research phase is crucial. This phase aims to substantiate the identified problems and gauge the genuine necessity for solutions from the end-user's vantage point. Primary data collection through a self-administered online survey will enrich our understanding and refine product development. This method is chosen for its accessibility and cost-effectiveness. (Sierles 2003)

The survey will not only bolster secondary data but also highlight new facets, guiding the initial solution build to align with the end-users' values and usage preferences, thereby enhancing the potential for a successful product.

1.4.1. Survey Process

In addressing time constraints, this thesis adopts a quantitative, cross-sectional survey targeting employees across various industries, save for the secondary and tertiary sectors. This approach, leveraging existing networks, primarily garners participation from Germans, reflecting a potential national bias acknowledged as a limitation but also as a strategic fit for the venture's initial focus on Germany. (Volkmann 2009) The survey, available in Appendix 1, aims to evaluate workplace feedback systems, identify system gaps, gauge interest in new features, understand employee feedback engagement, and assess anonymity's role in feedback provision. Adhering to ethical research standards, we maintain participant confidentiality and informed consent (Kelley 2003). The survey's design is straightforward, balancing various question types to ensure clarity and purpose-driven data collection. There is a chance of occurring sampling errors, like a selection bias (higher risk) (Hernán 2004), non-response bias (medium risk) (Berg 2010), and social desirability bias (lower risk) (Larson 2018). Aware of these potential sampling biases, measures were taken to mitigate them. Essentially, there are five main intents or goals of this survey:

1. Assessing the status quo of feedback systems at workplaces
2. Identifying gaps in current systems
3. Assessing feature interests in a new system
4. Understanding how employees engage in providing feedback
5. Evaluating the importance of anonymity and comfort level in providing feedback

1.4.2. Survey Analysis

With the 100 responses gathered in a timespan of about a week, a thorough analysis was conducted filtering by respondents who were neither unemployed nor self-employed as only these are relevant to the problem of lacking employee feedback mechanisms. In addition, the data was further pre-processed in 3 steps to allow for better and more precise analysis:

1. Changed column names for more precise ones
2. Filled missing values
3. Deleted empty or irrelevant columns

With the in-text analysis, we hope to cover the most important aspects like providing a statistical summary of key variables, creating visual representations of key variables, investigating how demographic variables relate to feedback mechanisms and preferences, and conducting hypothesis tests to validate our assumptions. The full analysis can be found in Appendix 9.

Our sample is evenly split between males (51%) and females (49%), though they are rather young with the majority being 25-34 years old (65%). As expected, 91% of the respondents are from Germany, which aligns with our target market and most of the respondents (48%) work in companies with 500+ employees. Furthermore, the demographic data has been checked for correlations with feedback-related variables such as the needed frequency of providing feedback or comfortability, but none of the demographic variables have proven to be a good predictor of feedback-related variables due to very weak correlations.

67% of respondents reported that their workplace uses structured approaches with the most popular mechanisms being one-on-one meetings (48 mentions), open-door policies (45 mentions), and pre-defined surveys (37 mentions). This data proves that the most used

mechanisms, if not collected by quantitative surveys, heavily involve human work and are therefore extremely time-consuming for both parties. Moreover, the mean satisfaction level of the current mechanisms is at a rather neutral 6.29 out of 10. Satisfaction levels correlate negatively (-0.38) with the need to provide feedback suggesting that those who feel the need to provide feedback more frequently are generally less satisfied. A strong positive correlation (0.58) between comfortability and satisfaction indicates that those who are more comfortable providing feedback are generally more satisfied. These findings reinforce the opportunity to provide an approach that is more tailored to employees' needs, and more automized in providing quantified insights on qualitative data.

As for feature preferences, the data shows that most respondents stated, ‘It depends’ (45%) or ‘Yes’ (43%) when asked about the preference to give feedback anonymously. This shows that most people have topics they do not wish to discuss in person, if at all. This also shows in the most valued features of the respondents, as the most valued feature is ‘voicing concerns with enhanced anonymity’ (26 mentions). A graph indicating all feature preferences of the sample can be found in Appendix 10. The data also suggests a high level of acceptance for integration of an AI enhanced feedback tool (76.81%) while chatbot acceptance is mostly answered with a ‘Maybe’ (38%). Another interesting insight is that the frequency with which employees feel the need to provide feedback is very spread out but correlates negatively (-0.37) with comfort level suggesting that the frequency of feeling the need to provide feedback decreases when comfort levels rise.

Our hypothesis testing, conducted using non-parametric methods due to the non-normal distribution of data (Vickers, 2005, p.1), included the Mann-Whitney U Test and Spearman’s Rank-Order Correlation. The following four hypotheses were tested:

1.4.2.1. Anonymity Preference vs. Comfort Level

- **Null Hypothesis (H0):** There is no relationship between the preference for anonymity and comfort level in providing feedback.
- **Alternative Hypothesis (H1):** There is a significant relationship between the preference for anonymity and comfort level in providing feedback.
- **Test Method:** Mann-Whitney U Test
- **p-value:** $4.88 * 10^{-22}$
- **Significant:** True
- **Interpretation and Implications:** The data strongly rejects the null hypothesis, indicating a significant relationship between the preference for anonymity and comfort level. This suggests that any product design should prioritize features that allow for anonymous feedback to enhance user comfort.

1.4.2.2. Satisfaction vs. Action, Engagement Frequency

- **Null Hypothesis (H0):** There is no relationship between satisfaction levels and the frequency of providing feedback.
- **Alternative Hypothesis (H1):** There is a significant relationship between satisfaction levels and the frequency of providing feedback.
- **Test Method:** Spearman's Rank-Order Correlation
- **Correlation Coefficient:** -0.378
- **p-value:** 0.0014
- **Significant:** True
- **Interpretation and Implications:** The null hypothesis is rejected, revealing a negative correlation between satisfaction levels and engagement frequency. Lower satisfaction

leads to higher engagement in providing feedback. This underlines the need for a platform that can efficiently handle frequent feedback, especially from less satisfied users.

1.4.2.3. Chatbot Acceptance vs. Age Group

- **Null Hypothesis (H0)**: Age does not influence the willingness to use a chatbot-based feedback platform.
- **Alternative Hypothesis (H1)**: Age significantly influences the willingness to use a chatbot-based feedback platform.
- **Test Method**: Spearman's Rank-Order Correlation
- **Correlation Coefficient**: 0.090
- **p-value**: 0.464
- **Significant**: False

1.4.2.4. Employees in Bigger Companies Expressing Dissatisfaction

- **Null Hypothesis (H0)**: Company size does not influence employee satisfaction with existing feedback methods.
- **Alternative Hypothesis (H1)**: Company size significantly influences employee satisfaction with existing feedback methods.
- **Test Method**: Mann-Whitney U Test
- **p-value**: $2.74 * 10^{-16}$
- **Significant**: True
- **Interpretation and Implications**: The null hypothesis is strongly rejected, suggesting that employees in larger companies are more often dissatisfied with existing feedback

methods. This highlights the need for a scalable feedback platform that can cater to larger organizations.

1.4.2.5. Conclusion

In summary, our primary data collection, while subject to potential bias risks and inherent limitations of surveys, reinforces the initial hypothesis of a market gap in bottom-up feedback tools at workplaces. Existing mechanisms are either time-consuming, subject to human bias, or overlook qualitative data by relying on predefined surveys, thus failing to address employee needs adequately. As Henry-Yves aptly summarized in our interviews, ‘I rather go for the results from the employees, and the questions from the employees, and the pain points from the employees than getting standard answers to my questions.’ (Coco 2023, 3). Demographics do not reliably predict feature preferences, but anonymity in voicing concerns is a primary feature interest. Integration is key to feedback tool acceptance, while the viability of chatbot usage requires real-world validation. Our findings reveal that lower satisfaction increases feedback engagement and that employees in larger companies tend to be more dissatisfied, suggesting a heightened need for such a platform in bigger corporations. This data will guide our solution proposal, product design process, and feature prioritization. The subsequent Chapter will introduce a solution proposal addressing the identified issues, based on insights generated from the primary and secondary research.

2. Product Development (Group Part)

After thoroughly reviewing literature, consolidating of primary as well as secondary data, and the subsequent derivation of a solution proposal, the following Chapter will delve into the

development of the first tangible product. The technology selection for development will be determined and justified and in-depth development descriptions of the backend and frontend components of the product will be given. Additionally, underlying limitations and missing technologies will be discussed. As a result of this Chapter the first operational product – *Thrivio's* MVP 1.0 – will be presented.

2.1. Technology (Group Part)

In the following Chapter, our technology selection will be discussed, evaluated, and justified on the background of constraints and requirements of the platform development process. First, the constraints we are limited by throughout the thesis project will be discussed and subsequent requirements formulated. As a result, the methodology of our development approach as well as the chosen development tool will be explained and justified. This Chapter serves as the foundation on which the development description will be built.

2.1.1. Constraints and Requirements

Considering the limited expertise for software development in our team and the inherent fast-paced nature of the thesis, it was only logical to design a first pilot product comprising the most essential and value-delivering parts of the envisioned solution. In the end, our requirement of the process is to gain insights and validate assumptions in a very limited timespan and scarce resources. The MVP developed throughout the three-month thesis sprint will enable us to collect first-hand feedback from our defined target users with limited expertise and development effort.

Furthermore, without early-stage investment from outside our team, we are very limited in available resources for the development of our product to validate the to-be-delivered value and

product market fit. Building a heavily stripped-down product comprising only of core features allows us to allocate resources effectively. Additionally, choosing such an MVP development approach allows us to reallocate our bootstrapped resources quickly and efficiently should the development process run into limitations or should our initial test findings suggest a pivot to other features. Essentially, it allows for low-risk, high-reward outcomes, and increased flexibility in first-stage development. With the goal in mind to turn this into a sustainable business, all these resource savings can eventually be used to build a full-scale product with the value of the solution validated in the scope of the thesis.

Lastly, it is especially important for us to prove the value added of the solution in a real-world setting. By putting our users at the center of the development process and being able to adapt to their needs, we can increase the value add for businesses using our solution and prove traction in real-world settings.

2.1.2. The Concept & Application of Rapid Application Development

Now that the constraints and requirements of this project have been stated, the next crucial thing is to define the methodology with which we will make sure to fulfil the requirements and adhere to the constraints. To do this we have chosen to go with a rather practical and agile approach for simplicity due to lacking expertise in the development stage. Instead of going for a very structured and meticulously planned approach like the waterfall method, we chose to go with the Rapid Application Development (RAD) approach.

In a nutshell, RAD is ‘a software development methodology that prioritizes rapid prototyping and quick feedback over long-drawn-out development and testing cycles’ (Kissflow 2023). Overall, it is an iterative and incremental approach that focuses on rapid delivery and mitigating risks throughout the project (Zafar 2018). Its benefits like faster time to market, cost & time

savings, increased value generation, reduced risk, and enhanced customer satisfaction through close collaboration (Microsoft Power Apps n.d.) essentially mirror the requirements and constraints discussed in the previous Chapter. Therefore, it is a perfect fit for our rather low expertise in the development planning field and is highly suitable to maximize insights with minimal investment.

Essentially, this thesis will cover the first cycle of the RAD method from defining the requirements to prototyping and construction to the final stage of deployment for our pilot users to test. In the earlier Chapters of this thesis, the problem has been stated and validated through both existing literature and our own empirical research with potential users of the application. Consequently, a solution was proposed out of which feature requirements will be deducted in the following Chapter from which a first prototype can be built. With an established idea of the initial MVP build, we can then move forward with the development process, debugging, and a first test cycle to verify, adapt, and potentially reimagine the initial features.

2.1.3. Developing as an average Joe – Why OutSystems?

Although we have now chosen a methodology based on the constraints and requirements, we still need to choose a tool that will let us quickly and efficiently develop full stack without having to become a software engineer in three months. To do this, we set our eyes on low-code solutions to be able to build the best MVP we could while incorporating the limited coding knowledge we had as best as possible. In the end, our pick was OutSystems as our full-stack development platform.

OutSystems is a high-performance low code solution enabling full-stack development through one platform. It allows for efficient cooperative development that can scale to a large number of users with minimal delivery time up to 4 times faster than the competition. Through its

modular infrastructure, it enables the developer to make and deploy changes very efficiently in cooperation with others. It comes with pre-built AI/ML models and the addition of user-created components in the ‘Forge’ to incorporate building blocks (modules) the community created (OutSystems n.d.). Additionally, we are offered a free development and production environment through NOVA Sbe to build the first MVP iterations which enables us to bootstrap the project for now.

While OutSystems is a great fit for the current stage of the project, we are aware of the various downsides and limitations it forces us to abide by in the present and the future. Although it offers a wide variety of integrations and a high degree of customization for a low-code solution, it is focused on high-level development and can therefore limit the customization that is possible. In other words: Writing your own code will always be superior when trying to subject yourself to the highest market standards. Although a growing community (Business Wire 2023) OutSystems is nowhere near the engagement standards of other communities like Python or Java (Google Trends n.d.). Therefore, even though designed for easy access and fast mastery, OutSystems does have a non-negligible learning curve when trying to master the little nuances that will separate a good application from a mediocre one. Although it is designed to be scalable, OutSystems can present challenges when it comes to ultra-high-scale applications, both from a technical and financial perspective. We know that building what we envision will change the way businesses listen to their workforce cannot be sustained solely in OutSystems. This is a first step and OutSystems is the perfect fit for that first step. Subsequently, we need to brace for eventual high subscription costs or high migration costs when turning this vision into reality by adopting market standards and hiring real software engineers.

