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Handbook for Onboarding Generative AI in Finnish Micro and Small Businesses

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Abstract

This thesis explored the adoption of Generative Artificial Intelligence (GenAI) by Finnish micro and small businesses, focusing on the practical implications and integration strategies. The aim was to demystify GenAI, outline its applications, and develop an onboarding framework tailored to the unique needs of these companies. The research was conducted as desk research, using a qualitative review of industry reports, expert interviews, and other relevant literature. This approach allowed for an understanding of the current GenAI landscape and its implications for small businesses.

Despite the potential benefits, many small businesses may face significant challenges in adopting GenAI, primarily due to limited financial resources, insufficient technological infrastructure, and a general lack of awareness of how to approach the GenAI technology. To address these challenges, the thesis provided an introductory overview of GenAI, which builds a foundational understanding. Additionally, a structured onboarding handbook was created that guides businesses through assessing GenAI readiness, exploring potential use cases, and implementing the technology effectively. This thesis also approaches topics like responsible AI, strategy, GenAI tools and equips the reader with tools to stay up to date as the technology landscape continues to develop.

In essence, the thesis provides valuable insights and practical tools for small business leaders in Finland, looking to harness the benefits of GenAI to enhance competitiveness and innovation. The handbook serves as both an inspiration and a practical guide to facilitate digital transformation in the small business sector.

Language: English
Key Words: Artificial Intelligence, AI, Generative AI, GenAI

EXAMENSARBETE

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Titel: En handbok för ibruktagandet av generativ AI inom finska mikro- och småföretag.

Datum 2.6.2024 Sidantal 74 Bilagor 0

Abstrakt

Detta examensarbete utforskade ibruktagandet av generativ artificiell intelligens (GenAI) hos finska mikro- och småföretag, med fokus på att skapa med en baskunskap om teknologin samt bidra med praktiska insyner och integrationsstrategier. Syftet var att introducera GenAI teknologin, beskriva dess tillämpningsområden samt utveckla ett strategiskt ramverk som hjälper småföretag bemöta och ta i bruk teknologin. Forskningen gjordes som skrivbordsundersökning och genomfördes med hjälp av kvalitativ genomgång av branschrapporter, expertintervjuer och annan relevant litteratur gällande GenAI teknologin. Denna metod bidrog till att skapa en helhetsförståelse av GenAI-teknologin i dess nuläge samt dess implikationer för småföretag.

Trots de flera fördelarna med teknologin kan många småföretag stöta på utmaningar gällande bemötandet av GenAI, bland annat på grund av begränsad budget, otillräcklig teknisk förståelse och en allmän oklarhet hur de skall närma sig GenAI teknologin. För att ta itu med dessa utmaningar introducerade examensarbetet GenAI teknologin i sin helhet. Därefter presenterades en strukturerad handbok som vägleder företagen genom att bedöma sina GenAI förutsättningar, utforska potentiella användningsområden och implementera teknologin enligt egna strategiska prioriteringar. Examensarbetet diskuterar även viktiga områden inom ansvarfull AI, strategi, GenAI verktyg samt bidrar med praktiska tips för att hålla sig uppdaterad under den väldigt snabba teknologiutvecklingen.

Sammanfattningsvis innehåller avhandlingen värdefulla insikter och praktiska tips för småföretag i Finland som vill utnyttja fördelarna med GenAI för att öka sin konkurrenskraft och innovationsnivå. Handboken fungerar både som en inspiration och som en praktisk guide för att underlätta den digital transformationen inom småföretagssektorn.

Språk: Engelska
Nyckelord: Artificiell Intelligens, AI, Generativ AI, GenAI

Table of Contents

1 Introduction

1.1 Background

The rapidly evolving field of AI has been vividly discussed amongst consumers, businesses, and scholars and there are already big shifts happening in the way business is conducted worldwide. Businesses are now experiencing crucial times, as the decision to adopt new technologies can define whether the company stays competitive and resilient to the ever-changing market. Mikko Hyppönen, one of Finland's most famous experts and spokespersons on Cyber Security and AI, said during his speech at Nordic Business Forum 2023: "The AI revolution will be bigger than the internet revolution". Even to a non-expert in AI, this indicates that this technology is going to be around for a while and is going to grow quickly and vastly in importance for both society and its businesses. To the everyday small business, this essentially poses both opportunities and risks, which can be boiled down to the following two existential questions:

- What are the opportunities and risks if we onboard AI into our business model?
- What are the opportunities and risks if we do not onboard AI into our business model?

Naturally, the context in which the questions above are answered is unique for every company, but actions are still essential to be taken. With the rapid AI adoption worldwide, indecision is costly and poses the risk of turning the company into a laggard company. However, making executive and informed decisions is hard, especially for the decision-makers who are either not up to date or just not that interested in AI. The project approaches this problem, with the aim of sufficiently informing business decision-makers on the key areas of focus when it comes to AI, to enable a good foundation for business decision-making.

1.2 Problem description

The rapid growth of AI technology and its adoption in businesses worldwide is a clear sign of the new technology's impact on society. However, while many companies are rushing to adopt the latest tech, many conservative businesses still remain stagnant and indecisive on

the matter. On some levels, this is understandable, since not every business or its employees are interested in researching and finding out about the latest AI news and latest GenAI tools. Furthermore, adding ongoing skepticism and “will AI take our jobs”-type of discussions to the mix, business decision-makers can develop a sense of reluctance to approach the topic at all. Justifying it with statements like “our business runs just fine without GenAI” or “the technology and actual value is too hyped up”, the decision on AI adoption is postponed for an indefinite time, until it might be too late.

It is vital for business decision-makers to understand that the question of generative AI adoption in business models is essential, as well as learning about what the current options are. The vast amount of research and articles found online regarding the topic give the impression that every aspect of generative AI has been studied and thereby saturated the “research market”. However, new generative AI tools are constantly being introduced and updated, as well as new use cases identified by businesses worldwide. Knowing this, it is equally essential for business decision-makers to learn how to keep the finger on the AI-pulse, as it helps to understand how the technology is developing, what new opportunities and risks are emerging, and how the market and competitors are reacting to this.

Given its hype and its relatively short time in the spotlight, it is fair to assume that most studies and articles existing are accurate but do not necessarily include all perspectives or the latest advancements. While research and literature regarding AI is comprehensive already at this moment and new material is being published on a regular basis, only few are connecting it with the needs and points of view of small businesses and business decision-makers in a practical manner. This project aims at continuing the research and identifying, simplifying, and suggesting key areas of interest, to further help business decision-makers understand how GenAI has developed and what might be the future needs and demands of customers on the market.

1.3 Objectives of the thesis

The thesis will discuss and delve into GenAI technology and digital transformation associated with GenAI in micro and small businesses. The content of the thesis aims at approaching by gradually strengthening the understanding of generative AI and its applications amongst micro and small businesses. As AI as a technology is vast, the study

narrows it down to only generative AI and approaches the theme from a practical standpoint, with the focus on providing clarity and tangibleness in a small business context, rather than providing a deep theoretical understanding of the technology itself. Hence, this thesis is not an extensive nor exhaustive study on the subject. Rather, the end objectives are to demystify generative AI, explore its implications and applications for small business and to guide how to onboard it to the business. The assumption is that the reader is curious about the topic, but more from a practical perspective. The reader might work in an organization with varying opinions and attitudes towards GenAI technology, and its applications in the rapidly evolving landscape. As advancements in AI technology are both huge and rapid, it is fair to assume that this thesis will become outdated in the foreseeable future. The content of this thesis should therefore be seen as a snapshot of the current state of the technology at the time of the writing, along with identified applications dating up to that moment, and not as a holistic overview of the technology.

1.3.1 Research question (RQ)

Throughout the thesis, the content revolves around GenAI and the needs of small Finnish businesses, with the aim to answer the three research questions listed below:

RQ1: “What is generative AI and why is it relevant for small businesses”

RQ2: “How can small businesses in Finland adopt generative AI into their business activities”

RQ3: “How to utilize generative AI in daily activities as a small business”

With these questions as its compass, the study introduces GenAI to business decision-makers and enables them to delve into the possibilities of the technology. The project will also address common concerns and questions, such as “will AI take our jobs”, which can be expected by employees during the onboarding discussion in the business, and which may cause inaccurate perceptions about the technology. For this purpose, this study aims to be both practical and informative, and focused on the target audience’s needs. A growing number of AI-related businesses are practically throwing themselves at potential new clients, offering them unique GenAI products, services, and consultancy. The study also aims to help small businesses navigate through the plethora of options and understand

their positioning and needs on a sufficient level, to enable them to pick suitable partners, wherever relevant, for their digital journey.

By systematically approaching answering the research questions, by addressing foundational aspects of generative AI, small businesses and business strategy, each part increases the understanding of the context and contributes to building confidence for future decision-making regarding if and how to use GenAI in the business. In addition to attending to the needs of the target audience, this study simultaneously functions as an exploratory journey, as it delves into different aspects of generative AI technology and discusses its current and future potential.

1.3.2 Delimitations (scope)

Since Artificial Intelligence (AI) is a vast and growing field of study, this thesis delimits itself to discussing generative AI, which is a subset of AI, from an introductory and practical perspective. The content of the thesis will introduce the GenAI technology and its applications in a business context in a concise matter, to provide a broad overview instead of focusing on selected areas. As advancements in GenAI are expected to be continuing, along with new identified use cases, all of the use cases mentioned in the study intend to be merely thought-provoking. Thus, the study does not intend to delve deep into the subject and any list of use cases or applications provided can also be seen as non-exhaustive.

The study will be scoped at serving the values and points of view of micro and small businesses in Finland, and especially aiding the needs of decision-makers in these businesses. Therefore, the content of the study aims to be introductory, concise, and actionable, with each chapter divided into sub-chapters on many levels, to enable easy navigation and a clear structure.

Recognizing that the early adopters usually are the first to find and try out new technologies, this study aims at recognizing the perspectives amongst businesses and decision-makers who have not yet explored GenAI as a business technology. Some of the target audience may be interested in the technology but remain unsure how to approach it, whereas some may share a more conservative or even skeptic attitude towards generative AI in a business context. For the latter group, the risk is the company ending up

into the “late majority” or even “laggards” category on the technology adoption curve (Conway, 2023) illustrated below in Figure 1, which could have a significant impact on business competitiveness. In other words, the study does not look at the needs of proactive tech enthusiasts and early adopters.

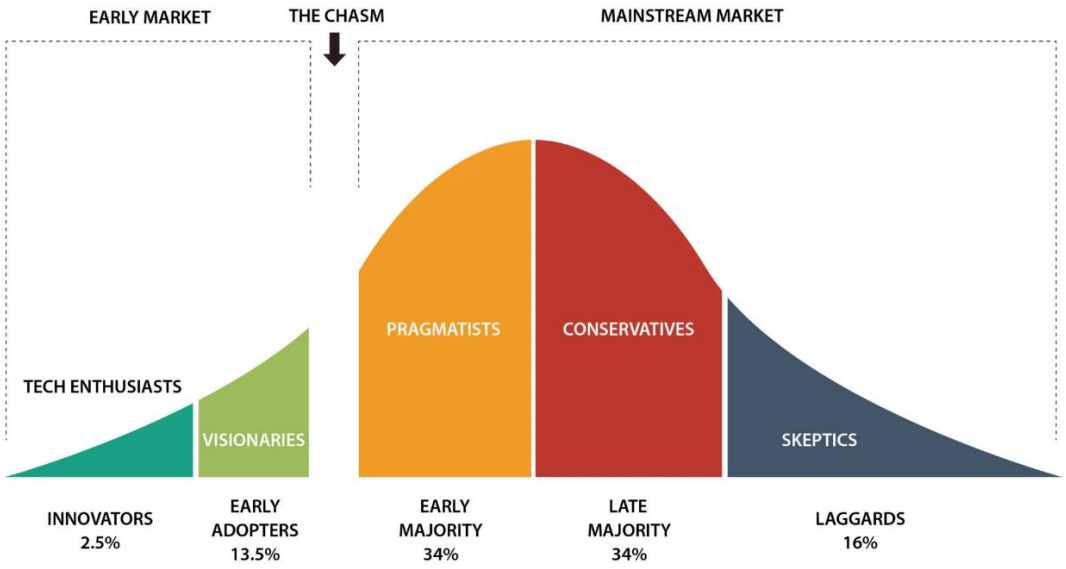

Figure 1 The 5 Stages of the Technology Adoption Curve (Conway, 2023)

Current technology usage and maturity varies between companies. This study relies on some existing IT solutions being in use by the business, such as a business website, email, Microsoft Office/M365 subscription and other common software.