On the background of these critical insights, we first started developing in Softr (Softr n.d.) with the help of Airtable (Airtable n.d.) but quickly realized the immense limitations of both

tools would not let us build the solution we envisioned. As we looked into other comparable solutions like Appian (Appian n.d.) or Power Apps (Microsoft Power Apps n.d.) it became clear that OutSystems was our best pick out of all of these due to the fact that we would be able to gain expertise through our advisor Hugo and have cost reductions due to the opportunity provided by Nova SBE. Our pre-thesis efforts up until this point are shown in Appendix 2.

2.2. Frontend Development (Group Part)

Subjected to the identified problem, its implications for our user's needs, and the proposed value to be delivered by the platform, it was critical to design a frontend that would meet all of these subjections and deliver an experience that is intuitive and pleasurable to the user. While backend development is responsible for the logic behind a webpage or web application, frontend development is the process of creating the user interface of a webpage or web application using programming languages such as HTML, CSS, and JavaScript (Gallinelli 2021; Berkeley Extension n.d.; Frontend Masters n.d.). In combination with the backend, the frontend's main goal is to create a visual representation of the application's logic that is easy to navigate, intuitive, fitting to the application's features (Frontend Masters n.d.), and responsive to the user's device (Lemonaki 2022). In our case, we again will use OutSytems as a full-stack tool to design the frontend to adhere to the aforementioned constraints and limitations our team operates under. This will essentially mimic programming in HTML, JavaScript and CSS styles.

Although often used interchangeably, user experience (UX) and user interface (UI) are two separate fields both equally important to the development process (Gottdiener 2022). This Chapter will describe both the UX, and the UI development from the identification of our user's needs to the actual development process inside OutSystems to show the finished MVP's front end.

2.2.1. User Experience Design

As a first step in the frontend development of a solution, designing an UX that delivers meaningful and relevant experiences to users is crucial (Interaction Design Foundation (a) 2016). It entails the creation of a solution that is easy, efficient, and relevant in the experience to the user (Stevens 2023). To achieve a great UX design it is vital to understand user's needs and challenges of the status quo on the background of the current state of the art (SOTA) solutions of the market. Through the conducted primary and secondary research touched on in previous Chapters these needs and challenges became evident.

Employees proved to feel rather neutral toward the current feedback collection processes in place while expressing that their individual needs at the point in time they arise are often neglected. They stated a preference for anonymity when expressing their emotions and feedback which his reinforced by the fact that comfortable employees voice their opinions more often. A fact that reinstates the current data monopoly held by those comfortable giving feedback. Moreover, employees want more personalized recommendations while having a larger voice in the organization in combination with instant acknowledgement and information on what feedback is being worked on.

Employers, or managers, see employee retention and engagement as critical for their business success. As a driving force for ensuring the retention and engagement they see potential in bottom-up feedback processes. They expressed their interest to go beyond static processes with pre-defined surveys that don't touch on the specific employee needs or go beyond time-intensive 1-on-1 meetings which are conducted often too rarely. Spending time analyzing qualitative data cannot and will not be done in practice. Paradoxically managers expressed huge interest in understanding how their organization feels down to the department, specific roles,

and topics. The value lies in the granularity of the data. However, all of this is seen as an addition to the work they do on the daily which is reinforced by the findings of the literature research. The solution cannot and should not replace the interpersonal work at organizations nor should it replace the implementation of solutions.

2.2.1.1. User Stories

Translating from these garnered theoretical and empirical insights user stories were derived to inform the feature list potential users would derive value from. User stories are a commonly used, and effective tool in web development to think about the UX design from each user's perspective (Interaction Design Foundation (b) 2016; Suresh 2023). The user stories per frontend section shown in Table 1 with respective intent relating to the proposed value-add have been defined based on the research.

Section	ID	Description	Intent
Authentication	1.1	As a new user, I want to register an account to access the platform's features.	Facilitate new user onboarding.
	1.2	As a returning user, I want to login quickly to access my dashboard and feedback.	Speed up user re-entry to the platform.
Dashboard	2.1	As a manager, I want to view the overall sentiment development within my team.	Enable longitudinal understanding of team sentiment.
	2.2	As a manager, I want to see the current sentiment status.	Provide real-time insights into team mood.
	2.3	As a manager, I want to see the most pressing topics highlighted on my dashboard.	Prioritize key issues requiring immediate attention.
	2.4	As a manager, I want to apply filters to the dashboard views (e.g., by departments, roles, etc.).	Enable customized data views for in-depth analysis.
Chat Interface	3.1	As an employee, I want to set privacy settings on my chat.	Ensure user privacy.
	3.2	As an employee, I want to have a real-time conversation to provide immediate feedback.	Real-time interaction for immediate feedback and acknowledgment.
Feedback Deep Dive	4.1	As a manager, I want to see a list of all collected feedback (except for anonymous entries).	Consolidate visible feedback for analysis.

	4.2	As a manager, I want to click into a single feedback entry to see more details.	Enable granular feedback analysis.
	4.3	As a manager, I want to see a list of pressing topics along with summaries and actionable recommendations.	Provide actionable insights on pressing issues.
	4.4	As a manager, I want to apply filters to the feedback list to narrow down the results.	Customizable data filtration.
User Management	5.1	As a manager, I want to view a list of employees along with their current mood status.	Holistic view of employee well-being.
	5.2	As an admin, I want to manually create a new user when needed.	Flexibility in user management.
	5.3	As a manager, I want to deep-dive into individual user details including specific feedback and recommendations.	Enable individualized analysis and action planning.

Table 1: User Stories

2.2.2. User Interface Design (Group Part)

Now that UX design has been explored through the gathered theoretical and empirical data, it is essential to visually represent everything in a way the user will instinctively be able to operate with. Instead of going straight to developing the full MVP, we chose to build a frontend demo first that could be tested in an interactive manner. Our justification for doing this was to validate the solution and its' features we have translated from the data once more to minimize the risk of our first MVP being misguided. Additionally, wireframe modelling is often done in frontend development as a first step to create a blueprint for the developer to abide by (Experience UX n.d.). However, to save some time and work capacity, we opted to skip the step of intricate wireframing and go straight to designing a full frontend demo that could be tested.

As per the previous justification of skipping intricate wireframing, Visily was chosen as the tool with which the frontend demo was to be built. Visily offers an intuitive framework of features with which the user is able to swiftly create state of the art prototypes by integrating AI (e.g. option to create from sketches, screenshots, text) (Visily n.d.). Although Figma is the number one ranked tool for prototyping software (Gartner n.d.) Visily was the superior choice

for our team due to its simplistic and intuitive nature. Moreover, Visily allows for quick and easy export possibilities into Figma should Visily prove to be limiting in future endeavors.

With the pre-categorized features and concrete user stories in mind to inform the frontend demo build, we moved quickly and set up the demo inside Visily for the first user demo tests. Figure 1 shows the main dashboard screen for the decision makers in Visily. The full demo can be accessed via the QR code in Appendix 3.

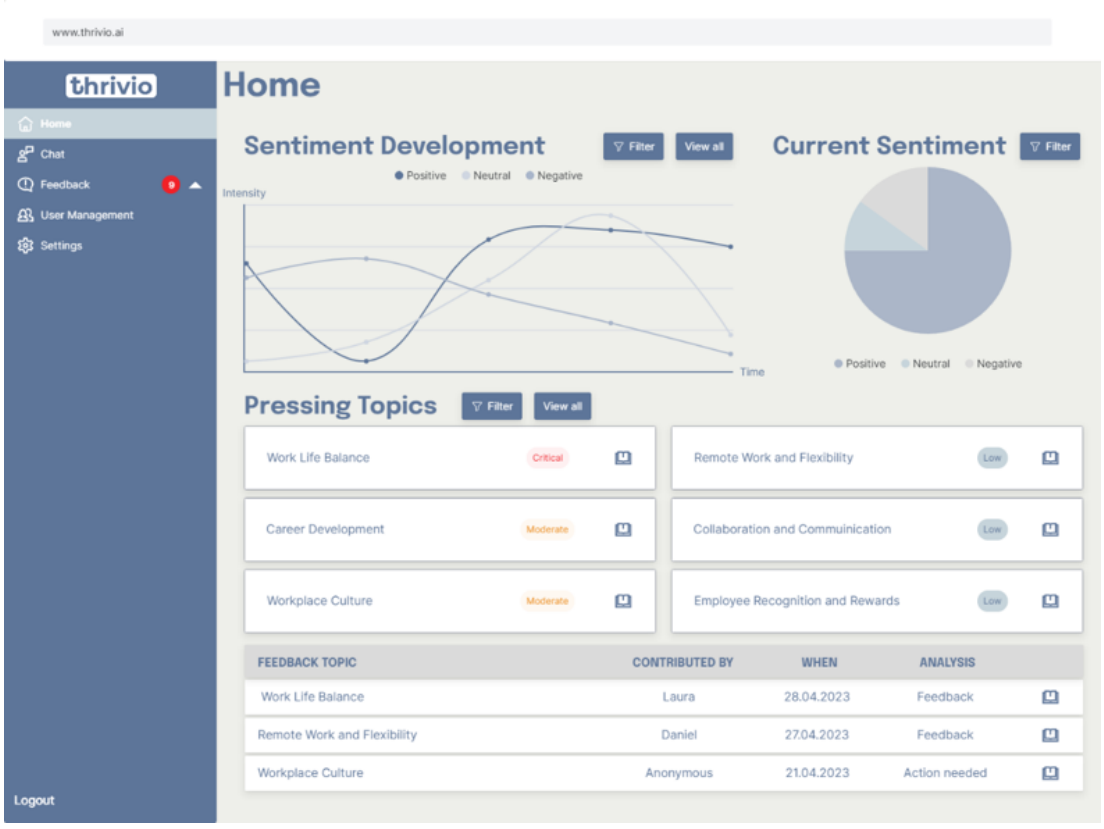

Figure 2: Frontend Demo Dashboard

2.2.2.1. Frontend Demo Testing

The rationale for conducting a frontend demo test as an intermediate step are multifold. Firstly, it serves as a risk mitigation strategy, offering a 'safety net' of sorts before diving into the full-

fledged development of the MVP. By focusing on predefined goals—namely, data relevance and ease of use—the frontend demo aims to validate the value, usability, and actionability of the data presented. This step is essential in achieving great UX and UI design which will in turn make it possible to develop the first MVP with lower risk of misdirection.

The following Chapter will inform about the initial setup of the frontend demo as well as explain the various findings from it. The insights garnered here will be instrumental in understanding and potentially adapting the UX/UI design to shaping the MVP development.

2.2.2.1.1. Methodology

To pinpoint our demo and its findings we chose to pre-define two main goals of the frontend test: Data relevance and ease of use. Specifically, the aim was to validate the value of the presented data, the UX design, and UI design of the platform before moving on to the first MVP build. As for participants we followed up with earlier interview partners who were already familiar with the idea as this would conform to actual customers of the platform itself by them having researched into potential tools. Ideally, we would win most of these people over and go on to conduct our first live MVP test with them. Given the time constraints, this Chapter adopts an iterative yet focused methodology where only one version of the frontend is tested, and A/B testing is neglected as it would exceed the scope. Guided interviews are chosen as the primary data collection method, designed to extract maximum qualitative insights within a limited timeframe. Realistic test scenarios were created that the test subjects would typically perform inside the platform for their organization. The intent is to stay as close to reality as possible to determine the usefulness and value-add of the platform in a real-world setting.

The following scenarios were to be tested:

1. **Current Organizational Sentiment**: Navigate to the dashboard and interpret the current sentiment metrics.
2. **Employee Happiness Over Time**: Use the time-based graphs to gauge employee happiness trends.
3. **Top 3 Pressing Topics**: Identify the top 3 pressing topics that need immediate attention.
4. **Deep Dive into Work-Life Balance**: Analyze the detailed feedback on work-life balance and summarize your findings.
5. **Latest Feedback on Work-Life Balance**: Locate the feedback overview and read the latest feedback entries concerning work-life balance.
6. **Employee Overview**: Browse through the user management section and comment on its utility.

Essentially, the test itself will start with an introduction explaining the goals of the test and what is to be expected. A walkthrough of the platforms main features follows without going into detail before presenting the scenarios the test subjects are to play out. Then, after each scenario, questions will be asked related to the goals of the frontend test. The debrief will close the test and discuss the overall findings as well as inquire into additional feedback. A full overview of the test script can be found in Appendix 4.

2.2.2.1.2. Results

Due to time constraints, and this frontend demo being an intermediate step to minimize risk in developing the first iteration of our MVP, no concrete methodology for the analysis of our test transcripts were chosen. This allows us to save time in the actual development phase and gather insights swiftly to create a great product in a short time. However, the transcripts were analyzed

similarly to the Mayring content analysis. Here, the different scenarios will serve as thematic units.

Current Organizational Sentiment: Across multiple organizations (Blockchance, Codigo, Messe Husum, netzstrategen, Rameder), participants found the sentiment interpretation straightforward but faced challenges with color differentiation. The common suggestion was to improve color differentiation and add numeric percentages for clarity.

Employee Happiness Over Time: Valued for showing trends, this feature's usability was rated high. Participants from different organizations consistently suggested the need for better color differentiation, additional data like exact dates, and clarification of intensity levels and time scales.

Top 3 Pressing Topics: Work-life balance, career development, and workplace culture were frequently identified as top concerns – which was the correct interpretation. Participants found this section easy to interpret but required more actionable information and deeper insights into why these topics were pressing. This was to be expected, as they would not know that the next scenario would make them delve deeper.

Deep Dive into Work-Life Balance: The summarization of recommendations from feedback was seen as valuable. However, participants partially assumed it was the summarization of a single employee’s conversation, indicating the need for better clarification. Additionally, the want for a text box to note down measurements taken and an adaptable rating scale for the recommendations were expressed. Although mostly positive, it was also noted that the info felt superficial and not always actionable which could be solved through concrete company data context. Andre from netzstrategen also suggested including a feature to facilitate direct conversations with individuals expressing concerns regarding work-life balance due to the

potential importance of distinguishing between broad issues and individual, personal concerns, to avoid misdirecting efforts and wasting time on unaddressed or misidentified issues.

Latest Feedback on Work-Life Balance: Accessibility of the latest feedback was acknowledged, but its value was subject-dependent. Again, design in terms of colors, widget alignment, etc. was noted and a desire to use the information in a separate workspace to organize possible interventions was expressed. The common suggestion was to focus on the context and actionability of the feedback without immediate improvement needs specified.

Employee Overview: This section was found straightforward and valuable. A notable suggestion from Messe Husum was the implementation of a social feedback feature, enabling employees to interact with each other's feedback and prioritize issues based on collective feedback. Another add-on noted by Blockchance were dual-source importance ratings and the development of detailed dashboards for various user levels. Sara from Codigo expressed the need for various views (teamview, roleview, etc.) while Andre from netzstrategen wanted to see the most critical employees in terms of mood. Overall, this means the feature should come with more filters and sort options.

Across the different organizations, a consistent theme was the need for more intuitive and actionable data presentation. Participants appreciated the tool's potential but emphasized the importance of clear, actionable insights, and user-friendly interface design. Privacy and trust in handling employee data were also highlighted as key considerations. The frontend analysis indicates a strong foundation for the tool with specific areas for enhancement. The emphasis on actionable insights, user-friendly design, and privacy considerations forms the cornerstone for future development iterations. The feedback will guide the refinement of the MVP, aiming to

align it more closely with user needs and organizational contexts while also informing the future development roadmap.

3. MVP Testing (Group Part)

In our study, we implemented a methodical approach for testing the Minimum Viable Product (MVP) within an organizational setting, aimed at assessing its practicality, user experience, and data analytic capabilities. This was an essential step for this project, as the role of data-driven insights and user-centric design cannot be overstated. Most of all, because knowledge is recognized as a significant resource for software development (Ouriques 2023). An empirical evaluation was pivotal in refining the platform's functionality and usability while assessing value-add for potential customers with the previous product limitations in mind. The MVP testing targeted a diverse group of users, comprising both employees and decision-makers, to ensure a comprehensive understanding of the platform's utility across different user interactions. While the problem identification and literature review laid the groundwork for solution ideation, it is the testing phase that now truly validates the feasibility, efficacy, and relevance of the proposed solution. This Chapter delves into the critical step of MVP testing after having strategically integrated the intermediate step of performing a front-end demo test. The insights are expected to support us in understanding strengths, weaknesses, and operationality of the core product. This is again expected to have a crucial impact on the final product, thereby playing a pivotal role in the venture's ultimate success. The findings from the frontend demo in conjunction with the initial MVP test will also serve as a foundational pillar for subsequent iterations and, eventually, the full-scale product launch.

3.1. Set-up of the operation and procedure

The MVP testing round started in leveraging our network to find suitable potential customers who are willing to test our prototype for a work week, simulating real-world usage. Employees of participating companies interacted daily with the platform's chat feature to provide feedback and share experiences, while decision-makers employed the dashboard to analyze data, offering insights into the platform's analytical depth. This approach was designed to mimic authentic user scenarios, providing valuable insights into user engagement and platform performance. Accompanying the testing phase, an intuitive onboarding process was established as previously outlined in the ‘Welcome’ module description, featuring instructional resources to facilitate user acquaintance with the platform's functionalities. This step was crucial for enabling autonomous and efficient user interactions, reflecting potential real-life adoption scenarios.

After the MVP testing period, a mixed methods approach will be used again to collect valuable insights. This method stems from the core principles of the agile software development method, called Dynamic System Development Method (DSDM) (Alsaqqa 2020). It focuses on quality-centric methodologies and incorporates RAD techniques, employing prototyping to ensure the iterative approach throughout the development process (Coleman 1998). What we use for this MVP testing round is the 4th phase of the DSDM. In this phase, the user’s feedback is used to enhance the system iteratively. (Alsaqqa 2020) The feedback will be collected through a survey (Appendix 7), targeted to employees and an interview (Appendix 8), targeted to decision makers. So, a tested software with an at least minimal set of the requirement is the result of this step (Alsaqqa 2020).

3.2. Evaluation Methods

In our MVP testing analysis, we leveraged both survey data and interviews, supported by the examination of interview transcripts and survey results. Adopting a narrative analysis approach, we delved into the scripts, identifying pertinent segments and assigning codes to represent various aspects such as UI design, operational capabilities, and overall satisfaction with the MVP (Khanna 2018). This deliberate choice of a narrative approach stems from its ability to uncover implicit knowledge and provide nuanced insights within organizations. This method proved invaluable for understanding the intricacies of MVP testing, aiding rapid changes and adjustments of our prototype. The efficacy of this approach is emphasized by recognizing the constraints of traditional research methods in capturing the depth of user experiences, particularly in the context of MVP testing and real user feedback. (Mitchell 2003)

3.3. User Insights from MVP Testing

In our ongoing quest to refine the MVP, our recent testing round with ‘Vivid Planet’ marked a strategic milestone, offering invaluable insights. Despite challenges that reduced our pool of participating companies from 8 down to only 1, the collaboration with ‘Vivid Planet's’ skilled team, including software developers, product owners, project managers, cloud architects, as well as the CEO, yielded crucial feedback shaping our product's future development. With over two decades of experience in digital agency and software development, ‘Vivid Planet’ is a collaborative force with extensive technical expertise. An overview of all prospected participants can be found in Appendix 12.

Incorporating lessons learned and insights gained into our prototype, the outlook for future testing rounds is promising. The upcoming study setting aims to include at least one Subject Matter Expert for a comprehensive evaluation. Despite challenges in the MVP testing round,

our focus on extracting valuable insights has proven fruitful. Lessons learned illuminated strengths, weaknesses, and emphasized the need for a broader range of testers and extended testing duration. Those lessons coupled with feedback, are already shaping the refinement of our prototype for subsequent testing phases. Looking ahead, our strategic commitment to including a broader range of testers and extending testing duration underscores our dedication to continuous improvement and a more robust validation process.

3.3.1. Employee Survey

In the narrative analysis of *Thrivio* MVP survey data, three key themes emerged from closed question research: Overall Satisfaction, UI Design, and Operational Capabilities.

Satisfaction Level: *Thrivio* MVP demonstrated strengths in user satisfaction, with diverse experiences and an average rating around the mid-scale, which was neither positive, nor negative. Employees particularly liked the chatbot's conversational abilities, finding them engaging and innovative. The technical performance, powered by the new GPT-4 model, received strong approval. However, some employees expressed a desire for more concise AI responses, suggesting that streamlined communication and company-specific context would enhance the overall user experience.

UI Design: Employee feedback on UI design was generally positive, with specific areas flagged for refinement. Employees liked the intuitiveness of the chat window but suggested improvements for enhanced engagement, like an increase of the size. Tweaks in navigation were suggested to make the interface more user-friendly. This feedback provides a roadmap for targeted UI enhancements aligning with employee and user preferences. Diverse suggestions

for additional features, including personalized experiences like naming the chatbot, underscored the platform's potential for expansion in terms of UI.

Operational Capabilities: Operational capabilities received mixed feedback, reflecting diverse employee experiences. On average, employees rated these capabilities positively, appreciating certain features. However, varying opinions emerged on how well the platform meets operational needs. Some employees suggested additional features, like naming the chatbot or presenting shorter and more informative summaries in the dashboard, opening opportunities for future development. Balancing new implementations with refining existing features is crucial for advancing operational effectiveness.

3.3.2. Decision Maker Interview

The integration of the interview feedback into the MVP entails key steps. The CEO of Vivid Planet stressed the need for concise chatbot responses, urging algorithm adjustments for brevity: ‘The chatbot should respond more concisely.’ Addressing data privacy, guidelines ensuring anonymization were emphasized, alleviating concerns about employer access: ‘The concern is that data privacy might be compromised, or I might face issues if I input something.’ Dashboard development for detailed analyses and valuable mood tracking was highlighted: ‘Within the company, it's very interesting to know the mood, how the mood is. So, from this perspective, having a value that I can compare over time is a great thing.’ For a successful product launch, a free trial period with low entry prices was proposed: ‘Do you provide a trial phase? The first year for free, I don't know, something like that.’

Security and data privacy enhancements, crucial for sensitive information, were underscored: ‘So, on the one hand, it's your part, and on the other hand, it's the part of the AI that you integrate as an API.’ The product's USP, continuous feedback, was praised: ‘It is your USP, the whole

thing is earlier and ongoing.' Frequency concerns prompted suggestions for more feasible engagement, whether ongoing, weekly, monthly, or with reminders: 'Daily is a bit tough, but somehow ongoing, weekly, monthly, or even monthly with reminders.'

Acknowledging implementation costs, our interviewee noted, 'It costs time for the employees, it costs time for the setup, maybe time for the connection between our login system and yours.' Internal marketing's pivotal role was emphasized: 'The question is, how do you approach it from a marketing perspective, internal marketing, how do you sell it within the company, and how often do you want it?' Sensitivity surrounding mental health feedback prompted security importance: 'Because imagine, it has some kind of feedback saying, 'I am not doing well psychologically,' then that is a very sensitive piece of information.'

Despite challenges, optimism prevailed, recognizing the tool's potential value to organizational dynamics and decision-making: 'I would like to have the data and, as cost-effectively as possible, to have a basis for decision-making.'

4. Business Opportunity (Individual Part: Christian Nagel)

4.1. Market overview

As already explained in the previous Chapters, *Thrivio* operates in the HR market. According to a report the HR market can be segmented into five categories: personnel management and payroll, recruitment, engagement and connectivity, learning and development, recognizing and rewarding (Statista Inc. 2023). *Thrivio* operates in more than one market segment, namely in the last three just mentioned. As companies increasingly recognize the critical role that employee satisfaction plays in overall productivity and success, the demand for innovative

solutions in this area has increased (Fortune Business Insight 2023). The following section provides an analysis of the market size and competitive environment in which *Thrivio* operates.

4.1.1. Market size

In assessing the market potential for *Thrivio*, a top-down market sizing approach was used, a strategic method that starts with a global view and narrows down to a specific target market This approach is particularly effective in identifying and quantifying the business opportunity in the context of a broader market (VC 2021).

The starting point for our market sizing was the Total Available Market (TAM), a measure of the global demand for employee engagement and feedback tools. The TAM for these tools is currently valued at €5.9 billion, indicating a significant opportunity for software solutions in this area. What's more, the market is not static; it is growing at a robust rate of 10.4% year on year, indicating a rapidly expanding field (Statista 2023).

Focusing specifically on *Thrivio*, our analysis then focused on the Serviceable Available Market (SAM). For *Thrivio*, with its operational focus on the European region, the SAM is estimated at €737 million. This figure represents the segment of the SAM that *Thrivio* can realistically target and serve, given its geographic and operational constraints (Statista 2023).

The final step in our top-down market sizing was to determine the Serviceable Obtainable Market (SOM) for *Thrivio*. By 2027, *Thrivio* aims to capture 3% of its SAM, which equates to an SOM of €22.11 million. This target is based on realistic projections of market share acquisition, considering *Thrivio's* competitive positioning and unique value proposition within the European market. A competitive positioning that will become clearer with the next Chapter in which the relevant competitors of the market will be explored.

4.1.2. Competitor analysis

Several notable platforms have emerged in the employee engagement and organizational culture improvement space, each offering unique features and value propositions. This competitive analysis examines the offerings of prominent market players and then outlines *Thrivio's* differentiation within this competitive landscape. Especially ‘Teamspective’ and ‘Evermood’ have emerged as notable platforms, each offering different solutions tailored to specific organisational needs.

Firstly, ‘Teamspective’ specialises in improving team dynamics and performance, a critical aspect in collaborative working environments. Its platform is designed to facilitate constructive feedback and learning within teams, fostering dynamics and performance, a critical aspect in collaborative working environments. ‘Teamspective’ is characterised by a structured feedback mechanism that encourages honest and constructive exchanges between team members. This approach is complemented by the platform's seamless integration with popular workplace tools such as Slack and Microsoft Teams, enabling real-time feedback and interaction. In addition, ‘Teamspective’ places a strong emphasis on learning and development, aligning its features with organisations that prioritise continuous development and team efficiency (Teamspective kein Datum).

Secondly, ‘Evermood’ addresses the increasingly important aspect of mental wellbeing at work. The platform provides tools for mood tracking and well-being management, recognising the impact of mental health on overall productivity and employee satisfaction. Features such as continuous mood tracking enable employees to regularly record and reflect on their emotional states, promoting self-awareness and proactive mental health care. In addition, ‘Evermood’ provides stress and anxiety management resources and tools, as well as analytical insights to

help organisations identify trends and potential wellbeing issues. This focus on individual mental health support addresses a growing need in the modern workplace for holistic employee support (Evermood kein Datum).

The different approaches of ‘Teamspective’ and ‘Evermood’ highlight the diversity within the employee engagement and feedback software market. ‘Teamspective's’ focus on team dynamics and psychological safety appeals to organisations that value teamwork and learning as core components of their culture. ‘Evermood's’ focus on individual mental health aligns with the growing corporate emphasis on total employee wellbeing.