1.4 Research design

Since generative AI is a wide-spreading technology with multiple applications for small businesses, the research will reflect on perspectives from multiple sources. Although AI-themed publications and literature are being released at a rapid date by both academia and industries, the technology and market are changing even faster. The study will explore non-academic literature published online, such as videos, articles, and news sites which address generative AI. Industry experts, researchers, educators, and reputable spokespersons in generative AI are at the forefront of the industry and their statements are often considered trustworthy and relevant. Relevant literature will be used throughout the material, for discussing and summarizing insights. Furthermore, articles and

announcements by well-known AI-tool makers such as OpenAI, Google, and Microsoft will be included in the research, as their thoughts and actions play a significant role in the global AI advancements and overall development direction.

In the research, it is wise to acknowledge that opinions and beliefs vary between people and organizations and that statements may therefore be different. Especially perspectives and predictions of the future of generative AI can be widely varying in nature; some predict AI will result in some jobs becoming irrelevant whereas some predict that AI will create new types of jobs. As a reader, it is important to recognize the subjectivity of AI-related statements and not accept it as the truth. In the research, content and sources will be critically reviewed.

1.4.1 Methodology

In the thesis, the research will be conducted as a desk research, through exploration and review of relevant information published in publicly available reports and material. Insights and information will be collected mainly through online media, online published literature, reputable news sites, research and articles by educational institutes and research and consulting businesses, and statements by reputable spokespersons in AI. The research will also consider physical publications, webinars, and content and articles on AI tool makers' websites, with reputability and trustworthiness kept as a key priority. As such, the methodology considers both primary and secondary data in the research, with an emphasis on collection of information related to AI technology and business.

Rapid progress and development are being made regarding generative AI, and ground-breaking announcements are happening on a regular basis. For researchers and authors, documentation and publication might be troublesome, since scientific literature takes some time to write, which means that the existing literature might also be outdated quickly. Even articles, recorded presentations, school lectures and online videos have the risk of being irrelevant, as new innovations change the landscape, the technology, and its applications. For the research for this thesis, it is therefore important to address the relevancy and correctness of each publication. Reflecting on William Gibson's words "The future is already here – it's just not evenly distributed yet", it can be assumed that progress is being made simultaneously globally and any publication or presentation does not provide

a fully accurate or holistic picture of the state of generative AI, but rather functions as a subjective snapshot, based on their unique context and background.

1.5 Structure of the thesis

Starting with the basics and introducing AI and generative AI sets the foundation of what technology will be the theme moving forward, along with setting the scene for the business landscape by discussing the context and challenges that micro and small businesses face when it comes to adopting new technology. Concepts around value creation as a business are also discussed, as a part of the theoretical framework. The study aims to use a qualitative approach to conduct its research but will include quantitative data analysis if seen relevant and valuable. In other words, the approach can be labelled as a mixed-methods approach, but with emphasis on qualitative research.

The thesis culminates in a framework, or handbook, for generative AI adoption and usage in small companies, conducted from a practical and thought-provoking perspectives, to help the target audience identify the proper approach regarding working with generative AI in their unique business context. In other words, the thesis is not aimed to be an extensive and exhaustive approach of the subject, but rather an introductory handbook for exploring the generative AI technology and the opportunities it has to offer for small businesses in Finland.

As AI technology is rapidly evolving and new solutions are introduced to the market at a rapid rate, insights given in this study should ideally be long-term and non-specific. Furthermore, the study does not cover ranking or direct recommendations regarding which AI companies and products would be the best to use. Rather, the aim is to provide an objective overview and snapshot of the AI landscape at the time of writing.

2 What is GenAI?

In the project, it is vital to create a strong foundation for the key concepts used, as it enables the reader to build his or her understanding gradually within these areas, whilst reading through the material. In addition to the central concept of Artificial Intelligence (AI), other key concepts, such as business strategy, are going to be used and discussed throughout the project. Furthermore, the study also utilizes relevant models and theories

such as Resource-Based view and SWOT analysis, to delve deeper into the perspectives of small business decision-makers.

With a multitude of professional and academic publications existing on AI and GenAI, finding information and insights is an easy task. The literature review will include both academic and professional sources, as the aim is to discuss and approach the topic from a practical standpoint. It will concentrate on selected material, based on their relevancy to the scope of the study, practical applications of GenAI. Ideally, more recent publications are preferred over others, due to the rapid development in AI and changing markets. Nevertheless, all analyzed material will be critically reviewed and their relevance to the study discussed.

In addition to recent publications, the study also prefers recognized spokespersons on AI, due to their deep insights in the topic. As one of the prime examples, Andrew Ng is widely regarded as one of the most influential persons when it comes to Artificial Intelligence. He has authored or co-authored over 200 research papers in machine learning, robotics, and related fields (Ng, n.d.). His insights in AI and its potential can be useful in the research. Another good source of information for the research is Erik Brynjolfsson, who is a recognized researcher and speaker on a wide range of topics regarding AI, information technology and business strategy (Brynjolfsson, n.d.). Naturally, there are many more to be included in the literature review, and these two are just the tip of the iceberg.

2.1 Understanding Generative AI

For many, first exposure to the topic of generative AI means first exposure to AI itself. Attitudes towards this technology may vary amongst people, but a common denominator seem to be that AI and Gen AI are disrupting whole industries. Many perceive this new technology as a paradigm shift in how work is conducted, since GenAI has a wide range of use cases for businesses and can drastically lower the barrier for innovation and exploring new ideas (Harvard Business Review, 2023).

Seeing all the new, discussions and articles held regarding AI, it is easy to get confused what the difference between generative AI and AI is. The literature study aims to introduce Generative AI and clarify the basics around the technology, so that understanding can be built gradually. Understanding the technology properly enables decision-making on an

informed basis, rather than basing the decision on a (gut) feeling. Additionally, the better understanding the reader has about generative AI, the better equipped he or she will be to use the technology optimally in a business context.

2.1.1 AI terminology

In this section, common AI terminology used in this thesis will be described and discussed, to provide a sufficient understanding and introduction to AI and GenAI and how the terminology is structured. Using Figure 2, the reader can better understand the terminology discussed and their relationship. Each terminology, or category, described in this chapter only represents one of the many subsets under the category above it. For example, in addition to Generative AI, deep Learning also includes terminologies like CNNs and RNNs. Providing a comprehensive mapping of all AI terminology would not only be outside of the scope of the study, but also a complex task, since the terminology is vast, along with many interconnected models and components.

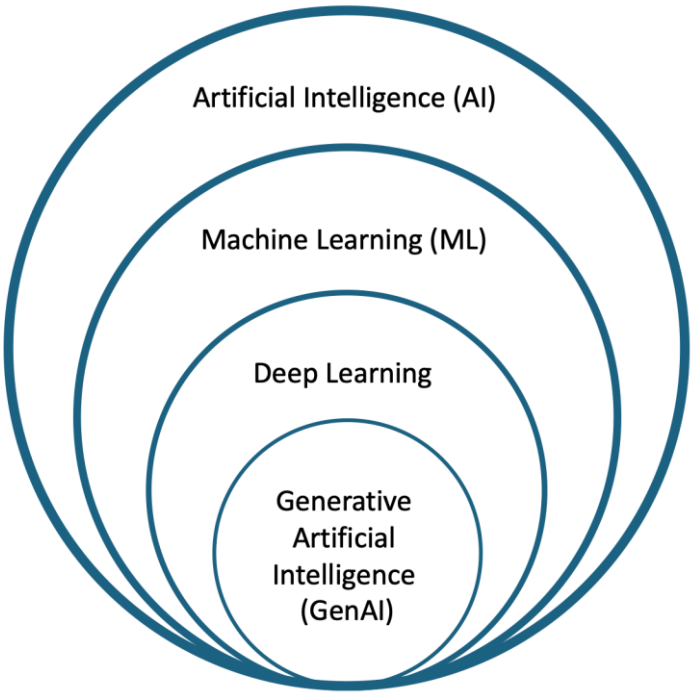

Figure 2 AI terminology and structure

Artificial Intelligence, or AI, can be seen as an umbrella term used for technology mimicking human intelligence in different use cases. There is no universal description of what AI is, but rather experts and companies tend to give their own description that reflects their point of view. IBM, a global tech giant with strong roots in computing and artificial intelligence, defines Artificial intelligence, or AI, as a technology that enables computers and machines to simulate human intelligence and problem-solving capabilities (2024). Gartner, a large research and advisory firm, defines AI as applying advanced analysis and logic-based techniques, including machine learning (ML), to interpret events, support and automate decisions, and take actions (2023).

Machine Learning, (ML), a subset of AI, refers to the ability of computers to learn from instructions to make independent decisions. The decision-making is based on its training

data and the way it has been trained. Supervised learning, unsupervised learning and reinforced learning are common techniques that enable steering the decision-making towards intended outcomes. Netflix's movie personalization and recommendation capabilities are largely based on Machine Learning (Netflix Research, 2024).

Deep Learning, (DL) is a subset of Machine Learning, which uses neural networks for understanding and analyzing data. Neural networks can be seen as interconnected layers of nodes that process information in a similar way to the human brain. In deep learning, the word "deep" refers to the human brain-resembling layers of networks which connect and refine the data analyzed, to better understand it and its context. Deep learning technology enables tasks such as image recognition, speech recognition, and language translation.

Generative AI, also referred to as GenAI, refers to the subset of AI which utilizes deep learning and enables generation of new, unseen content based on the information provided and training data. Generative AI refers to algorithms or models that can generate new content, whether it be text, images, music, or other forms of media, that have never been seen before. As such, AI-driven recommendation engines, such as the movie recommendation feature on Netflix, are not Generative AI since no new content is created.

LLMs, or Large Language Models, are deep learning models that can generate text in a conversational and natural way, using Natural Language Processing (NLP), as they are trained on vast amounts of data (usually in text form, from books and the internet) via deep-learning algorithms. Based on the training data, the LLM becomes competent in that area. For example, a LLMs trained on cyber security-related data become specialized in how to protect (or attack) IT infrastructure and can give recommendations in this area, likely both from a technical and business perspective. It can be expected that software companies will start providing niche LLMs for companies to build specialized Generative AI tools for different purposes. At the time of writing, there are plenty of LLMs on the market, which include big players like OpenAI's GPT-4 and Google's Gemini.