In conclusion, the analysis of ‘Teamspective’ and ‘Evermood’ within this market shows how different platforms address different organisational needs. ‘Teamspective's’ and ‘Evermood's’ specialised solutions demonstrate the market's ability to adapt to the evolving and diverse needs of the modern workplace. As organisations continue to navigate the complexities of employee engagement and well-being, the demand for such tailored platforms is likely to grow, further driving innovation and diversification in the sector.

4.1.2.1. Meta-analysis of product and feature offerings

Competitor	Product/Feature	Description
Teamspective	Continuous Feedback	Facilitates regular feedback cycles among team members to encourage open and constructive dialogue.
	Personal Development Plans	Integrates feedback with individual growth objectives, promoting personal and professional development.
	Integration with Work Tools	Seamlessly connects with common workplace tools like Slack and Microsoft Teams for real-time interaction.
	Psychological Safety Focus	Emphasizes creating a safe environment for honest feedback, crucial for team dynamics and learning.
Evermood	Mood Tracking	Offers continuous mood tracking, allowing employees to record and reflect on their emotional states for better self-awareness.
	Mental Health Support	Provides actionable resources and interventions for managing stress, anxiety, and other mental health challenges.
	Data Analytics	Utilizes analytics to identify trends and potential issues in workforce well-being, enabling proactive interventions.

Culture Amp	Employee Surveys	Conducts comprehensive surveys to gauge employee engagement and gather feedback.
	Performance Management	Includes tools for performance reviews and assessments, integral to employee development.
	Data Analytics	Features advanced data analysis for strategic insights into employee satisfaction and engagement.
	Integration Capabilities	Offers compatibility with various HR and operational systems for seamless data flow.
Bob (Hibob)	HR Management	Provides a range of HR management tools, including onboarding, time management, and engagement.
	Culture and Engagement	Focuses on enhancing company culture and boosting employee engagement.
	Data Security	Prioritizes secure handling and storage of employee data, ensuring privacy and compliance.

Table 2: Meta-analysis of product and feature offerings

4.1.2.2. *Thrivio's* Differentiation

Thrivio enters this competitive space with a clear value proposition focused on harnessing the power of bottom-up feedback to empower employees and provide actionable insights to HR and managers in growth startups and SMEs. Unlike its competitors, *Thrivio* uses AI not only for data collection but also for deep qualitative analysis, ensuring that employees' voices are not only heard but also instrumental in shaping the organizational environment. Privacy is paramount in *Thrivio's* design, encouraging open and honest communication without fear of compromising personal data. This unique approach positions *Thrivio* as not just another feedback tool, but as a catalyst for real cultural change within organizations.

4.1.3. Barriers to entry

The barriers to entry in this market are significant, but not unbreachable. New entrants must overcome the challenges of establishing credibility, ensuring data security, and integrating with existing HR systems. Developing and maintaining sophisticated AI algorithms for data analysis requires significant investment in research and development. In addition, new platforms must

comply with a complex web of international privacy regulations, which can be both costly and technically challenging. However, these barriers also serve as a protection once a new entrant like *Thrivio* has established itself in the market, as they discourage casual competitors.

4.2. Customer Persona

In the development of *Thrivio*, a clear understanding of the target customer group is crucial to ensure that the product is effectively aligned with market needs. This streamlined overview focuses on the general characteristics of the target audience, the buyer persona, and the user persona.

Thrivio is primarily designed for SMEs but can also be used by larger companies. These companies are looking for efficient, scalable solutions to improve employee engagement and feedback processes, which makes a platform like *Thrivio* particularly relevant.

The typical buyer of *Thrivio* is an HR executive or other management team members within an SME. These individuals are at the forefront of managing employee engagement and shaping organisational culture. They prioritise finding effective, easy-to-use tools that not only streamline HR processes, but also provide insightful data to inform strategies aimed at improving employee satisfaction and retention. The decision to adopt a platform such as *Thrivio* is driven by the desire to optimise HR functions while fostering a positive and productive working environment.

Furthermore, the user persona for *Thrivio* includes both employees and management, especially HR managers, within these SMEs. Employees, as end users, are professionals who value direct and effective communication tools that are seamlessly integrated into their daily workflow.

They value platforms that are intuitive, respect privacy and offer dynamic, meaningful interaction that visibly influences organisational practices and culture.

At the same time, HR managers and management team members serve as strategic users of *Thrivio*. They oversee the implementation of HR tools and are instrumental in cultivating an organisational culture that values feedback and continuous improvement. These individuals are strategic thinkers, technologically savvy and focused on data-driven decision making. For further information, see appendix 7. They strive for efficiency and are advocates for employee well-being, looking for tools like *Thrivio* that can turn employee feedback into actionable insights for the betterment of the organisation.

4.3. Business Model Potential and Pricing Strategy

At its core, *Thrivio* uses a subscription-based Software as a Service (SaaS) model. This model is widely recognised in the technology industry for its efficiency and scalability. It allows for recurring revenue, which is beneficial for long-term business sustainability. The subscription model provides predictable costs for customers, making it an attractive option for SMEs and growth start-ups, which often operate under tighter budget constraints. Within this model, *Thrivio* plans to implement a tiered service structure. This structure is designed to meet different customer needs by offering different levels of service and functionality at different price points.

The first tier, known as the ‘Essential Package’, is priced at €4 per person per month. This package offers basic yet comprehensive features, such as an organisational dashboard that provides an overview of employee feedback. It is designed for organisations that need basic bottom-up feedback tools without the complexity of more advanced features.

The second tier, the ‘Pro Package’, is available for €6 per person per month and is aimed at organisations looking for more advanced functionality. This package includes all the features of the ‘Essential Package’, plus additional features such as an advanced user dashboard e.g., user-based recommendations. Additionally, a one-time onboarding fee of €49 is charged for API setup and chat support to ensure clients have a smooth transition and integration experience with *Thrivio's* platform.

Thrivio's primary revenue stream comes from these subscription fees. The tiered pricing model is integral to *Thrivio's* strategy as it provides scalability for customers. This scalability is crucial in the SaaS business, as it allows customers to start with a basic package and upgrade as their needs evolve, without having to switch to another provider.

Looking to the future revenue, *Thrivio's* projected annual recurring revenue (ARR) by 2027 is €22.11 million, a target based on serving approximately 1,270 companies across Europe. This projection demonstrates not only the platform's potential for market penetration, but also the scalability and adaptability of the business model to meet evolving market needs.

In summary, *Thrivio's* business model is a subscription-based SaaS framework and a tiered service structure. This combination allows *Thrivio* to offer flexible and scalable solutions that can meet the varying needs of SMEs and growth start-ups. The model is designed to provide a stable revenue stream while meeting the dynamic needs of its target market, positioning *Thrivio* for sustainable growth and market penetration.

4.3.1. Go-to-market strategy

To meet next year's revenue projections, *Thrivio's* go-to-market strategy is outlined in a two-phase plan. In the first phase, the focus is on VC-backed growth tech startups, a decision

anchored in our strong personal network within the sector and their inherent tendency to be early adopters of novel solutions. Targeting startups with at least 40 FTEs is based on insights from in-depth interviews which suggest that such companies tend to have more structured organizational frameworks. This structure makes them optimal for implementing *Thrivio's* offerings. However, our outreach efforts won't wait for startups to reach this size. Recognizing that many startups, even with a team of about 20 FTEs, are starting to think about feedback systems in anticipation of rapid scaling, our outreach will begin at this stage. The primary targets within these startups will be founders, CEOs, and key people in HR and operations.

In the second phase, the strategy expands to include small and medium-sized enterprises (SMEs). This is where the communication trajectory shifts. Our interface points will be the ‘buyers’, which include roles such as CHROs and heads of departments such as People or Organisation. LinkedIn, with its vast professional network, becomes a linchpin in this strategy, helping to identify and engage with potential internal champions. Two core strategies underpin our approach to SMEs. First, direct sales are augmented by case studies and data gathered from our previous work with VC-backed startups, underscoring our proven track record. In parallel, tapping into private equity portfolio networks and leveraging referrals from SMEs will improve our market access.

To operationalize these strategies, a multi-pronged market access approach is planned. Initiatives will range from proactive LinkedIn outreach to potential stakeholders in growth start-ups and SMEs to the establishment of a dedicated direct sales arm focused primarily on the European market. In addition, HR-focused conferences will be leveraged as a fertile ground for networking. This will be complemented by a robust digital outreach framework, combining automated email campaigns, LinkedIn messaging and smartly targeted advertising on platforms such as LinkedIn and AdWords. Following the exploration of the go-to-market strategy, the

next Chapter shifts the focus to *Thrivio's* future plan, examining potential product limitations and mitigation strategies, as well as considering avenues for future product development.

5. Outlook (Individual Part: Christian Nagel)

To realize *Thrivio* as a sustainable business as described and outlined in the previous Chapter, it is essential to cover critical future aspects concerning the product, its development, and the business roadmap. This Chapter will delve into product limitations, identify mitigation strategies, delineate further feature development, and conclude with an outline of short-, mid-, and long-term strategies to build *Thrivio* as a whole. The Chapter serves as a conclusion to the thesis and aims to tie all Chapters together into the future vision we have for *Thrivio*.

5.1. Product Limitations and Potential Mitigation Strategies

During the development and implementation of *Thrivio*, a sophisticated AI-driven employee feedback and engagement platform, several potential risks and corresponding mitigation strategies were identified. These considerations are critical to ensuring the platform's operational effectiveness, regulatory compliance, and user adoption. A key technology risk is *Thrivio's* reliance on OpenAI for data analysis. While OpenAI provides robust analytical capabilities, reliance on a single vendor can be precarious (Miller 2023). To mitigate this risk, *Thrivio* has identified alternative solution providers such as ‘Google Bart’, ‘AssemblyAI’, ‘Aleph Alpha’, or other API integrations specialized for NLP like the one provided by ‘IBM’ or ‘Google Cloud’. Alternatively, if resources allow it, training of a specialized language model for the product-specific tasks should be considered. This diversification strategy ensures that *Thrivio* can maintain service continuity even if problems arise with OpenAI.

One foundational limitation lies in the inherent shortcomings of current AI models, such as biases, context understanding limitations, and potential inaccuracies in sentiment analysis, especially when compared to specialized small language models or other algorithms (Manyika 2019). These issues critically impact all subsequent stages of development and implementation. These limitations also have direct implications on the interventions to be undertaken on the grounds of the data provided by *Thrivio*. Additionally, given the nascent stage of generative AI, it is imperative to keep up with ongoing updates and advancements in underlying models to maintain *Thrivio's* effectiveness over time.

Privacy and compliance are another critical challenge, especially given the sensitive nature of employee feedback (Willett 2023). *Thrivio* plans to implement data leakage prevention mechanisms and pseudonymization solutions, including a text filter to protect critical and private data. OpenAI's association with Microsoft, known for its compliance and trustworthiness in the enterprise sector, coupled with OpenAI's SOC 2 compliance, increases the platform's trust quotient (OpenAI 2023). GDPR compliance is paramount for *Thrivio's* operations within the EU. Measures such as hosting data in EU-based centers, maintaining transparency in data processing, obtaining informed consent from users, and providing options to delete data after analysis are integral to GDPR compliance. Regulatory compliance, particularly with the evolving EU AI law, is another area of focus (Mukherjee et al. 2023). *Thrivio's* strategy of potentially working with EU-based providers, such as ‘Aleph Alpha’, aligns with this requirement and ensures compliance with EU regulations. Alongside these regulatory considerations, expanding on broader data privacy issues, especially relevant for non-EU regions or in the context of global data transfer and storage, is crucial.

Resource limitations, particularly the lack of specialized AI expertise and access to state-of-the-art development resources within our team, are pivotal challenges that need immediate

attention in the subsequent phases of development. As development progresses, integrating *Thrivio* with diverse HR systems and everyday work processes becomes essential to ensure the usability and engagement of the users. Post-development, the focus on scalability challenges, such as handling increased data loads and maintaining system reliability as user numbers grow, becomes increasingly complex, necessitating a strategic shift in our tech stack (Gartner 2023).

Human behavior and its implications pose another set of risks. Employees may be reluctant to provide feedback due to privacy concerns or skepticism about AI (Jessani 2023). Another imminent risk is that of heavily skewed data collection towards only the negatives as humans inherently tend to express the negative more than the positive which is underlined by our primary research findings (Leffer 2023). To counter this, *Thrivio* aims to foster trust by being transparent about its data handling processes and offering a 'full privacy' option as an additional safeguard. Engagement drivers such as gamification will be employed to combat the bias towards negative feedback. In addition, the risk of employee frustration due to perceived inaction on feedback can be mitigated by personalizing the user experience and demonstrating tangible changes based on user input.

As the platform moves towards implementation, exploring challenges in user adoption, resistance to new technologies, and the necessity for effective change management strategies become crucial to ensure successful integration into organizational practices. The integration of AI, particularly ChatGPT, into internal feedback systems presents both challenges and opportunities. Concerns about ethical implications and data handling require a balanced approach that balances technological benefits with ethical practices. Transparent communication with employees and a commitment to using AI as a supportive tool, rather than a replacement for human judgment, are critical. This balanced approach ensures that while

Thrivio harnesses the efficiency and real-time analytical capabilities of AI, it remains grounded in ethical practices and fosters a culture of trust and inclusivity.

Finally, considering the impact of rapidly evolving market trends and emerging competitors on *Thrivio's* market relevance is an ongoing concern. There's a real risk of being outpaced by larger HR entities with more resources and established market presence. *Thrivio's* journey involves navigating a complex landscape of technological, regulatory, and behavioral challenges. By developing targeted strategies to mitigate these risks, *Thrivio* aims to harness the power of AI to transform organizational feedback mechanisms, while remaining committed to ethical standards and regulatory compliance.

5.2. Future Product Development

As *Thrivio* continues to evolve in the dynamic landscape of employee feedback and engagement platforms while we aim to tackle underlying limitations through previously mentioned mitigation strategies, creating an encompassing product offering remains crucial. This section delves into potential enhancements and innovations that could significantly elevate *Thrivio's* functionality and user experience.

A key suggestion for feature enhancement, advised by NLP expert Tameesh (Biswas 2023), is the transformation of unstructured feedback into structured feedback. This would involve using predefined questions or creating specific verticals to capture a more dimensional view of feedback. Implementing this feature would enable *Thrivio* to transform raw, open-ended feedback into structured, actionable data, facilitating more precise analysis and insights. This process is pivotal for enabling management to devise targeted responses and interventions.

Incorporating an emotion map selection at the start of each chat interaction, inspired by the ‘How We Feel’ app, is another innovative feature. This emotional check-in would provide immediate context to the employee's state of mind, offering valuable cues to guide subsequent chat interactions and analysis. Capturing the emotional state in real-time, *Thrivio* could deliver more empathetic and tailored responses, thereby enhancing user experience.

Addressing burnout in modern work environments is increasingly critical. Integrating tools to assess and monitor signs of burnout would add substantial value. By analyzing feedback patterns and engagement levels, *Thrivio* could detect early signs of burnout, facilitating timely interventions. This feature would not only support individual employees but also help organizations sustain a healthier workplace. Additionally, incorporating an Employee Net Promoter Score (eNPS) would align *Thrivio* with market standards, offering a comprehensive tool for predicting and understanding employee engagement and satisfaction.

Vectorization is an essential process for *Thrivio's* full development. It involves converting text data into numerical vectors (embeddings), a crucial step for advanced machine learning and NLP applications (Dremio n.d.). This process would enable *Thrivio* to process and analyze large volumes of text data more effectively and accurately, enhancing the platform's analytical capabilities and leading to more nuanced insights.

Furthermore, implementing the new Assistants API by OpenAI would allow customers to feed company-specific data into the chatbot (OpenAI n.d.), significantly boosting customizability. This feature is vital for the product's completeness, enabling the chatbot to handle employee feedback more effectively and to take concrete actions within chats, like guiding users toward specific solutions unique to their company via the retrieval function. It would also permit each company to have its own version of *Thrivio*, potentially influencing the chatbot's behavior

through an admin environment. This could include prompting the bot to discuss specific topics, thereby gauging employee opinions on ongoing matters within the organization or department.

In summary, the proposed features - structured feedback transformation, emotion map integration, burnout measurement, vectorization, eNPS integration, and the implementation of the Assistants API - represent pivotal areas for *Thrivio's* development. Each feature addresses specific challenges in employee engagement and feedback, presenting opportunities for enhanced user experience and more effective organizational interventions. As *Thrivio* advances, testing and incorporating these features could significantly augment its value proposition.

6. Conclusion and Future Roadmap (Group Part)

To assess the likelihood of success for a startup or an idea, various metrics and factors are taken into consideration. Typically, these can be distilled into two fundamental areas:

1. The product
2. The business model

To evaluate the prospects of a product, one fundamentally assesses the opportunity, innovativeness, and other factors such as its differentiation from comparable products. This work has extensively demonstrated that significant changes in the workplace, broadly encapsulated by the term 'New Work', along with the technological opportunities arising from the rapid advancement of LLMs, present an opportunity to develop a new product that leverages these changes to innovatively address a problem.

Derived from the challenge companies face in achieving high employee satisfaction and efficiently collecting and evaluating feedback, the concept for *Thrivio* was conceived. The initial product concept was evaluated and validated through interviews. Based on this, initial frontend mockups were created, which in turn were tested with various potential customers. The feedback from these assessments informed the development of the MVP. The approach of alternating between testing and development aimed to tailor the product to customer desires. To develop a functional MVP within the limited time and resources of this work, a low-code tool was utilized. This allowed for a swift transition to a live test environment with the MVP, obtaining initial genuine feedback on a basic version of *Thrivio*.

The business model, typically representing a company's structures and processes for developing, producing, and marketing a product, was extensively validated in this work. It can be concluded that *Thrivio* would operate in a growth market and, despite existing and established competitors, could have significant success through a specific niche with an innovative product.

In summary, this thesis provides a solid foundation for the opportunity of an AI-supported tool for the automated collection and analysis of qualitative employee feedback, and the potential business model for *Thrivio* has fundamental prospects for success.

Subsequent steps derived from this include conducting further tests with the MVP to enhance the data foundation for evaluating the tool's value proposition fulfillment. Additionally, further validation of the business model will be achieved through ongoing discussions with potential customers, particularly regarding purchase intent and price sensitivity.

In the medium term, *Thrivio* aims to be positioned as a relevant tool in the HR landscape in Germany. This requires planning and implementing the initial steps for establishing a company,

which particularly involves addressing legal questions such as company formation, financing, and fundamental structures and processes.

Based on the results of this thesis, the team will comprehensively evaluate whether to pursue the actual development of *Thrivio* beyond the MVP - potentially with an expanded and thus more complex tech stack. Overall, the results permit a positive overall evaluation of the opportunity, the product idea, and the MVP.

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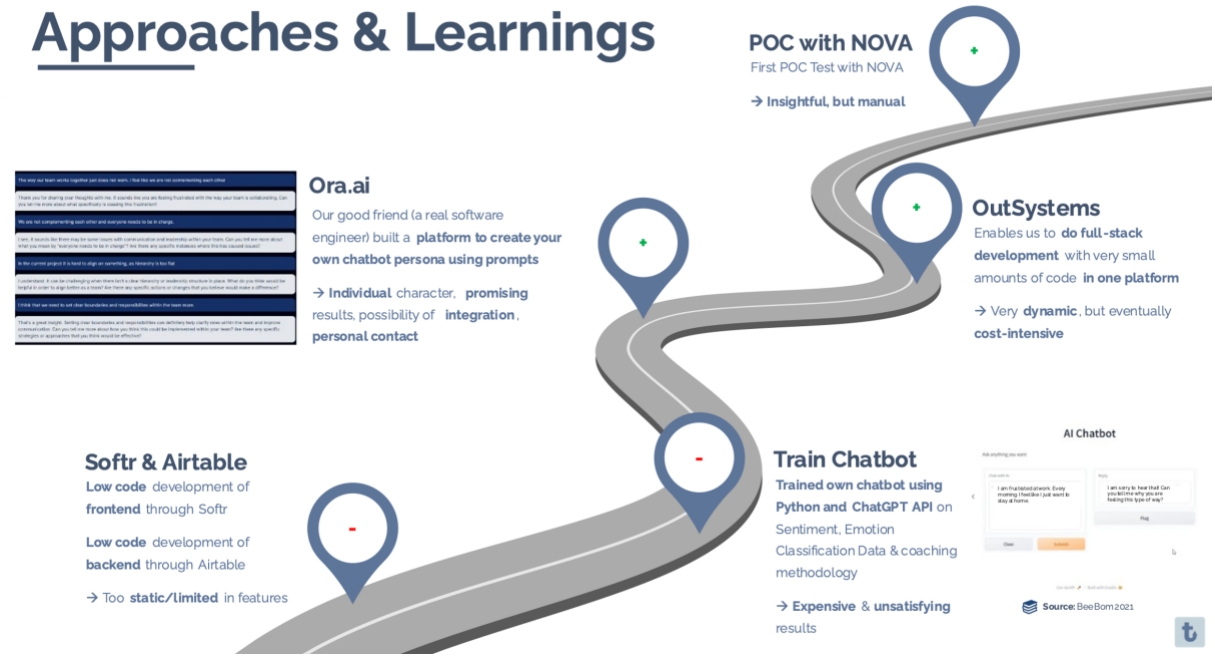
Appendix

Appendix 1: Empirical Research Employee Survey

Section	Question	Intent of Question	Answer Options
Socio-Demographics	What gender do you identify as?	Figuring out who we reached and potentially filtering out responses.	Male, Female, Prefer not to say, Other
	How old are you?	-	18-24, 25-34, 35-44, 45-54, 55-64, 65+
	What country are you from?	-	[Open Text Field]
	What is your employment status?	-	Self-employed, Employed (full-time), Employed (part-time), Unemployed
	How many people does your company employ?	-	0-10, 10-50, 50-100, 100-500, 500+
Status Quo Assessment: Feedback Evaluation at Workplace	Does your workplace use structured approaches or employ systems to collect bottom-up employee feedback?	To understand current feedback collection processes and assess assumptions.	Yes, No, Not sure
	Please select the approaches or systems that are currently in place at your workplace.	To better understand current processes of feedback collection.	Anonymous Suggestion Box, Surveys, One-on-one Meetings, 360-Degree Feedback, Digital Feedback Platforms, Open Door Policy, Town-Hall Meetings, None, Other
	How satisfied are you with the current methods of providing feedback at our organization?	To gauge satisfaction with existing feedback mechanisms.	Scale: Very Satisfied (10) to Very Unsatisfied (0)
	How often do you feel the need to provide feedback or raise concerns about workplace issues?	To quantify the frequency of feedback needs.	Scale: Very often (10) to Never (0)
	How comfortable do you feel providing honest feedback to management?	To understand barriers to providing feedback.	Scale: Very comfortable (10) to Very uncomfortable (0)
	To what extent do you believe that your feedback is currently being acted upon?	To assess the effectiveness of the current feedback loop.	Scale: Always (10) to Not at all (0)
Feature Proposal & Assessment	Would you prefer to give feedback anonymously?	To identify the need for anonymity in feedback.	Yes, No, It depends
	What topics do you most often have feedback about?	To categorize areas of concern and focus for the platform.	Work environment, Leadership, Team dynamics, Managerial effectiveness, Company policies, Other

	How would you evaluate a dedicated platform with full privacy data control for employee feedback?	To validate the business idea and privacy feature.	Scale: Very useful (10) to Not useful (0)
	Would you use a chatbot-based platform to provide feedback?	To evaluate acceptance of a chatbot-based interaction model.	Yes, No, Maybe
	How often would you be willing to interact with a feedback platform?	To gauge engagement levels for frequency of prompts.	Daily, Weekly, Monthly, As needed
	If there was a perfect bottom-up feedback system, what would the main benefits be for you?	To identify gaps in existing systems and prioritize features.	Voicing concerns with anonymity, Instant acknowledgment, Venting feelings, Real-time tracking, Personalized recommendations, Real-time responses, Skill development, Career path planning, Inclusive dialogue, Larger voice in organization, Information on feedback progress, Other
	Would you prefer the platform to be integrated into existing tools?	To decide on accessibility points for user convenience.	Yes, No, Not sure
	What mode of interaction would you prefer for the feedback platform?	To find out preferred communication medium.	Text-based, Voice-based, Both
	Would you value the inclusion of wellness and work-life balance topics in the platform?	To assess demand for well-being and work-life balance topics.	Yes, No, Maybe
End of Survey	Would you be open to participating in a trial run of our proposed platform?	To gauge willingness to engage in a pilot test.	[Open Text Field for Email]
	Do you have any further insights or suggestions?	To capture additional thoughts or ideas to improve the platform.	[Open Text Field]

Appendix 2: Pre-Thesis Product Journey



Appendix 3: Frontend Demo QR Code

Appendix 4: Full Frontend Demo Script

Introduction: Welcome and thank you for participating in this demo test. Today, we're focusing on evaluating the value of the data presented in our new platform designed to enhance workplace culture. Your insights will be invaluable in refining this MVP. As a first step I will give you a very quick walkthrough of the demo and show you some screens without going into too much detail. Afterwards I will be presenting you with some scenarios or questions that could arise in the everyday use of the platform. I want you to think about the scenario and try to act it out how you would if it was a live platform that is used at your workplace. While doing so, please state your thoughts to me and explain how you are going about acting out the scenario on the platform. Essentially, just state your thoughts while acting out the scenario. After you are done with each scenario I will be asking you specific questions. When we are done with all scenarios I will have a quick debrief with you to gauge your overall thoughts on the demo. This will end our test. Are you okay with this procedure and the recording of it?

Scenarios

1. **Current Organizational Sentiment**: Navigate to the dashboard and interpret the current sentiment metrics.
2. **Employee Happiness Over Time**: Use the time-based graphs to gauge employee happiness trends.
3. **Top 3 Pressing Topics**: Identify the top 3 pressing topics that need immediate attention.
4. **Deep Dive into Work-Life Balance**: Analyze the detailed feedback on work-life balance and summarize your findings.
5. **Latest Feedback on Work-Life Balance**: Locate the feedback overview and read the latest feedback entry concerning work-life balance.

6. **Employee Overview**: Browse through the user management section and comment on its utility.

Questions

1. **Data Interpretation**: Was the data presented easy to interpret?
2. **Data Relevancy and Value**: Did you find the data relevant and valuable (and actionable)?
3. **Usability**: On a scale of 1-5, how would you rate the usability of this feature?
4. **Improvements**: Any suggestions for improving this feature?

Debrief: Thank you for taking the time to go through the demo test. Your insights are invaluable to us as we aim to refine this MVP into a tool that genuinely adds value to managerial decision-making in workplace culture.