2.1.2 Increasing capabilities of Generative AI

"The future is already here – it's just not evenly distributed yet" – William Gibson

Although the popularity of Artificial Intelligence (AI) technology has been increasing steadily over the last decades, big technological advancements in generative AI during the last years have resulted in rapid capability improvements and increasing interest. GenAI reached immense popularity since the public release of OpenAI's ChatGPT in December 2022. Since then, new companies have entered the market with own AI models, solutions, and tools, resulting in the capabilities of the technology to increase rapidly in a short timeframe. With ChatGPT as a first mover in the GenAI boom, it is often being compared to during tool performance benchmarking. Resembling a race-to-arms, tech giants such as Google, and Amazon have also announced their own LLMS and model variants, based on their own models and intended use cases. OpenAI itself was acquired by Microsoft in 2023 and integrated into various Microsoft products, such as the search engine Bing. Another example is Adobe, who has heavily integrated AI into its products and recently released a GenAI assistant into the pdf-reading tool Acrobat Reader, for assisting with and summarizing pdf content (Adobe, 2024).

As more and more generative AI tools are introduced to the market, consumers and businesses have an increasing variety of tools and options to choose between. New use cases are also being found for the tools, which further expands the horizon and benefits of using GenAI. Since businesses have different needs and requirements towards the tools compared to consumers, many tool providers are releasing useful features like collaboration, business data integration, and customization possibilities. With tools becoming increasingly better at creating high-quality output and beating current competition, the trend is expected to continue growing. Many AI models and tools are also enhanced by integrating new AI frameworks, such as RAG, or Retrieval-Augmented Generation, that improve the quality of LLM-generated responses (IBM, 2023). Thanks to its disruptive impact on how business is conducted, Artificial intelligence has heavily been associated with Internet/Industry 4.0 (McKinsey & Company, 2022). It has already been recognized that AI and generative AI are here to stay. AI-related training, courses and even education programs have been designed to get the public up to speed with the rapidly evolving technology.

2.1.3 Output models of generative AI

The output models of generative can be grouped into three main categories: Text, visual, and audio. Many generative AI tools, such as ChatGPT, enable the user to use other formats than text as input for the prompt. In practice, this means that the tool can understand both the context and content and can work with that information to generate content. For example, the financial statement of a company can be uploaded as an attachment (pdf or image) to the conversation with ChatGPT, with a request to create an annual report based on it. The capabilities and scope of GenAI tools vary greatly, depending on the intended use case, scope, and technical limitations.

As presented by Amazon Web Services (AWS), there are six main capabilities of Generative AI: Generation, question answering, summarization, translation, correction, and classification (AWS, 2023). The first capability, generation, provides new content in various formats based on the prompt and context. The second capability, question answering, enables understanding and answering questions asked, connected to the context at hand. The third capability, summarization, condenses and draws out key learnings from the content provided or requested, usually in text form. The fourth capability, translation, provides understanding of many languages and translation between them, with the context and prompt taken into consideration. This enables the GenAI tool to be a translator which has the potential to beat other online translators like Google Translate. The fifth capability, correction, enables the tool to understand the content and suggest or make improvements to it where needed. Examples of this could include grammar corrections and picture modification. The sixth and last capability, classification, enables the GenAI tool to understand and group the content based on the request.

Similarly to the capabilities, AWS enlists four “inputs and outputs” of Generative AI: text, images, video/audio, and code (AWS, 2023). Furthermore, all these four types can be combined in any arrangement (also referred to as multimodality); text can be converted to images, images to text and so on. The capabilities are, of course, ultimately depending on the AI tool and its intended use case.

Text is input and output as language. Depending on the model, text can be in a wide variety of languages and include numbers and special characters. Text contains the ability to produce contextually relevant content in a written format that can be read and understood

by humans, in a vast number of languages, depending on its training data. As an illustrative example, in Figure 3 below, ChatGPT provides an answer in text form to a simple message “knock knock”.

Figure 3 Screenshot of conversation with ChatGPT. Source: OpenAI (2024 May 15)

Image generation is possible through various AI tools and can be used for a range of tasks, such as marketing, product design ideas and art. As a practical example, Figure 4 below displays a coffee mug product design which was generated by ChatGPT based on the request.

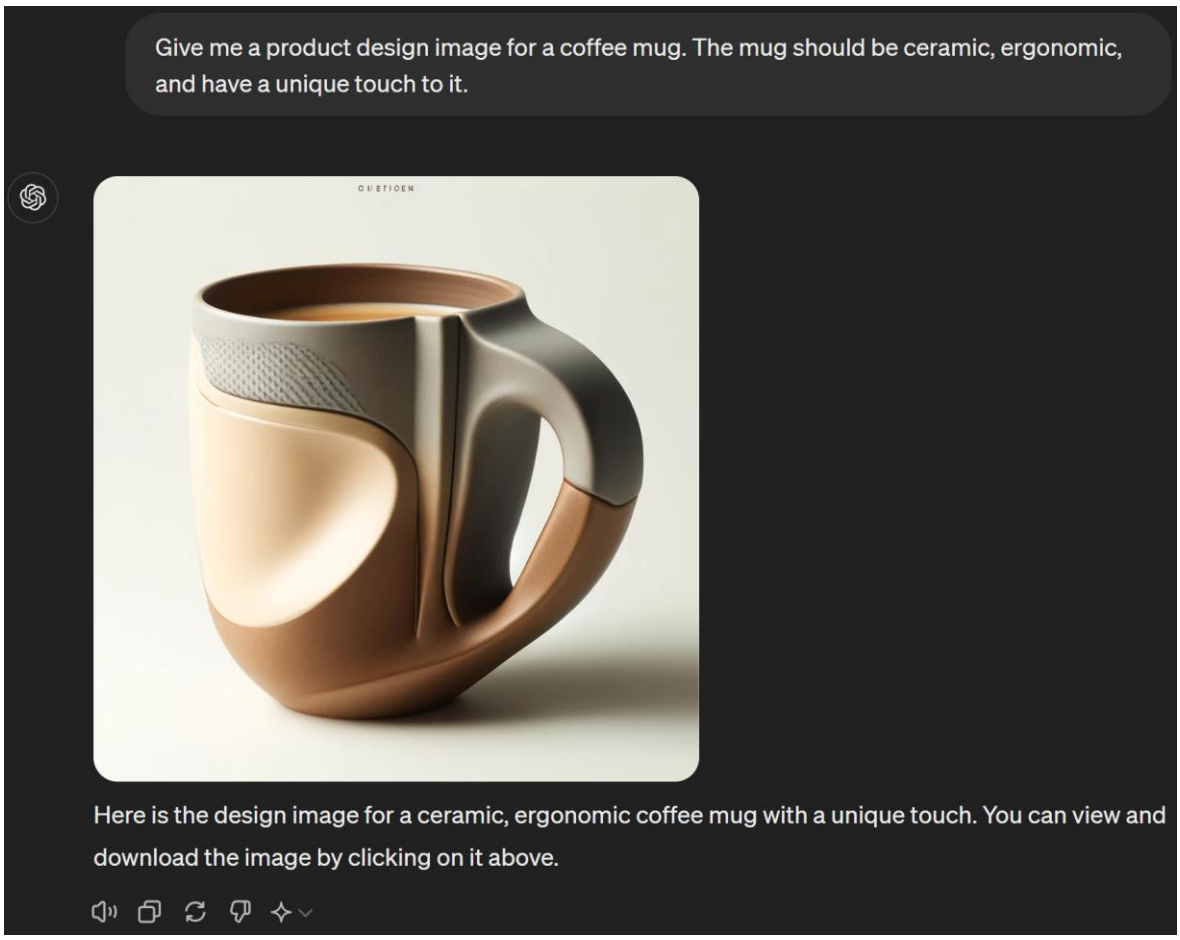

Figure 4 Screenshot of conversation with ChatGPT and generated image of a mug. Source: OpenAI (2024 May 15)

The quality and accuracy of the generated images have been steadily improving over time and generated photos are today in many cases comparable to real photos and human-made content. In fact, some have utilized the ultra-realistic-looking image creation potential for creating virtual social media influencer profiles, such as the popular AI-generated influencer Aitana Lopez (@fit_aitana), with over 300 thousand followers on Instagram at the time of writing.

Video: As the quality and processing power of AI technology has been improving drastically, video-generating tools have emerged on the market. OpenAI's release of "Sora" in spring of 2024 indicates much progress in the realm of AI-generated videos and can generate realistic-looking short video clips based on user-provided prompts. As the video-generating capabilities increase over time, it can be expected that the quality will improve, and the videos will become longer.

Audio and auditive representation can also be generated through many AI tools and includes generated speech, sounds and music. AI-driven audio creation tools usually allow creations based on text prompts or by selecting themes on which the tune will be based. For companies, access to high-quality customized computer-generated audio content can be very useful, for example as background music in a marketing context. Similarly, generated speech can enable many use cases in customer communications or product interaction.

Code of high quality can also be created today by generative AI. Thanks to vast amounts of training data and its logic, GenAI tools can generate code in selected programming languages and with quality that even exceeds many senior developers. For businesses of all sizes, code-generating AI tools have improved the speed, quality, and security of software creation, as it can be used as a coding assistant for programmers working at the company, capable of suggesting and reviewing code snippets. As one of the major players in the coding assistant market, GitHub Copilot reportedly increases coding speed by 55% (Kalliamvakaou, 2022). Figure 5 below provides an example of an interaction with GitHub Copilot.

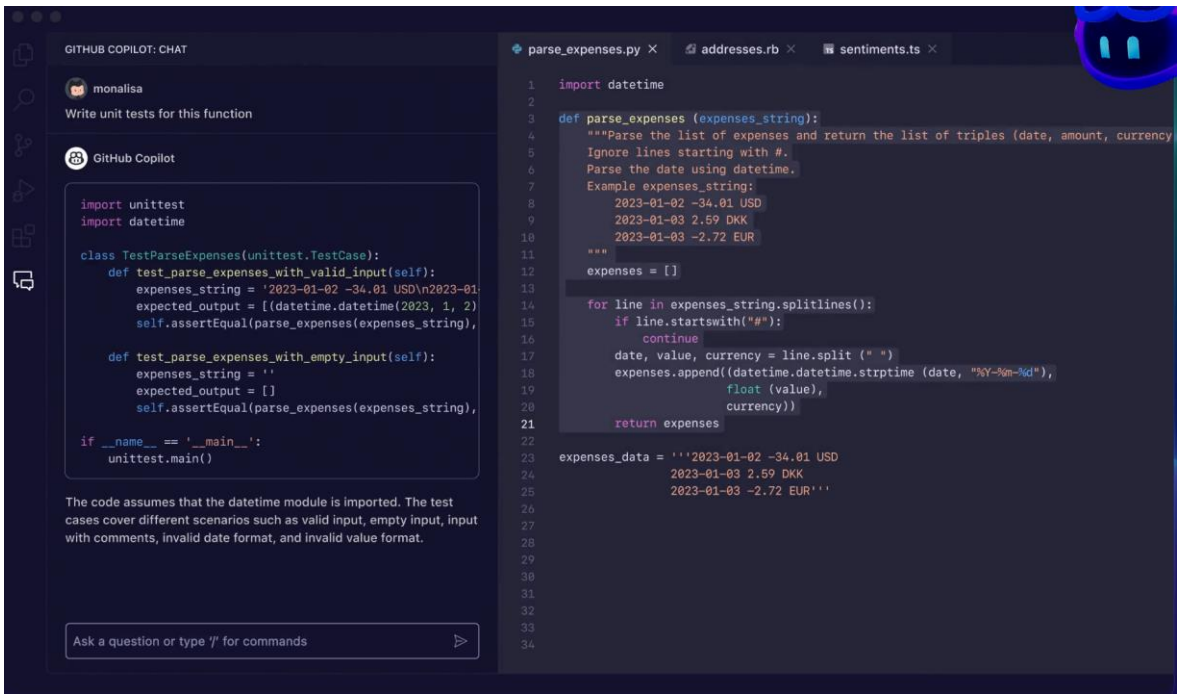

Figure 5 Screenshot of GitHub Copilot interaction, from GitHub's webpage. (Source: GitHub, date accessed 16.5.2024)

Multimodal tools: We can see an increasing amount of GenAI tools on the market, which can utilize text, images, video, audio, and code in combination to generate requested content. These tools are referred to as multimodal GenAI tools and provide increased value and flexibility in multiple use cases. As an example, when asking a multimodal tool like ChatGPT, which is also able to read documents, to visualize the data in a document, along with action, it may look something like the example provided by OpenAI in Figure 6 below. As capabilities and internal synergies of multimodal tools are expected to grow, more use cases will emerge, which will provide significant value for businesses.