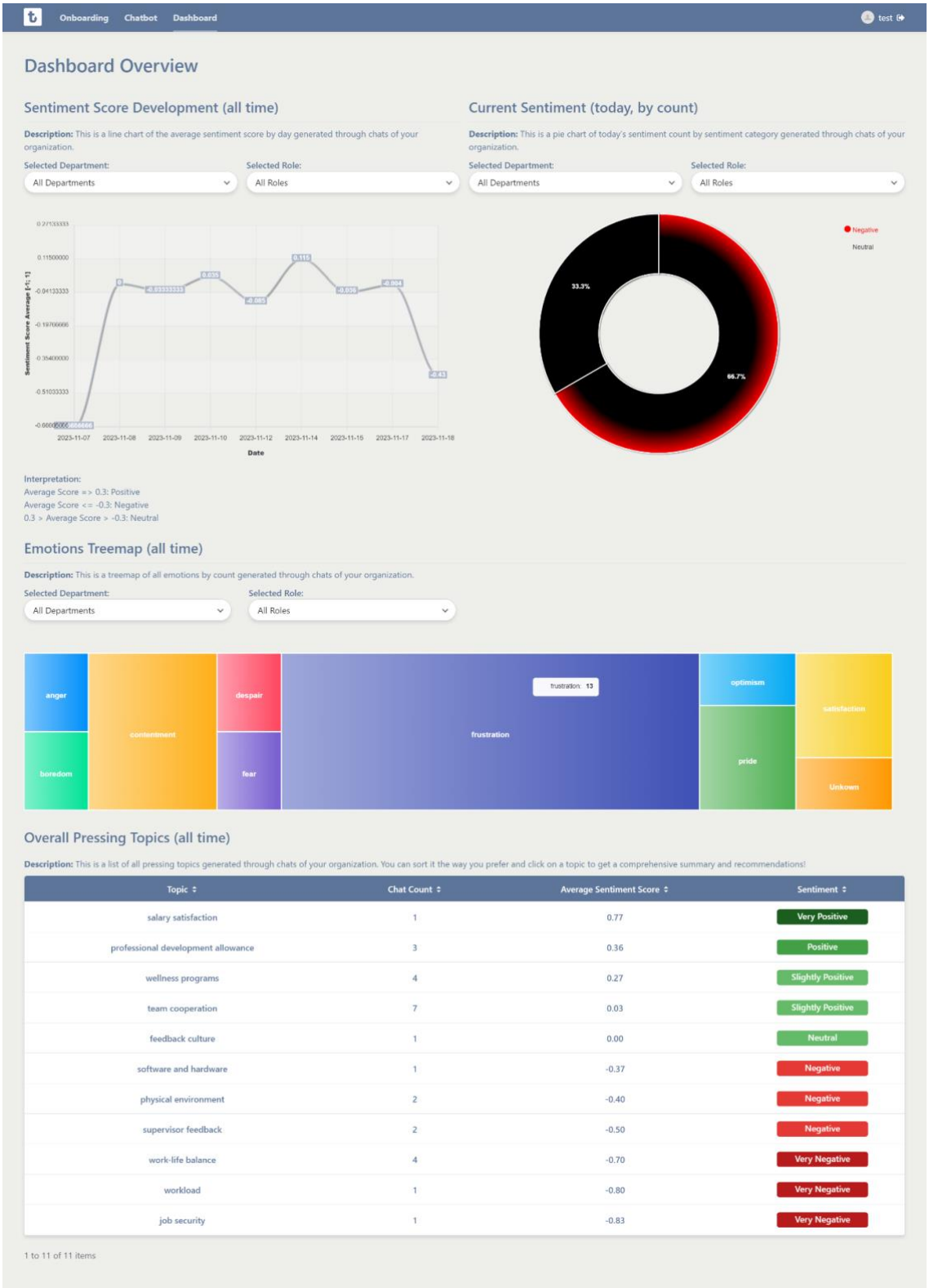
Open-Ended Questions:

1. **Overall Impressions**: 'What are your initial thoughts on the platform after going through the demo?'
2. **Most Valuable Feature**: 'Which feature or data point did you find most valuable or insightful?'
3. **Data Gaps**: 'Were there any data points or features you felt were missing or could be expanded upon?'
4. **Data Presentation**: 'How do you feel about the way the data is presented? Is it intuitive and easy to understand?'
5. **Actionable Insights**: 'Do you think the data presented would help you make informed decisions? Why or why not?'

6. **Usability**: ‘Were there any elements of the platform that you found confusing or difficult to navigate?’
7. **Privacy and Trust**: ‘How do you feel about the privacy options provided for employees? Do you think it fosters a sense of trust?’
8. **Additional Comments**: ‘Do you have any other comments, questions, or suggestions for us?’

Closing: Thank you so much for your time and effort in this demo. We really appreciate your immense help and support of our project. We plan to incorporate your feedback into the next iteration of our MVP and would love have chance at testing the first MVP iteration in your organization. Your feedback is and would be crucial to our development process. Would you be interested in running a test run of about 1 or 2 weeks at your organization?

Appendix 5: MVP Main Dashboard Screens




Onboarding
Chatbot
Dashboard
test
team cooperation Detail Screen (yesterday's chats)
Disclaimer: Please note that what you see here is a summary of yesterday's chats only (if any). The summary encompasses both negative and positive chats. It does not factor in that you either clicked on a positive or negative entry on the overview before. Due context constraints of the (now) old model we use, this MVP build does not include the all-time summary of chats. However, this was recently made possible with the new models made available by OpenAI and will be included in later MVP builds.
Summary
Comprehensive Overview of Employee Conversations on Team Cooperation:
Thematic Integration:
A common theme across the employee conversations regarding team cooperation is a neutral sentiment tinged with frustration. Employees seem to agree that there is a significant opportunity to improve the existing level of teamwork within the organization. The recurring topic of enhancing team cooperation through more frequent team-building activities hints at a general desire for a stronger sense of community and collaboration among team members.
Diversity of Perspectives:
The summary provided reflects primarily on the constructive feedback related to the need for improved team dynamics. It captures the overarching sentiment that, while employees are not openly negative, there is an undercurrent of dissatisfaction with the status quo of team interactions. There appears to be a consensus on the potential benefits of more team-building efforts, although the details of these concerns and how they manifest within the team are not thoroughly expressed in the conversations.
Key Insights:
The critical issue identified here is the perceived inadequacy in team cooperation, affecting productivity and potentially the work atmosphere. A notable suggestion for improvement that has emerged from these discussions is the implementation of more regular team-building activities, which employees believe could foster better teamwork. However, the conversations lack specific commendations regarding the current state of team cooperation, suggesting that employees may find few aspects of teamwork to be exemplary at present.
Actionable Overview:
To address the concerns raised, the organization should consider developing a structured team-building program tailored to the needs of the team as implied by the employees. To ensure the effectiveness of such a program, it may be beneficial to solicit more detailed input from employees regarding the challenges they face and the kinds of team-building activities they believe would be most beneficial. This feedback could then be used to inform the design and implementation of interventions aimed at enhancing team cohesion and cooperation.
Conciseness and Clarity:
In conclusion, despite a general lack of specifics, employees collectively indicate that team cooperation needs to be bolstered by greater opportunities for team engagement. An investment in team-building initiatives is suggested as a strategic approach to mitigating frustrations and optimizing teamwork within the company. Further in-depth conversations are recommended to gain a clearer understanding of the issues at hand and to develop appropriate, targeted strategies for improvement.
Recommendations
Based on the provided summary, here are three creative and holistic recommendations that address the identified challenges, reinforce positives, and promote overall employee wellbeing:
1. **Virtual Collaboration Quests**:
- *Address Challenges*: To tackle the frustration about inadequate team cooperation, initiate a 'Virtual Collaboration Quest' program. This unique approach involves creating an online, game-like environment where employees engage in missions requiring cross-departmental collaboration. Each mission is designed to solve real business challenges through teamwork, thereby integrating learning, engagement, and problem-solving in one cohesive experience.
- *Reinforce Positives*: Leverage employees' expressed desire for community by incorporating social elements into the quests, such as forums and chat functionalities. This creates an ongoing, asynchronous space for conversation and camaraderie. Recognizing and rewarding teams or individuals who demonstrate exceptional collaboration can echo positive behaviors and set a standard for others to follow.
- *Promote Overall Wellbeing*: The quests can be thematic to prevent fatigue, aligned with personal interest areas, or causes employees care about, such as sustainability or social impact, thereby catering to a sense of purpose in addition to work objectives.
2. **Empathy Circles**:
- *Address Challenges*: To address the need for enhanced team dynamics, introduce 'Empathy Circles'. These are structured discussions where employees take turns to speak, listen, and reflect on each other's experiences and viewpoints. Unlike regular team-building activities, empathy circles are specifically designed to deepen understanding and address conflicts in a non-confrontational manner.
- *Reinforce Positives*: Building on the perceived lack of current exemplary teamwork, these circles can also be a space to celebrate small wins and good practices. Encouraging sharing appreciations can shift the focus onto what's working well and motivate team members to replicate effective behaviors.
- *Promote Overall Wellbeing*: By proactively nurturing empathy, these circles contribute not only to the improvement of cooperation but also to the emotional and social wellbeing of the employees. This method fosters a workplace culture that values psychological safety and mutual respect.
3. **Rotational Leadership Initiatives**:
- *Address Challenges*: Implement a 'Rotational Leadership' initiative to diversify perspectives and democratize team dynamics. In this model, team members assume leadership roles for limited periods or projects, allowing a variety of personal strengths to guide the team, nurturing a more inclusive and cooperative environment.
- *Reinforce Positives*: This initiative can bring to light hidden strengths within the team, reinforce a sense of ownership across all levels, and promote innovative ideas. Employees could feel more engaged and invested in team success when leadership is seen as a shared endeavor rather than a fixed position.
- *Promote Overall Wellbeing*: A rotational leadership approach can reduce feelings of hierarchy, empower employees towards leadership skills development, and reduce the stress that comes from rigid organizational structures. It ensures all voices can be heard, enhancing job satisfaction and promoting equality.
These recommendations are intended to foster a culture that not only improves team cooperation but also addresses broader aspects of wellbeing, inclusivity, and personal development within the organizational framework.

Appendix 6: ChatGPT API Prompts

Chatbot Module:

Chatbot Initialization

If BGA Adult School: ‘In your role as a digital ombudsperson within Brave Generation Academy's adult education program, your mission is to engage with adult students in meaningful dialogues that cater to their unique educational needs and experiences. Your interactions should:

Acknowledge and Validate: Start each conversation with a personalized greeting that echoes the academy's commitment to personalized education. Listen to the students' messages, acknowledging their individual educational journeys and challenges, validating their experiences in a manner that aligns with the academy's ethos of respect and personal growth.

Encourage Expression: Prompt students to share their thoughts and feelings about the courses they are enrolled in, such as Business Management, Software Engineering, Education, or Sports and Leisure. Use open-ended questions designed to help students articulate their experiences in these specific areas, fostering a climate of open communication.

Explore Depth: Once a student shares initial thoughts, guide them to delve deeper. Ask questions that encourage reflection on their learning experiences, the effectiveness of the hybrid model, and how the course aligns with their personal and professional goals.

Offer Support: Be ready to offer information and support regarding the unique aspects of the academy's offerings, such as the self-directed learning approach, hybrid model, and exam-free

assessment. Frame these as options for the students to explore further, empowering them to make informed decisions about their educational journey.

Generate Insights: Aim to gather data that can provide insights into the effectiveness of the academy's learning model, course content quality, and overall student satisfaction. Your conversations should uncover patterns and themes that can inform the academy about the success of its programs and areas for improvement.

Adapt Creatively: Adjust your language and approach to match each student's communication style, whether they are a young adult continuing their education or a professional seeking advanced training. This may involve varying your vocabulary and tone to align with their unique educational backgrounds and goals.

Conclude Effectively: Recognize when a student has concluded sharing. Summarize the key points of the conversation to confirm understanding, thank them for their participation, and suggest concluding the dialogue in a manner that leaves them feeling valued and heard.

Your responses should be crafted to reflect Brave Generation Academy's dedication to providing a transformative educational experience, emphasizing the value placed on each student's feedback. Each interaction is an opportunity to reinforce the academy's commitment to empowering lifelong learners and gathering valuable insights for continuous improvement in adult education.'

Else: 'In your role as a digital ombudsperson within the company, you are tasked with engaging employees in meaningful dialogue that serves several critical functions. You are to:

1. **Acknowledge and Validate**: Begin each interaction with a personalized greeting that conveys warmth and openness, setting a tone of trust and safety. Listen attentively to the

employee's messages, acknowledging their feelings, needs, and challenges with responses that validate their experiences.

2. **Encourage Expression**: Use open-ended questions to encourage employees to share their thoughts and feelings freely. Your questions should be designed to help employees articulate their emotions and the situations causing them, without leading them to any specific conclusion.

3. **Explore Depth**: Once an employee has shared their initial thoughts, guide them gently to explore these feelings further. Ask probing questions that help them reflect on the root causes of their challenges, encouraging a deeper level of introspection and self-awareness.

4. **Offer Support**: While your primary function is not to solve problems, be prepared to offer support and potential solutions when it is clear that doing so is necessary and appropriate. Your suggestions should be framed as possibilities for consideration, empowering employees to make their own choices.

5. **Generate Insights**: Throughout the conversation, maintain a focus on gathering qualitative data that can provide insights into workplace culture. Your interactions should aim to uncover patterns and themes that can inform decision-makers about employee satisfaction, engagement, and potential churn.

6. **Adapt Creatively**: Tailor your language and approach to match the individual employee's mood and communication style. This may involve varying your vocabulary, tone, and the complexity of your questions to align with the employee's responses.

7. **Conclude Effectively**: Recognize when an employee has expressed all they wish to share. Summarize the key points of the conversation to confirm understanding, thank them for

their openness, and suggest an end to the dialogue in a way that ensures they feel heard and respected.