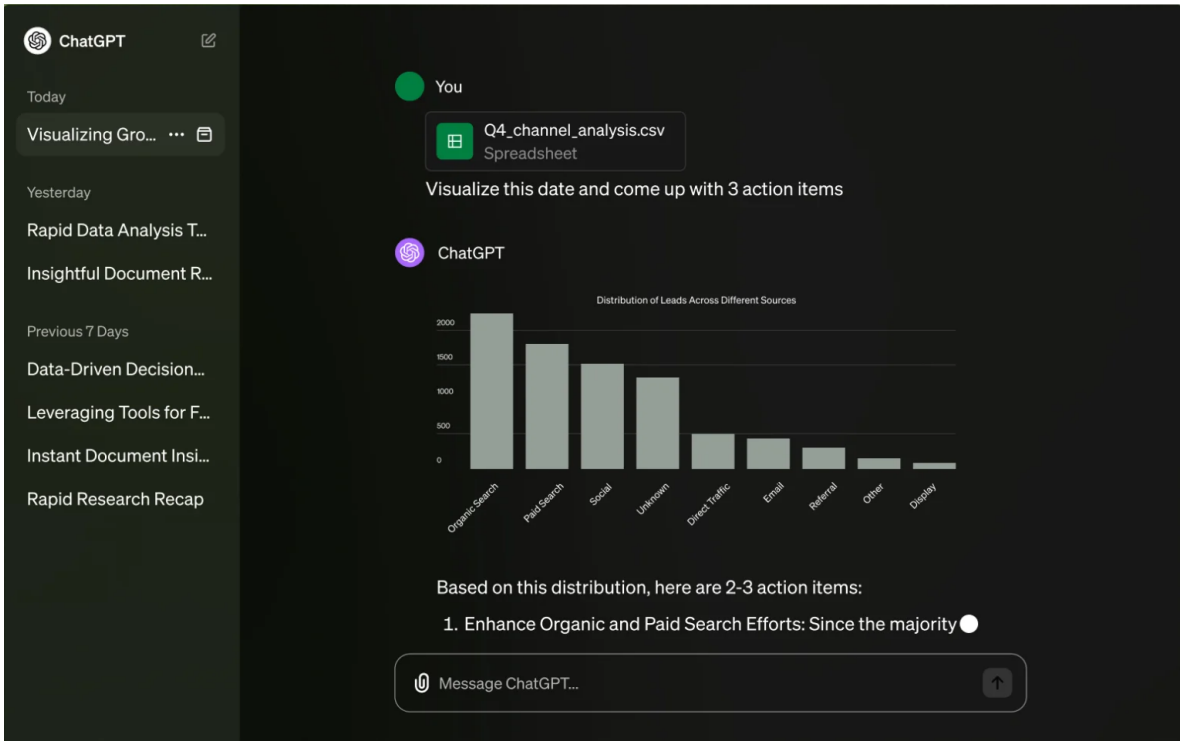

Figure 6 Demonstration of multimodality capabilities of ChatGPT in a document analysis example (Source: OpenAI, 2024, accessed 16.5.2024)

2.1.4 Demystifying the hype

The benefits of generative AI for small businesses are rooted in the technology behind it. Foundational models such as GPT (Generative Pre-trained Transformer), which many of the Generative AI tools are based on, have been trained on incredibly large amounts of data, consisting of the whole content of the Internet, a large percentage of every book written and other publications and content as well. Additionally, many models are trained on vast amounts of data from images, videos, code, and sound. As the output is based on this massive dataset, the quality and usability of the technology is immense. It can be compared

to having your very own Picasso or Einstein in your basement, who have access to (almost) all the knowledge in the world and are specialized in almost any subject, based on the data they have been trained on. Furthermore, your Einstein can deeply understand context and express himself in many forms. However, GenAI technology is still in its infant stage and still has a fair share of flaws and weaknesses. For instance, just like any human, Einstein can make mistakes and is prone to biases (due to the content used in the training data).

Before, AI technology was used only by high-tech companies. Since the public release of OpenAI's ChatGPT in December of 2022, the entry barrier to GenAI tech has been democratized and enabled access also for small companies and private users as well. Thanks to the output quality of ChatGPT and similar GenAI tools, vast number of use cases of this technology has emerged, and businesses worldwide are onboarding GenAI tools at a rapid rate. In fact, analysts estimate that ChatGPT reached 100 million monthly active users in January 2023, just two months after its launch (Hu, 2023). As AI technology keeps evolving at a rapid rate, new use cases are emerging and output quality of current GenAI tools keeps improving. Conversations are ongoing globally about the opportunities, and future trends of AI, as well as its risks, and how it will impact the current workforce. In his presentation at the Digital Data Design Institute at Harvard, Karim Lakhani (2023, 26:27) highlighted that problems are now being re-casted as AI problems and that the cost of innovative AI has dropped like rock. With rising expectations towards GenAI, it is wise to stay objective and mindful of the technology Hype Cycles, which will be discussed later in the thesis.

2.2 Generative AI in business context

This chapter focuses on introducing and exploring the practicalities of using GenAI technology in daily activities, with the aim to help the reader set appropriate expectations and requirements towards GenAI tools. Understanding Gen AI and its limitations creates good prerequisites for using the technology appropriately, finding use cases, and finding the balance between human-generated and AI-generated content.

2.2.1 Benefits of onboarding Generative AI

As a technology, generative AI has potentially great benefits for businesses regardless of size. Use cases and ultimate value-add vary between industries and businesses. For

example, an electrician might not have much exposure to IT and therefore might not have direct use cases, whereas an office worker interacting with people and computers all day will likely have plenty. An appropriate way to see generative AI is it being a sophisticated assistant for knowledge work, enabling the workforce to be more engaged, more productive, and more empowered. Karim Lakhani, professor of Business Administration at Harvard Business School, advises to think GenAI of it as a copilot (2023, 1:15:40). GenAI tools can assist and improve the work quality in a wide range of tasks and are enabled through many tools on the market. In an interview on Deep Tech with Amir Husain, CEO of Ensemble Khurram Mahmood argues that machine assistance in ideation is one the most powerful things you can do with a machine (2023).

CITERA BENEFITS https://aws.amazon.com/what-is/generative-ai/

Interestingly, many have adopted using AI chatbots, such as ChatGPT or Gemini, instead of "googling" as a primary knowledge-seeking tool since these tools are trained on the whole internet and a wide range of literature. Rather than providing lots of websites, AI chatbots give a summarized answer in a conversational way, with follow-up questions enabled. For many users, this is perceived as a more user-friendly and quicker way to get the job done. This also opens incentives for exploring new ideas and use cases through sparring and suggestions with AI chatbots. Consequently, businesses adopting GenAI may see improvements in areas such as productivity, decision-making, and communication, resulting in new identified business opportunities, better solutions, improved relationships with customers and suppliers, and a smoother value chain. As an example, a new generative ai model developed by researchers from Oxford University and IBM enables accelerated drug discovery by designing novel molecules to block virus proteins, including SARS-CoV-2 (Chenthamarakshan et.al., 2023). Through the enabled improvements, the tangible long-term benefits for the business can be noted on the financial bottom line and represented through lowered costs and higher revenue. Furthermore, exploration and adoption of new technology, like GenAI, is a way for businesses to stay relevant and maintain competitiveness, as competitors are likely also doing the same.

2.2.2 Addressing concerns regarding GenAI

"AI will take our jobs" is a comment and concern that many people share regarding AI and its subdomains. Like other infliction points in the history of humankind, new technologies

change how business is conducted. AI enables new opportunities, which could turn into new business, which creates new jobs. Rather than replacing old ones, it transforms them by enabling new ways of providing value and creating potential new job roles within the company. Gartner (2023) predicts that by 2033, AI solutions will result in more than half a billion net-new human jobs. However, it is important to keep on learning and educating oneself during the career. In an article published on Forbes, Bernard Marr (2023), argued that the workforce must adapt and acquire new skills to remain relevant in the changing landscape and that job losses due to AI-driven automation are more likely to affect low-skilled workers. As a leader, open communication and providing training and job rotation when required are some ways to address above mentioned concerns regarding job security.

Likewise, some are feeling skeptical regarding the reliability and usability of it, seeing it as an over-hyped technology with no actual long-term benefits. Skepticism could be a sign of insufficient insights and should be addressed properly, to increase organizational commitment. For leaders, educating the employees through workshops will provide initial understanding and inviting them to explore GenAI technology together increases inclusiveness, which will likely help addressing any concerns regarding how well the technology could benefit the business.

Concerns may also arise regarding AI's impact on organizational culture since it could lead to a less collaborative and more isolated working environment. For business decision-makers, it is wise to address factors around organizational well-being, ensuring that the employees' voices are heard, and needs are considered throughout the potential GenAI onboarding journey. Transparent communication, inclusive planning, and sufficient training is required to ensure successful and sustainable technology integration.

2.2.3 GenAI's role in business strategy

Adopting new technology like generative AI is one way for small business to ramp up future business success and make sure to stay on par with changing customer needs and demands.

Many micro and small companies operate locally or nationally. Onboarding new and cutting-edge technology might enable new business opportunities, but the appetite for scaling up or changing the business model varies greatly between companies. A business

strategy decision to keep the business simple and local might often lead to exploration of new technology falling low on the priority list. On the other hand, with rising costs driven by inflation and global events, companies might prioritize technology strategies that enable cost optimization and long-term profitability.

2.3 Considerations with GenAI technology

2.3.1 Hallucinations

It is common for GenAI tools to hallucinate when generating content and come up with facts or figures that are incorrect and/or complete nonsense. Likewise, asking an image-creation GenAI tool to generate a picture of a human, the generated human often ends up looking unnatural, for example by having 6 fingers per hand. The reason for the hallucination is mainly due to the how the GenAI technology works. Essentially, generative AI tools are just advanced and sophisticated prediction machines, whose job is to predict the next word, image pixel or similar, to the best of its ability. A generative AI tool that creates an image of a human does not actually know what a human look like. Similarly, a text-generating AI tool does not know what full text will look like, only the next appropriate word to the context. These flaws can be exemplified in Figure 7, where, despite the overall looks are good, the cap looks a bit off and the text on the bottle is mostly just nonsense. Although there are technical ways of increasing the likelihood of more reliable output (such as using vector databases and RAGs), generally the more data the tools have been trained on, the more sophisticated and realistic content they are able to generate. As a prompter, it is therefore important to understand this and not blindly trust the answers provided to the questions asked. By

Figure 7 AI-generated image of two water bottles

putting effort into creating detailed and clear prompts for the GenAI tool, the risk of hallucination is reduced significantly.

2.3.2 Ethical and Bias Issues

Although the output is sophisticated and may even seem realistic and believable, generative AI content may still be incorrect and/or misleading. In many cases generative content can be biased and not representable. The problem usually lies in the training data which the models are trained on, as LLMs can only generate and reflect based on the data it has been trained on. Consequently, the data may skew the perception of reality and amplify biases linked to gender, race, ethnicity, and socio-economic factors, and thereby portraying an inaccurate, or even harmful, view of equality and fairness for the AI user.

Even though rules against racism, biases, violence, and other unwanted behavior have been hardcoded into many models and tools, they might still mistakenly circumvent them. Or then the complete opposite, where the rules are hardcoded and enforced to the degree that even historically accurate content that is generated is (somewhat hilariously) corrected to be less harmful (Barrabi, 2024). For businesses, it is important to understand this weakness of GenAI tools and review the content produced before being published, to ensure integrity and adhering to responsible AI practices (Google AI, n.d.) and to ensure that the content promotes fairness and is not harmful to its audience.

2.3.3 Privacy and Cyber Security

Best practices in responsible usage of AI also cover enabling privacy, safety, and security (Microsoft AI, 2024). Since lots of data and information is processed in AI tools, data protection has risen to the minds of both businesses and governments. Many GenAI tools have been scrutinized and reported to collect the input and prompts by its users for further training and for finetuning processes. For instance, Google's AI-chatbot Gemini informs the user that the conversations are being used for improving Google products and is reviewed by humans during the improvement process (Gemini Apps Help, 2024). is important to be mindful not to disclose or use sensitive information, such as personal information or business and customer secrets into public AI tools, as the AI user (company) responsible could face fines ranging from 35 million euros or 7% of global turnover to 7.5 million or 1.5% of turnover (European Parliament, 2023). Furthermore, many LLMs are

trained on vast amounts of data from the internet and from publications like books, articles, and journals, of which a large portion may be collected without consent by the publisher. Many GenAI tools may therefore generate content that is subject to copyright and should be avoided for commercial purposes. Such examples include AI-generated music that derives from Beyonce's voice, or images that are based on protected artwork by Picasso. Knowing what AI-generated content is subject to copyright could be a complex task for companies and will be discussed further in the handbook later in the thesis.

AI- and GenAI-driven crime is getting more common every day, as AI tools are also being used by criminals, often without restrictions. Laura Kankaala, Threat Intelligence Lead at F-Secure, explained in her speech during an AI and cyber security themed webinar in April 2024 that AI has enabled criminals to craft more compelling and authentic-sounding phishing messages, for example using AI-generated realistic-sounding speech based on a 1-minute recording of the original voice and a text prompt. Knowing this, it is wise for managers to reflect on the threats affecting their business and teach their employees to be vigilant in detecting malicious activities with or without the usage of AI.

2.3.4 GDPR and Regulations

As AI and GenAI technology and capability development continues at a rapid rate, regulations are required to be set around data protection, integrity, and security. Data protection authorities play a crucial role in regulating and supervising the use of GenAI (Lölfing, 2023). In addition to updating GDPR regulations, the EU AI act puts bans on specific applications, such as social scoring, manipulation of free will, and emotion recognition in the workplace (European Parliament, 2023). Regulations worldwide are expected to be further developed and refined, as AI and GenAI technology matures, and new applications of the technology are identified. For a business, it is essential to treat sensitive data with care, especially when working with AI tools connected to the internet. Many AI tools are using the conversation information and data provided for further training purposes, meaning that any sensitive information mentioned might end up in wrong hands, potentially causing a breach of personal data.

2.4 Getting the most out of GenAI

2.4.1 Prompt engineering

In the context of AI tools, prompts refer to the inputs (usually in text form) a user writes to GenAI tools, on which base the requested content is created. Knowing how to write these prompts is essential, as it is the biggest prerequisite for high quality content generation by GenAI tools. For this reason, prompting and prompt engineering are actively discussed topics amongst AI experts and newcomers alike. As defined by McKinsey & Co. (2023), prompt engineering is the practice of designing inputs for AI tools that will produce optimal outputs. For companies onboarding GenAI into business activities, it is essential to understand, learn, and continuously practice prompt engineering, so that the company can reap the maximal benefits of the GenAI tools in use.

In GenAI text creation, for example in tools like ChatGPT, providing sufficient context to the request or question is key to getting a relevant output from the tool. It is recommended to clearly define the scenario and request, as well as setting appropriate customized instructions (refer to Chapter 2.4.2 for more information about customization), where relevant and possible. Instead of writing “How to improve team performance” as a prompt, try instead to provide more context by writing “I am a team lead of a 7-person multi-national team in a Finnish insurance company, working remotely and from different countries. The team struggles with motivational issues and has lately dropped in our KPI metrics as well. As a team lead, what would I do to improve the performance of the team and each team member?”.

In GenAI image creation, for example in tools like Midjourney (midjourney.com), specifying the image in a detailed matter is crucial, if the aim is to create a specific type of image with specific attributes, such as style, atmosphere, aspect ratio, and lighting. The more specific the request is, the more accurate the generated picture usually becomes. Instead of using the prompt “A Nordic style hotel lobby”, try something very specific like “A photo image of a high-end Nordic hotel lobby, with ample seating space, large windows letting in sunlight. Walls are covered with natural wood cladding and atmosphere is calm and inviting. Plenty of plants and artwork, which give a luxurious feel. Hyper realistic, unreal engine 5 render, hdr, long exposure, 8K, Canon, 50mm f2.8, ar--16:9”. The start guide of the tool at hand can help with learning how prompting is made effective and what approach to use.

Following the examples and logic above, the same guidelines on prompt engineering applies to other tools and output modes as well (code, video, and audio). Being clear about what is requested is essential for getting a high-quality output, no matter what form or tool is used. Furthermore, learning how to do prompt engineering has additional benefits for other areas in life as well, since practicing the skill of generating effective prompts is simultaneously also a practice in communication skills, as the better the message or request can be articulated, the clearer it will be received by others.

2.4.2 Customizing GenAI tools

Many GenAI tools, such as OpenAI's ChatGPT, provide the possibility to create customized instructions to the tool so that the output provided based on the prompt is optimized to the user's unique context and preferences. Consequently, this will further improve the quality of the output since the AI uses both the prompt and the customized instructions for the task at hand. For example, ChatGPT customized instructions include possibilities to extensively write clarifying descriptions for the two questions "What would you like ChatGPT to know about you to provide better responses?" and "How would you like ChatGPT to respond?" (OpenAI Help Center, 2024).

2.4.3 GenAI integrations

Today, many companies like Microsoft, Google, and Adobe include GenAI tools, such as AI-assistants, into their other solutions. These tools enable seamless integration and synchronization with other tools from the same manufacturer, either for free or as a premium upgrade. Examples of integrated GenAI solutions will be discussed later in the thesis, as part of the handbook. Overall, it can be expected that AI integrations will become increasingly common during the upcoming years, as the need increases for connecting standalone AI tools with contextual and business-specific data.

For many businesses exploring the benefits of Generative AI, the next step on the AI adoption journey could be to explore third-party GenAI solutions that can be configured and connected to the business environment using API integrations (Application Programming Interface). While this is not something that is relevant immediately, the benefits of GenAI and AI tools through APIs would enable the business to gain significantly

more value of the technology. API integration is beyond the scope of this thesis but will be discussed briefly later, as part of the handbook.

2.5 Technology in Finnish micro and small companies

Finnish micro and small companies are the areas of focus in this study. As per definition by the European Commission standards (2020), a micro company is referred to as a company with fewer than 10 employees and an annual turnover or balance sheet total below 2 million euros and a small company is referred to as a company with fewer than 50 employees and an annual turnover or balance sheet total below 10 million euros.

Presented and summarized in Table 1 below, statistics from 2022 results (Tilastokeskus, 2023) show that in the Finnish economy, almost every company (99.4%) has under 50 employees and would fall into the “small company” category. Companies with 0-4 employees account for most of this, with a 93.4% share of the Finnish landscape. However, it is worth noting that these small businesses only account for roughly a third of the whole turnover (34.3%), with the smallest category with 0-4 employees standing for 12.3%.

Enterprises by size class in personnel 2022

Size category of personnel	Enterprises		Turnover	
Persons	**Number**	**%**	**€ mil.**	**%**
Total	**571742**	**100**	**555953**	**100**
0–4	533811	93,4	68271	12,3
5–9	17728	3,1	30092	5,4
10–19	10021	1,8	35904	6,5
20–49	6380	1,1	55893	10,1
0-9 (micro)	**551539**	**96,5**	**98363**	**17,7**
0-49 (small)	**567940**	**99,4**	**190160**	**34,3**
50+	**3802**	**0,7**	**365793**	**65,8**

Table 1 Finnish enterprises by size class in personnel in 2022. Original layout changed. (Source: Tilastokeskus, 2023)

Despite taking up a third of the national turnover, Finland's market is not only small but also distinctive, presenting a unique set of challenges, especially for micro and small businesses.

2.5.1 Financial and Resource Constraints

With statistically high indirect salary expenses, having employees in Finland is expensive. Although the need for additional employees may be high, small businesses operate on smaller budgets and have therefore more constraints and less flexibility in supporting their operations financially. In many micro businesses, with only one or a few employees, time optimization is essential. Additionally, Finland's statistically high value added tax (VAT) is causing increased costs of operations, which further stresses business profitability. Although VAT rates differ depending on the type of goods and services and are ultimately paid for by the end customer, a high VAT rate mean higher prices for customers and may impact sales and competitiveness when comparing to alternatives outside of Finland.

2.5.2 Geographical and linguistical challenges

Due to Finland's geographical location and physical barriers to international trade, entering non-Finnish-speaking markets further complicates their operations. Being a geographically remote country, logistics is a significant cost that could impact the product pricing and therefore its attractiveness on the market. Moreover, there is a potential gap in English language proficiency among older employees, which can hamper international business communications and represent significant hurdles for small businesses striving for growth in Finland.

2.5.3 Technology in micro and small businesses

Technical adoption agility

In comparison to large companies with vast and complex IT infrastructure, processes, and policies, micro and small companies usually enjoy the benefits of a more agile environment, which give good prerequisites for trying out new ideas, technologies, and concepts. As new technologies are becoming popular in the market, pricing and accessibility becomes more attractive for speculating companies. Through improved affordability and accessibility for the mass market, the barrier of entry becomes lower. For micro and small companies, this enables more opportunities to increase competitiveness. However, as technology keeps evolving, it is key for small businesses to stay up to date with the changes and adjust accordingly. The market and customer expectations are changing, some more than others,

and to maintain competitiveness, businesses need to find ways to meet the demands whilst ensuring business profitability.

Varying skills and interest in new technology

Finland consists of many technologically advanced companies, which drive the growth of the technology development and state welfare. In fact, the technology industry is the most important export industry in Finland, constituting for over 50% of Finnish exports (Technology Finland, 2023). Furthermore, the Finnish Government has set ambitious goals of Finland becoming the most successful and best-known country that generates wellbeing from the research, development, and utilization of technology by 2030 (Finnish Government, 2022). On the other hand, many companies, especially small and micro-sized ones, may not be as technologically driven or adept. For example, having only a few or even no employees with advanced IT technology competences may lead to exploration of new solutions in IT being deprioritized, due to the lack of skills to delve into what tech exists, what would be suitable to onboard and how it is done in practice.

Many small companies decide to outsource everything IT-related to third-party service providers. However, with lack of necessary skills and knowledge to effectively select, implement, and use new technologies, many opportunities may be missed. Additionally, outsourcing IT does not mean that cybersecurity can be left out of mind, as maintaining good cyber security skills and resilience towards threats is important and requires sufficient training within the company, regardless of if IT is outsourced or not.

In terms of technologies like generative AI, some companies, or their employees may also perceive uncertainty and may even have developed a fear towards it. With media wildly portraying GenAI as a job-taker and an industry killer, employees start to fear for their job security and companies for their long-term existence. Although some businesses and industries are more disrupted by AI than others interest and attitude towards new technology tend to be greatly deriving from people's understanding of it. In contrast to attention-grabbing media articles around the threat of AI, most experts and spokespersons are emphasizing the great benefits and opportunities companies can find from exploring GenAI.