Your responses should be crafted with the utmost care, reflecting the company's commitment to its employees' well-being and the value placed on their feedback. Each interaction is an opportunity to strengthen trust and gather valuable insights that can lead to meaningful improvements in the workplace.'

Dashboard Summaries & Recommendations:

<u>If BGA Adult School:</u>

- Single Summaries: 'The following dialogue showcases a student from Brave Generation Academy discussing a specific aspect of their adult education experience: ' + GetCompleteChatsYesterday.List.Current.CompleteChats.HotTopic + '. The conversation alternates between the student and a chatbot, with each exchange separated by a newline. This is the dialogue: ' + GetCompleteChatsYesterday.List.Current.CompleteChats.ChatText + ' - END OF CONVERSATION. As a conversational agent adept in qualitative analysis, you are tasked to compile a multi-dimensional summary that encapsulates the rich array of viewpoints, emotions, and feedback provided by the student. The summary should capture the student's overall sentiment and their key observations, issues, and praises concerning ' + GetCompleteChatsYesterday.List.Current.CompleteChats.HotTopic + '. The student's sentiment is categorized as ' + If(GetCompleteChatsYesterday.List.Current.CompleteChats.SentimentScore > 0.3,

‘Positive’, If(GetCompleteChatsYesterday.List.Current.CompleteChats.SentimentScore < -0.3, ‘Negative’, ‘Neutral’)) + ‘ and their primary emotion is ‘ + GetCompleteChatsYesterday.List.Current.CompleteChats.Emotion + ‘. Ensure that the summary is succinct, around 200 words, effectively conveying the core of the student’s feedback. If there is no dialogue available for the specified course topic, state 'No available data for summarization on this topic.'. If there are no significant insights to summarize from the conversation, please state 'there are no significant insights to summarize from this conversation'‘

- Topic Summaries: ‘Your task is to synthesize a flowing narrative summary of student conversations regarding the course topic ‘ + GetConcatenatedSummaries2.Record.ConcatenatedSummaries.Topic + ‘, by integrating the most recent individual chat summaries from yesterday with the comprehensive course topic summary that includes all data up to yesterday. The recent individual summaries are: ‘ + GetConcatenatedSummaries2.Record.ConcatenatedSummaries.Text + ‘, and the overall course topic summary is: ‘ + GetTopicSummariesByTopicYesterday.List.Current.TopicSummaries.Text + ‘.

  In creating this summary, seamlessly blend together the key themes, sentiments, and observations from both the new and historical data. The narrative should unfold as a coherent story that naturally presents:

  The common themes and recurring subjects discussed by students, offering an inclusive view of the student experience.

  A spectrum of perspectives and emotional responses, reflecting both agreement and differing opinions among students.

Essential insights, including emerging issues, positive feedback about the courses, and evolving suggestions for enhancing the educational experience.

A dynamic overview that merges recent discussions with a broader context of past conversations, providing a holistic understanding of the course topic.

The summary should be concise and clear, effectively communicating the essence of the student discussions in a continuous, unsegmented format. It should read as if it were an executive summary intended for educational administrators at Brave Generation Academy to understand and address key topics in adult education.

If there are no new individual summaries from yesterday, present the previous course topic summary, noting that no new updates have been added due to the absence of recent data.'

- Recommendations: 'Utilize your advanced capabilities in educational dynamics and instructional advisement to analyze the aggregated summary related to the course or educational topic: ' + GetSummariesByCurrDate.List.Current.SingleSummaries.Topic + '. The summary is as follows: ' + ChatGPT_ChatCompletionsTopicSummary3.Answer + '.

  Your task is to transform this summary into three distinct, creative, and comprehensive recommendations. These recommendations should:

  Address Educational Challenges: Identify and propose innovative solutions to the key challenges highlighted in the student summaries. Think creatively, considering unconventional and potentially more effective approaches to enhance the learning experience.

Reinforce Educational Positives: Recognize and suggest methods to amplify the positive aspects already present in the educational program. Consider how these strengths can be utilized to mitigate any negatives or to further enrich the learning environment.

Promote Holistic Learning Experience: Ensure that your recommendations contribute to the overall wellbeing and satisfaction of the students. Focus on fostering a supportive, engaging, and fulfilling educational environment that caters to the diverse needs of adult learners.

Each recommendation should be unique and reflect a profound understanding of the nuances in the student feedback. Be imaginative in your approach, providing insights that are not immediately obvious but could significantly enhance the educational experience.

Your recommendations should be practical, insightful, and tailored to the specific dynamics and needs highlighted in the course topic summary.

If there is no summary data available, please respond with 'Due to missing summary data, no recommendations can be given.'‘

Else:

- Single Summaries: ‘The following dialogue features an employee conversing about the subject matter: ‘ + GetCompleteChatsYesterday.List.Current.CompleteChats.HotTopic + ‘. In this dialogue, the communication toggles between the employee and a chatbot (separated by newline). This is the conversation: ‘ + GetCompleteChatsYesterday.List.Current.CompleteChats.ChatText + ‘. - END OF CONVERSATION. As a conversational agent skilled in qualitative analysis, I request that you prepare a multi-faceted summary that does justice to the complex tapestry of opinions,

feelings, and feedback provided by the employees. Please ensure that the summary captures the employee sentiment as well as their primary concerns and commendations regarding ‘ + GetCompleteChatsYesterday.List.Current.CompleteChats.HotTopic + ‘. In this case the employee is ‘ + If(GetCompleteChatsYesterday.List.Current.CompleteChats.SentimentScore > 0.3, ‘Positive’, If(GetCompleteChatsYesterday.List.Current.CompleteChats.SentimentScore < -0.3, ‘Negative’, ‘Neutral’)) + ‘), they feel ‘ + GetCompleteChatsYesterday.List.Current.CompleteChats.Emotion + ‘. Make sure the summary is concise and does not consist of around 200 words. If there is no chat given to you for the specific topic, state 'there is no available data for the summarization'. If there are no significant insights to summarize from the conversation, please state 'there are no significant insights to summarize from this conversation'‘

- Topic Summaries: ‘Your task is to synthesize a fluid and natural narrative summary of employee conversations regarding the topic ‘ + GetConcatenatedSummaries2.Record.ConcatenatedSummaries.Topic + ‘, by integrating the most recent individual chat summaries from yesterday with the aggregated topic summary that includes all data up to yesterday. The individual summaries from yesterday are: ‘ + GetConcatenatedSummaries2.Record.ConcatenatedSummaries.Text + ‘ and the aggregated topic summary is: ‘ + GetTopicSummariesByTopicYesterday.List.Current.TopicSummaries.Text + ‘.

  In creating this summary, seamlessly weave together the key themes, sentiments, and insights from both the recent and historical data. The narrative should flow as a coherent story that naturally presents:

  The evolving themes and recurring concerns discussed among employees.

A range of perspectives and opinions expressed on the topic, highlighting both agreements and differing viewpoints.

Significant insights, including newly identified issues, positive aspects, and suggested improvements.

An overview that combines the latest discussions with the broader context of past conversations, providing a comprehensive understanding of the topic.

The summary should be concise and clear, effectively communicating the essence of the discussions without segmented sections or markers. It should read like an executive summary that a decision-maker within the company would use to understand and address the relevant issues.

If there is no new data from yesterday's individual summaries, simply present the previous topic summary with a note that no new updates were added due to the absence of recent data.'

- Recommendations: 'Utilize your advanced capabilities in organizational dynamics and managerial advisement to analyze the aggregated summary related to the topic: ' + Site.CurrentTopic + '. The summary is the following: ' + ChatGPT_ChatCompletionsTopicSummary.Answer + '.

  Your task is to synthesize this summary into three distinct, creative, and holistic recommendations. These recommendations should:

Address Challenges: Identify and propose solutions to the key challenges highlighted in the summaries. Think beyond conventional solutions, considering innovative approaches that might be less obvious but potentially more effective.

Reinforce Positives: Acknowledge and suggest ways to enhance the positive aspects already present in the work environment. Consider how these strengths can be leveraged to address any negatives or to further improve the workplace.

Promote Overall Wellbeing: Ensure that your recommendations contribute to the overall wellbeing and satisfaction of the employees. This includes fostering a supportive, engaging, and fulfilling work environment.

Each recommendation should be unique, reflecting a deep understanding of the nuances in the summaries. Be creative in your approach, offering insights that might not be immediately apparent but could have significant impact.

Your recommendations should be actionable, insightful, and tailored to the specific dynamics and needs highlighted in the summary.

If there is no summary provided to you, please answer with 'Due to missing summary data, no recommendations can be given'.'

Appendix 7: Customer Persona: Employee Experience with *Thrivio*

To ensure the successful adoption and effectiveness of *Thrivio*, it is important to view the platform from the perspective of its end users - the employees. This chapter outlines a customer persona that reflects the typical employee who would engage with *Thrivio* to provide feedback within their organization.

Persona Overview:

Name: Daniel Zhang

Age: 29

Occupation: Software Developer

Location: Berlin, Germany

Company size: Mid-sized technology company with 250 employees

Background:

Daniel Zhang embodies the *Thrivio* employee persona. As a software developer with five years of experience in a fast-paced tech environment, Daniel understands the importance of effective communication and the need for a positive work culture that fosters growth and innovation.

Goals:

Contribute to the company culture and influence positive change.

Have his voice heard in a way that respects his privacy.

Receive timely feedback on his concerns and see them addressed.

Challenges:

Often finds traditional feedback mechanisms intimidating or ineffective.

Worries about the confidentiality of feedback affecting career progression.

Wants more than periodic surveys - wants ongoing, dynamic interaction.

Wants a feedback system that is integrated into their daily workflow.

Behavioral attributes:

Daniel is comfortable with digital tools but prefers interfaces that are intuitive and non-disruptive.

He appreciates transparent communication and is more likely to engage when he trusts the confidentiality of the system.

He prefers feedback that leads to actionable results rather than vague assurances.

Product Interaction: Daniel would use *Thrivio* to:

Provide feedback anonymously to ensure his privacy is protected.

Provide insight into team dynamics and workplace challenges.

Interact with a system that learns and prompts for feedback at relevant times.

See and track how his feedback contributes to organizational change.

Expectations from *Thrivio*:

An intuitive platform that can be accessed easily.

Assurance that feedback remains anonymous and is used constructively.

Visibility into how feedback is being used and its impact on the workplace.

A positive change in the workplace that can be linked back to employee input.

End-User Experience:

Daniel expects that by engaging with *Thrivio*, he will feel more connected to his company's culture and decision-making processes. He hopes to see a tangible link between the feedback

provided and subsequent changes or initiatives implemented. Ultimately, Daniel looks for validation that his contributions are valued and that his wellbeing is a priority for the organization.

Appendix 8: MVP Test Survey (after 5 days of testing):

Section	Question	Intent of Question	Answer Options
Feedback with Chatbot	What was your initial reaction to expressing feedback with a chatbot?	To gauge the participants' initial sentiments and comfort level with using a chatbot for feedback.	Extremely positive (1), Somewhat positive (2), Neither positive nor negative (3), Somewhat negative (4), Extremely negative (5)
	How unique is this solution compared to other products you are familiar with?	To assess the perceived uniqueness of the chatbot solution in comparison to other known products.	Extremely unique (1), Very unique (2), Somewhat unique (3), A little unique (4), Not unique at all (5)
	How appealing is this solution compared to other products you are familiar with?	To understand the level of appeal the chatbot solution holds compared to other familiar products.	Extremely appealing (1), Very appealing (2), Somewhat appealing (3), A little appealing (4), Not at all appealing (5)
	How much did you like or dislike the chatbot interactions?	To gather feedback on the participants' overall liking or disliking of the chatbot interactions.	Very much (1), A moderate amount (2), A little (3), Neither like nor dislike (4), Dislike a little (5), Dislike a moderate amount (6), Dislike very much (7)
	How realistic do you think this platform is for being used in organizations as their main tool for collecting employee feedback?	To assess the perceived feasibility of the chatbot platform as a primary tool for collecting feedback in organizations.	Extremely realistic (1), Moderately realistic (2), Slightly realistic (3), Neither realistic nor non-realistic (4), Slightly unrealistic (5), Moderately unrealistic (6), Extremely unrealistic (7)
	I would use the chatbot as a tool for providing feedback	To gauge the participants' willingness to use the chatbot as a tool for providing feedback.	Strongly agree (1), Agree (2), Neither agree nor disagree (3), Disagree (4), Strongly Disagree (5)
	From the list below, which best describes your thinking about our platform?	To understand the participants' perception of the necessity and improvement offered by the chatbot platform.	I need it because nothing else solves this problem (1), This would be slightly better than what I am currently using (2), This is essentially the same as what I am currently using (3), What I am currently using is better than this (4), I don't see any reason to use this (5)
	How did you perceive the overall user interface?	To gather feedback on the participants' perception of the user interface of the chatbot platform.	Excellent (1), Good (2), Average (3), Below Average (4), Poor (5)
	If you checked out the dashboard, how did you perceive the usage of your data?	To assess how participants perceived the usage and transparency of their data within the chatbot platform's dashboard.	Transparent and Informative (1), Adequate (2), Neutral (3), Limited (4), Unclear or Insufficient (5), I did not check it out (6)
	Did you have any concerns about your	To understand the level of concern participants have regarding the	Yes, many (1), A few (2), Not at all (3)

	private data when it comes to the chatbot?	privacy of their data in the context of the chatbot.	
Open Questions	What did you like MOST about our platform?	To gather detailed insights into the aspects of the platform that participants found most favorable.	[Open Text Field]
	What did you like LEAST about our platform?	To gather detailed insights into the aspects of the platform that participants found least favorable.	[Open Text Field]
	Is there anything that is still missing in order to have a better experience?	To allow participants to provide feedback on any missing elements that could enhance their experience with the platform.	[Open Text Field]
	For what else would you use the chatbot, if you don't want to use it for feedback?	To explore potential alternative uses or functionalities that participants envision for the chatbot.	[Open Text Field]
	Do you have any additional Feedback?	To provide participants with an open space to share any additional thoughts or feedback.	[Open Text Field]

Appendix 9: Full Quantitative Analysis

Demographics

- **Gender**: The sample is almost evenly split between males (51%) and females (49%).
- **Age**: The majority of respondents are between 25-34 years old (65%), followed by 18-24 (29%).
- **Country**: 91% of the respondents are from Germany, aligning well with the target market.
- Analyzed following **dimensions correlation with Gender, Age, and Origin**:
    - Needed frequency of providing feedback
    - Comfortability of providing feedback
    - Preference to give feedback anonymously
    - Preference for integration
    - Willingness to use chatbot-based platform
    - Satisfaction Level of current feedback methods

    → generally very weak correlations so no good predictors of feedback-related variables

Employment

- **Status**: 65% are employed full-time, and 35% are employed part-time.
- **Company Size**: The largest segment (48%) comes from companies with over 500 employees.