Technology requirements

Given its many challenges, small companies value cost-effective solutions with low barriers of entry that can produce tangible benefits to the business, aligned with business strategy. As the infrastructure of small companies tends to be smaller compared to bigger enterprises, simplicity, scalability, and agility of the onboarded solutions are appreciated. Small companies without access to technology experts appreciate bolted-on solutions without the need for maintenance. Hence, many small companies prefer to outsource all IT-related matters, as it usually comes with access to support and subject matter experts. As the company grows and matures over time, IT solutions that are already onboarded into the company should be dynamic and scalable for growth as well.

3 Theoretical Framework

3.1 Gartner Hype Cycles

Understanding that the hype towards a technology develops over the course of its lifetime. As a decision-maker, it is important to keep a modest approach to GenAI technology and manage expectations appropriately. The Hype Cycles is a methodology developed by Gartner that interprets technology hype and puts it into context by tracking how expectations towards the technology vary throughout its lifecycle. This may help the reader gain a more realistic grasp on the usefulness and commercial viability of the technology, as well as on how the hype might mature in the foreseeable future. The Hype Cycles is not a definite truth about the adoption or maturity of the technology but gives a view of how a technology or application will evolve over time, providing a sound source of insight to manage its deployment within the context of specific business goals (Gartner, 2024).

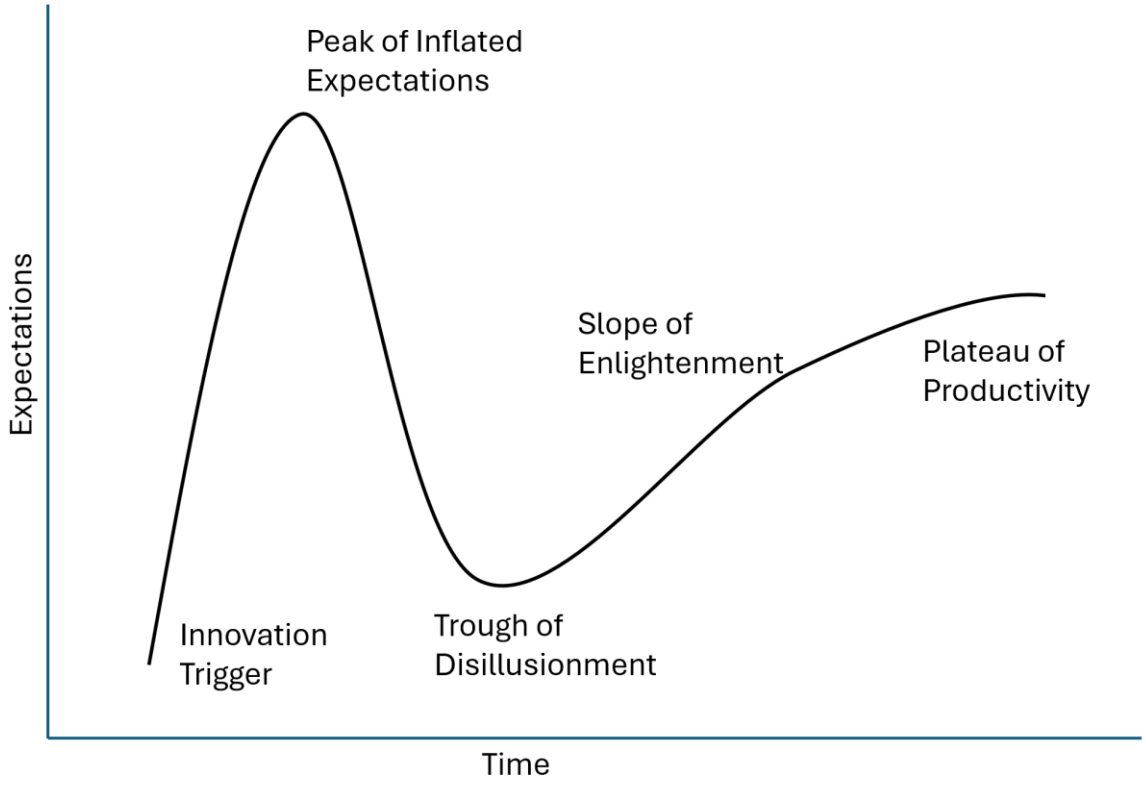

Figure 8 Illustration of Gartner's Technology Hype Cycles

The Hype Cycles graph consists of two axes: Expectations and Time, seen above in Figure 8. The time axis consists of five phases, shedding light on the stages of a technology's lifecycle:

Innovation Trigger, indicating a breakthrough in technology, which starts the hype within the industry.

Peak of Inflated Expectations, including many success stories and advancements of early adopters.

Trough of Disillusionment. Failure stories arise and technology interest slows down, potentially impacting investments.

Slope of Enlightenment, when the market gains a clearer understanding of the technology and its potential, resulting in increased adoption and improvements of the technology.

Plateau of Productivity, indicating that the technology is getting more widely understood, accepted, and adopted by the mainstream market.

As a featured tool, Gartner uses its industry insights to collect and produce a technology hype cycle overview, which is shared online and amongst clients. Figure 9 below displays the Hype Cycle for Emerging Technologies from August 2023, providing an overview on a range of technologies. Looking at the chart, Generative AI is on the very top of the phase "Peak of Inflated Expectations", indicating the importance for business decision-makers to maintain realistic expectations towards GenAI over the next few years, as it likely progresses through the next phases of its lifecycle.

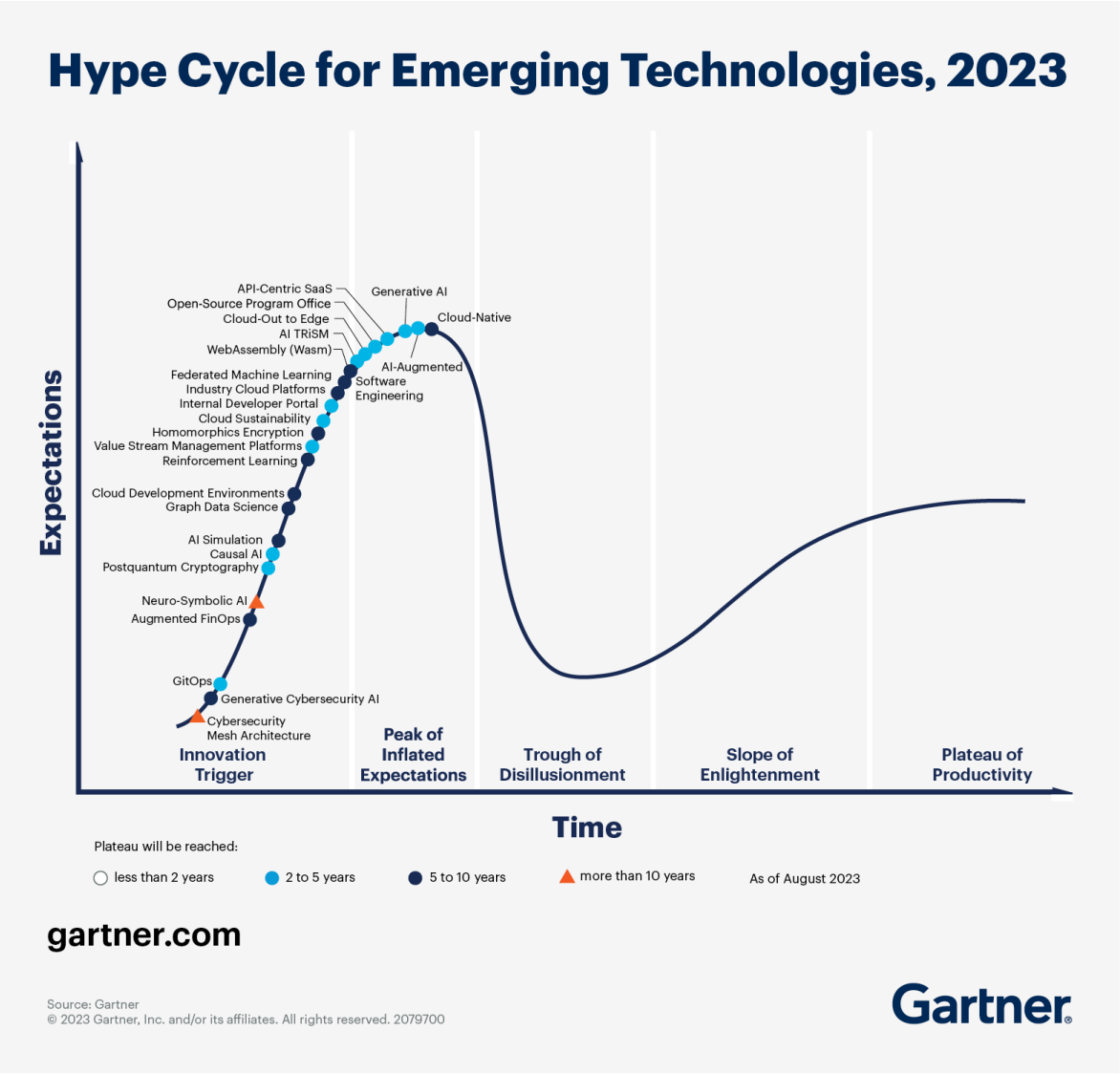

Figure 9 Hype Cycle for Emerging Technologies 2023, by Gartner. Date accessed: 12.5.2024.

3.2 The WINS Framework

Thanks to the market adoption of GenAI technology, it has become apparent that some industries and work types are more impacted by GenAI than others. Generally, the common

consensus seems to be that knowledge workers are more affected by this technology than physical work types. The term “knowledge work” refers to a wide range of brain-powered work types, ranging from surgeons and pilots to programmers and financial managers. However, the increasing popularity of GenAI in a working context has highlighted the need for a more precise categorization of the work types that are more prone to benefit from onboarding and using GenAI during daily work. A case study published in Harvard Business Review introduces the reader to a more defined work category: WINS work. In the article, the authors describe WINS work as the places where tasks, functions, possibly the entire company or industry are dependent on the manipulation and interpretation of Words, Images, Numbers, and Sounds (WINS) (Baier et al., 2023). Looking at the “knowledge work” examples mentioned above, surgeons and pilots would therefore not be seen as WINS workers, but programmers and financial managers would.

For businesses considering onboarding GenAI technology solutions into their business, it is wise to reflect on the work types and activities that are conducted in the company. Some of the roles and work would benefit greatly from GenAI tools usage, whereas other work would not be as natural of a fit. The WINS framework can be useful for identifying the appropriate urgency based on the company’s unique context. The authors of the framework recommend companies to ask themselves the two following questions: “How much of our cost base is made up of WINS work?” and “How digitized are the WINS inputs today?” (Baier et al., 2023). The answers to these questions are then mapped to Figure 10 below, which gives insights on how urgent GenAI disruption is likely to be for the company or industry.

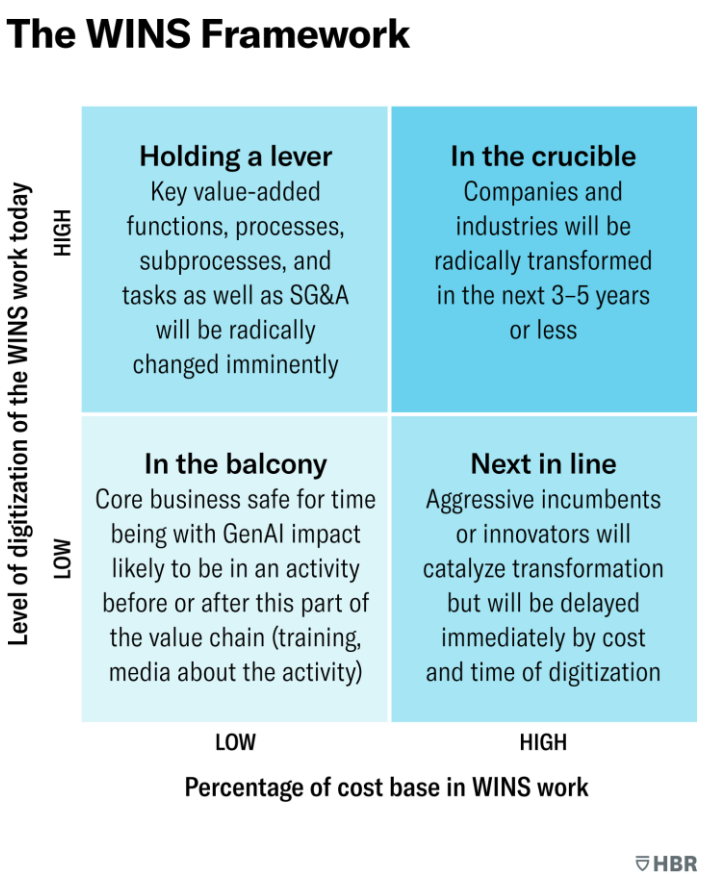

Figure 10 The WINS Framework. Source: Harvard Business Review (Baier et al., 2023)

Companies and WINS work heavy industries tend to end up into the "In the crucible" category, as their work tends to be more digitized and thereby more prone to technology-driven disruption. In this category, it is essential to prioritize familiarization to GenAI and explore use cases in the company as soon as possible. In the second category, "Holding a lever", the potential for disruption is high and is likely to benefit from GenAI usage, without the same urgency and cost implications as the above-mentioned category. Strategic decisions could be made to proactively introduce GenAI tool usage to the company, which could lead to future innovation and improvements. The third category, "Next in line", leaves room for innovation and digitization of work and services that otherwise affect the financial bottom line greatly. Although change is not imminent, disruption might still be just around the corner. The fourth and last category, "In the balcony", refers to industries, companies and activities that are not heavily impacted by GenAI, since the presence of WINS work is low. That being said, it is still wise to explore the possibilities of the technology, as it might open up new use cases.

3.3 Business Value Chain

To get a better understanding of how generative AI impacts the value provided by the business, it is important to identify and define which parts a business consists of and how they contribute to increasing the value of the product or service. Developed by Michal E. Porter in the 1980s, the Value Chain Analysis concept provides a systematic overview of

how a business operates and produces value through its collection or stream of activities (Porter, 1985).

Figure 11 The value chain, as portayed by Porter. (Source of image: Harvard Business School. Date accessed 24.4.2024)

By understanding each strategic activity and its contribution to the business, the business itself becomes more understandable and thereby development possibilities more tangible and actionable. In the concept, the activities are divided into two groups (primary activities and support activities), which contribute to the margin of the business.

3.3.1 Primary activities

The primary activities convert the product from its raw materials into a valuable product or service, which is sold to the customers. As the first line of the company, these activities include inbound logistics, operations, outbound logistics, marketing & sales, and after-sales service.

Inbound logistics: Activities that enable the product to be created, such as ordering of components and collecting required data.

Operations: Activities that contribute to creating and finalizing the end product or service.

Outbound logistics (or inbound operations): Activities that prepare the product of service for being sent, such as warehousing and managing supply chain related inflow.

Marketing & sales: Activities that promote or sell the product or service that the business provides.

After-sales service: Activities that happen after the sale has been made, such as providing customer support or repairs.

3.3.2 Support activities

Support (or secondary) activities are infrastructure, human resource management, technology development, and procurement. All except the firm infrastructure activity also touch on the primary activities to improve the end value.

(Firm) infrastructure: Activities that address company financials and management.

Human resource management: Activities that relate to the workforce, its performance, and its wellbeing.

Technology development: Activities and research that improve the product or processes.

Procurement: Activities that relate to the sourcing of components, raw material, equipment, and services.

3.4 Technology Acceptance Model (TAM)

Onboarding of new technology, such as GenAI, is inevitably also a question of organizational transformation. Challenges in getting the personnel convinced and motivated to change their way of working can put additional pressure on decision-makers when assessing how beneficial and accepted the technology will be from a long-term perspective for the business. It is wise for managers that explore digital transformation opportunities to learn and understand the organization's culture and attitudes towards change. Shortcomings in organizational culture are one of the main barriers to company success in the digital age (Goran, LaBerge, & Srinivasan, 2017).

The Technology Acceptance Model (TAM) discusses the attitude towards new technologies and deconstructs its causes. Formed in the 1980's by Fred Davis, the TAM model suggests that external variables affect how we experience the level of perceived usefulness of the technology and perceived ease of use. As a result of these, the attitude is affected, which thereby steers our behavior intention to use the technology and actual use of it.

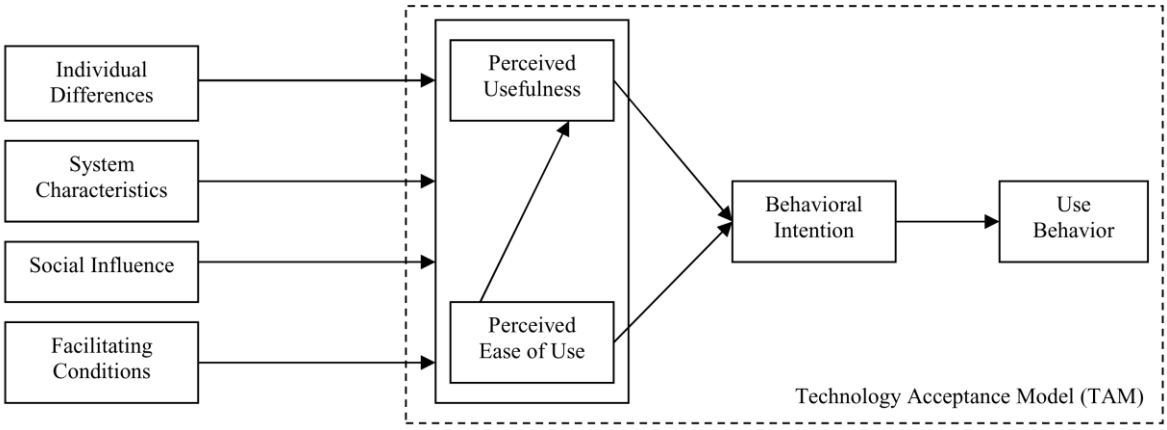

Figure 12 Technology Acceptance Model (TAM), along with relations to external variables. (Source: Venkatesh & Bala, 2008).

By understanding and using the Technology Acceptance Model, leaders can gain a better understanding of how to approach potential negative attitudes towards GenAI amongst the workforces. By first delving into and discussing what are the external variables affecting the employees, key contributing factors can be identified. The perceived usefulness and ease of use can be addressed through training and collaborative exploration of GenAI tools and use cases, hopefully resulting in improved openness and excitement towards the technology. As knowledge as TAM has been accumulating through further research in the topic, the TAM model has been iterated with relationships to external factors added to the model (Venkatesh & Bala, 2008).

3.5 Technology SWOT analysis

Before deciding whether to onboard GenAI into the business, decision-makers need to properly assess the implications of GenAI technology, to ensure that the decision-making is done with proper justification. The SWOT terminology focuses on shedding light on four aspects of the technology: strengths, weaknesses, opportunities, and threats, displayed below in Figure 13. Decision-makers can use this approach to write down and understand

the implications, which thereby may clarify and assist the decision-making process. Knowing on which grounds the decision is based on, it may increase the confidence of the decision and make justification to other stakeholders easier. In technology, a technology SWOT analysis may be conducted to support decision-making in both large and small matters. As an example, a technology SWOT-analysis may help decision-makers to assess and decide whether to onboard a specific IT tool or not.

STRENGHTS	WEAKNESSES
OPPORTUNITIES	THREATS

Figure 13 Technology SWOT template.

Strengths: Superior features of the technology, or factors that provide a competitive advantage over other options. Examples could include “Cost-efficient tool for increasing productivity” or “Tool supports increasing competitive advantage”.

Weaknesses: Drawbacks of the technology. Examples could include “Not able to rely on generated answers being valid” or “High maintenance costs”.

Opportunities: Possibilities for future success. Examples could include “Identify new and more effective ways of doing business” or “Can be used for increasing customer satisfaction and engagement”.

Threats: Foreseeable risks to be taken into consideration. Examples could include “increasing cyber threats” and “increasing market competition due to technological advancements”.

3.6 Summary of the theoretical framework

The theoretical framework comprises relevant theories which the following handbook (Chapter 4) will utilize, as it delves into different aspects of AI technology adoption into small businesses. The Gartner Hype Cycles theory helps the reader and business decision-maker understand that the expectations towards GenAI technology may not remain the same, but will rather change over time, as the market reacts and matures in its GenAI usage. The WINS framework gives an insight into what types of work is more exposed to GenAI disruption and may help business decision-makers reflect on their own business and the disruption it may face over the foreseeable future. The Business Value Chain provides an understanding of how a business is structured and what are the activities to reflect on when exploring the use cases of GenAI technology in a unique business context. The Technology Acceptance Model (TAM) may help in understanding behavioral and cultural challenges when it comes to introducing a new technology, like GenAI, to the business. Lastly, the SWOT analysis is a relevant framework for decision-makers to use whenever assessing how to approach a new situation, such as onboarding a technology like GenAI. Although every theory mentioned above is not mandatory to utilize, they do equip the reader with a broader skillset that is valuable when tackling the digital transformation journey and strategic decisions that are to be made as a part of it.

4 A handbook for onboarding generative AI

As a prerequisite for the handbook, the reader should have an initial and sufficient understanding of generative AI and its pros and cons in a business context. This can be gained for instance by reading the previous chapters of this thesis and by reading up on relevant and recent news and publications on GenAI technology.

The steps in this framework provide a systematic approach to how a business can assess, explore, onboard, and use generative AI in a business context. The handbook will delve into different applications of the technology and provide examples of use cases where relevant. Figure 14below illustrates the process and structure of the handbook. The content of the handbook guides the reader through the process of onboarding generative AI into their business activities, by systematically delving into key tasks and phases of the GenAI onboarding journey. In addition to the preparation and onboarding process, the handbook

also ensures future competitiveness by introducing ways of staying up to date with technological development and changing market.

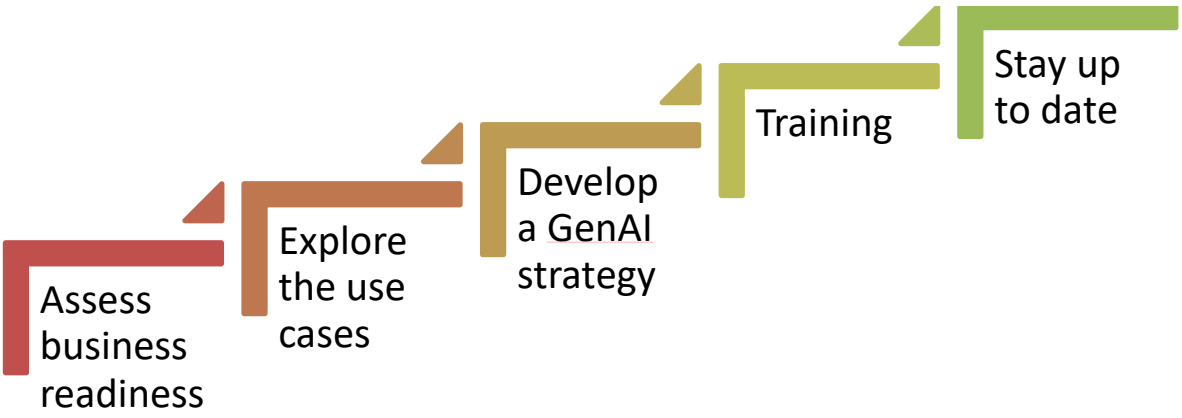

Figure 14 Structure of the handbook.