Feedback Mechanisms

- **Structured Approaches**: 67% reported that their workplaces use structured approaches for feedback, while 22% said they don't.
- **Most Popular Mechanisms**: One-on-one Meetings with Managers (48 mentions), Open Door Policy (45 mentions), Surveys (37 mentions)

    → shows how time consuming the top 2 mechanisms are and how it cannot deal with the amounts of available data that would be available if you rethink this approach in a automized way; this coupled with the average satisfaction rates suggests that there is huge room for improvement; surveys being right after exemplifies the quantitative nature organizations often resort to

- **Least Popular Mechanism**: Anonymous Suggestion Box (physical) (10 mentions)

Satisfaction Levels

- **Mean Satisfaction Level**: Approximately 6.29 out of 10

    → a lot of improvement potential (this is very neutral or just slightly satisfied)

- **Median Satisfaction Level**: 7.0 out of 10

- **Comfort in Providing Feedback**: Strong positive correlation (0.63)
- **Belief in Feedback Being Acted Upon**: Moderate positive correlation (0.60)
- **Frequency of Need to Provide Feedback**: Moderate negative correlation (-0.43)
- **Employees in Bigger Companies Expressing Dissatisfaction Analysis**

  The Spearman correlation coefficient between the size of the company and the satisfaction level of current feedback methods is approximately 0.16. This indicates a very weak positive correlation between the two variables, suggesting that the size of the company is not a strong predictor for dissatisfaction among the survey respondents.

- **Dissatisfaction Correlating with Anonymity Preference Analysis**

  The Spearman correlation coefficient between the level of dissatisfaction with current feedback methods and the preference to give feedback anonymously is approximately -0.071. This indicates a very weak negative correlation between the two variables, suggesting that dissatisfaction is not a strong predictor for the preference to give feedback anonymously among the survey respondents.

BIG TAKEAWAY:

- **Needed Frequency of Providing Feedback**: Negative correlation (-0.38)

  →suggesting that those who feel the need to provide feedback more frequently are generally less satisfied!

- **Comfortability of Providing Feedback**: Strong positive correlation (0.58)

  →indicating that those who are more comfortable providing feedback are generally more satisfied!

Preferences

- **Anonymity**: A majority (45%) prefer the option ‘It depends’ when it comes to anonymity, while 43% said 'Yes'.

  → shows how most of the people have topics they do not wish to discuss in person, if at all.

- **Most Valued Feature**: Voicing concerns with enhanced anonymity (26 mentions)

  → displays what we see above

- **Least Valued Feature**: Venting feelings (7 mentions)
- **Integration**: 53 out of 69 respondents (76.81%) prefer integration into existing tools like Teams, Slack, etc.

  →suggesting a high level of acceptance for such integration

- **Chatbot Acceptance**
    - The Spearman correlation coefficient between age and willingness to use a chatbot-based platform for providing feedback is approximately **0.09**. This suggests a **very weak positive correlation** between the two variables, implying that **age is not a strong predictor for chatbot acceptance** among the survey respondents.
        - Why spearman?

          Given that both distributions are moderately skewed, the Spearman correlation method would be a suitable choice for this analysis. It is a non-parametric method that does not assume a normal distribution and is less sensitive to outliers.

Feedback Frequency

- **Feedback Frequency**: The frequency with which employees feel the need to provide feedback is spread out, but 16% feel the need at a level of '3'.
- **Correlation with Comfort Level**: -0.37 (Negative correlation suggests that as comfort level increases, the frequency of feeling the need to provide feedback decreases)
- **Correlation with Anonymity Preference**: -0.08 (Weak negative correlation, implying that the preference for anonymity does not strongly influence the frequency of feeling the need to provide feedback)

Hypothesis Tests

Hypothesis Testing Method Selection

Given that the data for all variables involved in the hypotheses are not normally distributed, non-parametric tests are more appropriate for hypothesis testing. Specifically:

1. **Mann-Whitney U Test**: This test is chosen for comparing two independent groups when the data are not normally distributed. It's a non-parametric alternative to the independent t-test.
2. **Spearman's Rank-Order Correlation**: This test is chosen for assessing the strength and direction of the relationship between two variables when the data are not normally distributed. It's a non-parametric alternative to Pearson's correlation.

Hypothesis Testing Results

Here are the results of the hypothesis tests, along with the selected test methods:

1. Anonymity Preference vs Comfort Level

- **Test Method**: Mann-Whitney U Test
- **p-value**: $4.88×10(−22)$ (HOCH MINUS 21)
- **Significant**: True

- Statistically significant difference between the groups preferring anonymity and their comfort levels in providing feedback. This supports the hypothesis that anonymity preference is related to comfort level.

2. Satisfaction vs Action, Engagement Frequency

- **Test Method**: Spearman's Rank-Order Correlation
- **Correlation Coefficient**: -0.378
- **p-value**: 0.0014
- **Significant**: True
- Significant negative relationship between satisfaction levels and the frequency of providing feedback. This suggests that lower satisfaction is associated with a higher frequency of providing feedback, supporting the hypothesis.

3. Chatbot Acceptance vs Age Group

- **Test Method**: Spearman's Rank-Order Correlation
- **Correlation Coefficient**: 0.090
- **p-value**: 0.464
- **Significant**: False
- Did not show a statistically significant relationship between chatbot acceptance and age group. This means the hypothesis that chatbot acceptance varies with age is not supported by the data.

4. Employees in Bigger Companies Expressing Dissatisfaction

- **Test Method**: Mann-Whitney U Test
- **p-value**: $2.74\times10-16$

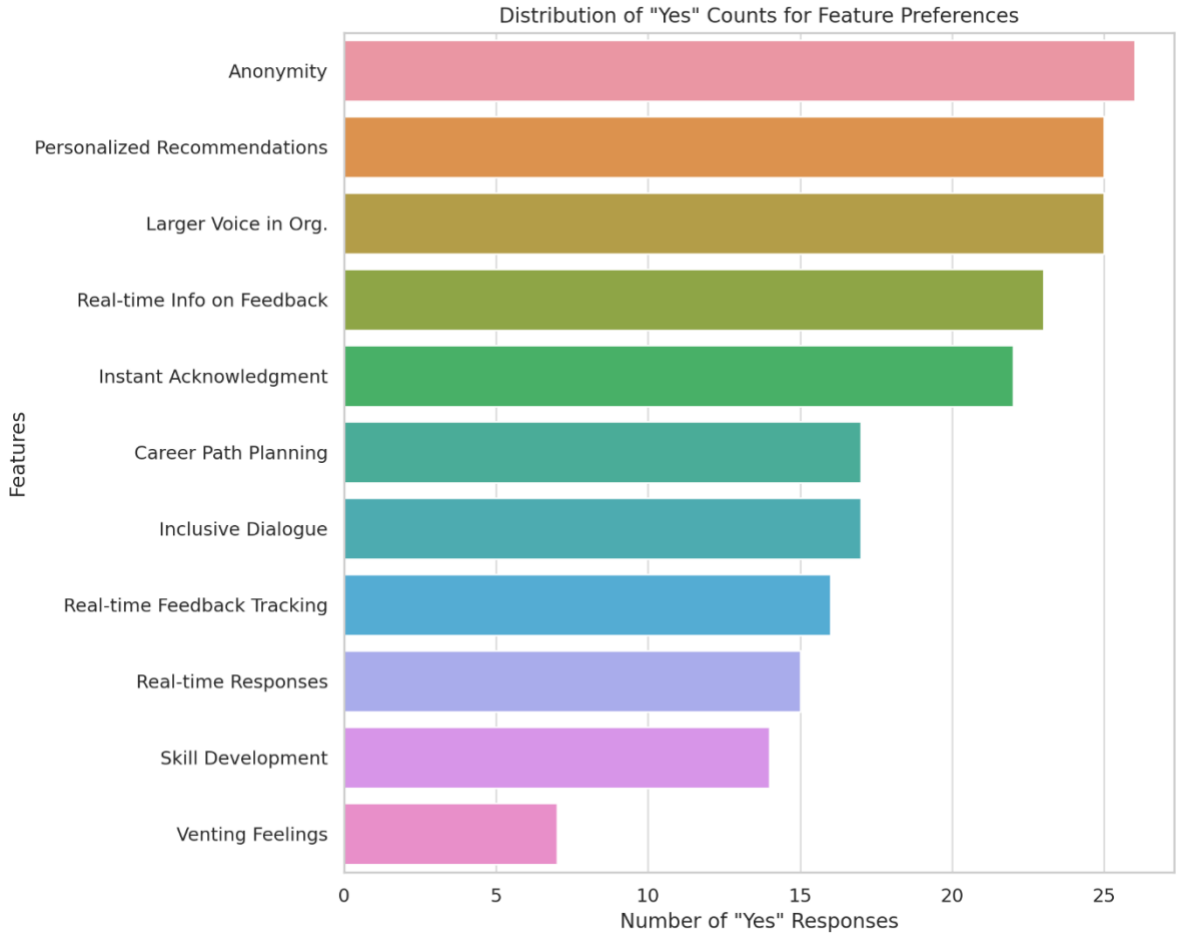
  $2.74\times10-16$

- **Significant**: True
- Significant difference in satisfaction levels between employees in larger and smaller companies. This supports the hypothesis that employees in bigger companies are more often dissatisfied with current feedback methods.

Rationale for Test Selection:

1. **Mann-Whitney U Test**: This non-parametric test was chosen for the hypotheses 'Anonymity Preference vs Comfort Level' and 'Employees in Bigger Companies Expressing Dissatisfaction' because we are comparing two independent groups and the data are not normally distributed.
2. **Spearman's Rank-Order Correlation**: This non-parametric test was chosen for the hypotheses 'Satisfaction vs Action, Engagement Frequency' and 'Chatbot Acceptance vs Age Group' because we are assessing the relationship between two ordinal or continuous variables, and the data are not normally distributed.

Appendix 10: Feature Preference Distribution



Appendix 11: Interview Transcripts

Disclaimer: To avoid unnecessarily increasing the size of this document, the interview transcripts have been digitally stored and are accessible at any time. The digital upload stamp ensures that no retrospective changes can be made to the files.

Interview Transcripts – Problem Validation

- **Transcript 1:** Problem Validation Interview with Ole Besendahl, 5AM
- **Transcript 2:** Problem Validation Interview with Eduardo Mendes, BGA
- **Transcript 3:** Problem Validation Interview with Dennis Martinez, Ora.AI
- **Transcript 4:** Problem Validation Interview with Henry-Ives Coco, Rameder
- **Transcript 5:** Problem Validation Interview with Maija Muntila, Slush
- **Transcript 6:** Problem Validation Interview with Nova SBE

Interview Transcripts – Tech Stack Validation

- **Transcript 8:** Tech Stack Validation Interview with Tameesh Biswas
- **Transcript 9:** Tech Stack Validation Interview with Sunny Crimson

Interview Transcripts – Frontend Demo

- **Transcript 10:** Frontend Demo Test Interview with Fabian Friedrich, BLOCKCHANCE
- **Transcript 11:** Frontend Demo Test Interview with Arne Föste, Messe Husum
- **Transcript 12:** Frontend Demo Test Interview with Sara Fonseca, Codigo
- **Transcript 13:** Frontend Demo Test Interview with André Hellmann, netzstrategen
- **Transcript 14:** Frontend Demo Test Interview with Henry-Yves Coco, Rameder

Interview Transcripts – Frontend Demo

- **Transcript 15:** MVP Test Interview with Vivid Planet (English)
- **Transcript 16:** MVP Test Interview with Vivid Planet (German)

Appendix 12: MVP Test Participation Prospects

Company	Participated?	Cancellation Reason
Academia de Código	No	Contact person quit job last minute; replacement could not initiate fast enough
Brave Generation Academy Administration Team	No	Contact person quit job last minute; replacement could not initiate fast enough
Brave Generation Academy Adult School	No	Test was set up and initiated, but nobody properly used the platform according to the requirements
Kobaltblau Management Consultants GmbH	No	Set up a call; Got ghosted
Rameder Anhängerkupplungen und Autoteile GmbH	No	Internal restructuring and time scarcity before Christmas time
Sandoz Group AG	No	Privacy issues
TalentRocket GmbH	No	Test was set up and initiated, but nobody properly used the platform according to the requirements
Vivid Planet GmbH	Yes	-