4.1 Assess business readiness for GenAI

To properly set the scene for the exploration and adoption of generative AI, businesses must assess the pros and cons of this technology in their unique business context. As the business prepares itself for the exploration, it should understand its goals, priorities, and unique challenges that need to be addressed, such as training needs and technology maturity level.

4.1.1 Understand your business context and GenAI compatibility

Reflect on the type of work that your company is doing; Companies with WINS work as its primary work type are likely to benefit more from GenAI than others. WINS work-driven industries are strongly influenced by advancements in GenAI and will likely be disrupted over the next 1-5 years. Generative AI democratizes access to information and innovation, which enables you (and your competitors) to supercharge development and business activities, which may transform the company.

Evaluate current technology used by the business and if AI-driven assistance could benefit or improve productivity, for example by assisting the employees in decision-making, content creation or by getting seamlessly integrated into existing systems. Find and ideate on initial scenarios, problems, and issues where AI can be of assistance. This will make exploration easier during the next chapter of the handbook. As manager, consider

arranging a workshop for gathering initial ideas and thoughts on GenAI, to get a grasp on the baseline looks like for the company at the moment.

4.1.2 Decision and implications

Onboarding generative AI will expose the business to new opportunities, but it also comes with significant considerations to be considered. It is important to assess both the pros and cons of the technology properly, to make an informed decision regarding whether to onboard it or not. Assess and reflect on what strategic opportunities and risks your business faces when onboarding Generative AI technology. Likewise, assess what are the implications if you ignore exploration of this technology. The decision-making can be made easier by conducting a SWOT analysis, to assess the strengths, weaknesses, opportunities, and threats of onboarding generative AI.

Regardless of whether the decision is to onboard GenAI or not**,** proper justification is needed for the decision. It is also vital to at least ensure to keep a close eye of the rapidly changing competitive environment and recognize the disruptive power of AI and GenAI technology. Staying up to date with the industry and competitors is a way of ensuring competitiveness.

4.1.3 Define business objectives with GenAI

If the decision is to continue exploring the possibilities of GenAI, continue by reflecting on your business' overarching ambitions and goals. Whether the goal is to improve customer experience, reduce costs, or innovate products, GenAI technology can be utilized to help the business to be successful in reaching them. Think about and write down the unique needs and problems that exist in your company and ask yourself if GenAI can be used as a tool to solve them. However, it is important that acknowledge the effects of the Hype Cycle and remember that generative AI is not a silver bullet for all problems in your company. Although many new use cases might be identified during the exploration phase, defined business objectives beforehand will provide clarity on the prioritized problems that are aimed to be addressed. Furthermore, alignment with business objectives may help identify relevant tools and solutions during the exploration process.

4.1.4 Draft a Gen AI strategy and roadmap

Next, start drafting a strategy for leveraging GenAI in business activities. Align the core problems and objectives identified with the company's GenAI adoption journey. At this point, the GenAI strategy is in an initial stage and will be improved and more clearly defined after the initial exploration phase (in the next chapter). However, it is wise to set the foundation for the business expectations beforehand, both in the short term and long term. Acknowledge that Generative AI strategy for a business is rather an introduction to AI strategy. Driven by the central elements of the strategy, start drafting on a roadmap for GenAI exploration and adoption in the company. After the exploration phase, new insights and use cases have likely been identified, which enables the business to generate a detailed roadmap which takes long-term strategy and current opportunities into consideration.

4.1.5 Assess Organizational readiness

Prepare to meet different mindsets and attitudes towards AI. Digital Transformation often requires changes in organizational culture. Lean back on the Technology Acceptance Model (TAM) and learn about what external variables could be affecting the workforce's attitude, for example through initial interviews. Perform maturity assessments of technology in the company towards GenAI, to proactively identify potential training needs and to ensure that the technology gets onboarded in accordance with the preferences and requirements. The AI maturity assessment made by AI.se, visualized in Figure 15 below, can be one method for addressing this topic.

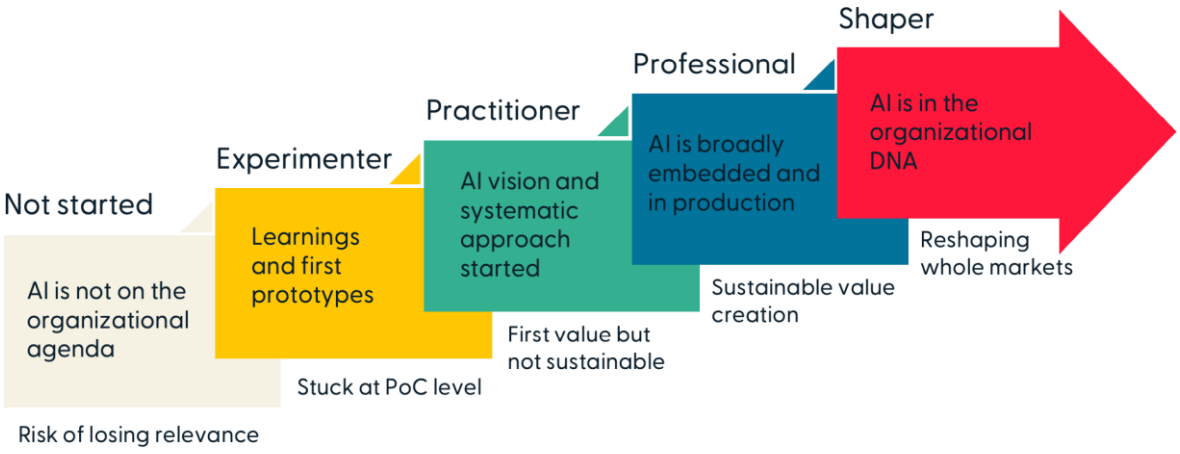

Figure 15 AI Maturity ladder. Source: AI Sweden (2024)

As part of the readiness assessment, make sure that risks associated with your business and usage of GenAI technology and known and managed proactively. Although training of the workforce will be organized later during the onboarding process, it is important to address key considerations beforehand, such as data privacy, ethical concerns, and the potential for technology-induced errors (hallucinations). Proper and responsible usage of GenAI technology is key for ensuring ethical use of the technology, business sustainability and compliance with regulatory requirements.

4.1.6 Resource and Budget planning

When the aim is to onboard GenAI in a small organization, it is wise to approach the onboarding in a systematic manner. If the company consists of many employees, a dedicated project can be started, along with a project manager, for navigating the complexity, controlling the exploration activities, and crystallizing the needs and opportunities of AI. Allocate an exploration budget, for enabling access to a wide range of tools and features. Today, many premium subscription plans of tools like OpenAI's ChatGPT or Microsoft Copilot allow for sufficiently exploring a wide variety of features and capabilities of GenAI tools. Allowing sufficient budget for exploration will likely bring along significant benefits for the business, even with minor cost implications. Long-term cost factors are also to be considered when onboarding GenAI, especially in micro and small businesses. During the project, onboarding and development activities might take up employees' allocation from other primary activities. Furthermore, training the staff on GenAI is not a one-time effort, as it requires staying up to date in how to technology matures and regulations are put into place.

4.2 Explore GenAI

Before starting the exploration, announce the intent early to the organization, for gathering initial interest and ideas from employees regarding use cases, problems, and needs. Let a few (or all) employees get familiar with GenAI tools and play around with them to explore their possibilities in a business context. However, ensure that no sensitive or company-related information is used by the employees in this phase. A good way to get fast exposure to many generative AI tools is to use online platforms, such as the popular platform Poe (poe.com), which enables the user to start small and try out the capabilities of different

GenAI tool providers and features. Furthermore, asking AI chatbots like ChatGPT or Gemini to provide use cases in your industry helps finding a broad range of relevant use cases for GenAI. It is also wise to monitor what other competitors and industry forerunners are doing, to get inspired to take action.

In the chapters below, examples of use cases will be provided, with connection to different areas of the business. The examples are not an exhaustive list of uses cases, but rather aim to provoke thoughts and ideas by the reader, as well as to showcase the possibilities and application areas of generative AI. For micro and small businesses, utilizing and integrating GenAI in the value chain business may improve productivity, lower costs, increase quality and help find new opportunities. As described earlier, generative AI output is done through six capability types: Generation, question answering, summarization, translation, correction, and classification and can be presented in four forms of input/output: text, images, video/audio, and code (AWS, 2023).

4.2.1 General use cases

Generative AI tools have plenty of use cases, of which many can be used across the areas of the business. Some of the commonly used use cases are mentioned in the examples below, as inspiration.

TL; DR: GenAI tools are good at generating summaries from content. Try copy-pasting article text into the GenAI chat and ask for a summary or highlights of it. Many summarizing GenAI tools are also found as browser extensions or plugins, which make text summary a lot easier. Even large files can be analyzed and summarized. Explore the benefits of using pdf-summarizing capabilities in the integrated AI-assistant in Adobe's Acrobat Reader (Adobe, 2024) for analyzing business documents and long reports.

Brainstorming: Conversate with GenAI chatbots around your complex issues in the business. Regardless of the topic, being able to discuss the matter with a chatbot may lead to new perspectives and new innovations. Thanks to its vast training data, tools like ChatGPT, Gemini enable enhanced imagination, which has many benefits for small businesses with less access to industry experts and insights.

Quick learning: GenAI can provide answers to quick questions you would otherwise normally ask in Google but can articulate the answer in a natural and conversational way and allows for follow-up questions. This enables easy and quick fact-checking whenever needed. Although the lack of transparency in AI-chatbot answers makes it hard to know whether the information is accurate or not, the accuracy has been improving and is today on a very high level on chatbot using the OpenAI's popular LLM model GPT4 (OpenAI, 2023)

Planning assistant: Whether it is a city tour for a client or a meal preparation for a company event, GenAI chatbots can be used as assistant in a wide range of planning purposes. Try this: ask AI chatbots like ChatGPT or Gemini to plan a fun and productive team retreat, which should include workshops and teambuilding activities tailored for your team's unique context.

Automation and GenAI: Utilize the relationship between automation tools and GenAI to elevate productivity in work-related tasks. A company could use AI-driven automation tools that monitor competitors' media activities and send a daily summary via email of the content. Explore the value-adding benefits and applications on tools like IFTTT, which has text generation capabilities (IFTTT, 2023).

4.2.2 Business Management

One of the most beneficial use cases for management purposes is the sparring capabilities of GenAI chatbots. Having "Einstein in your basement" enables access to a wide range of knowledge, which is provided in a natural language format. Use cases for managers are many and some examples are listed below as inspiration.

Quality decisions: In micro and small companies, managers are often alone with their issues and may not be able to discuss the matter with anyone within the business. Fortunately, managers alike can approach and use AI chatbots as an advisor and assistant in daily tasks and business activities. Thanks to their vast training data, AI chatbots have good capabilities for decision-making sparring purposes. Getting a broader grasp of possible options enables leaders and managers to end up with high quality decisions for the problems that they face. As such, AI chatbots are also good assistants for problem solving, as they may provide alternative views on the issue and explore the pros and cons of suggested solutions. Explore popular and high-performing chatbots with large and fresh

training data, like ChatGPT and Gemini, as they have a broad knowledge base to base its answers on.

Financial: For analysis and ideas, explore AI chatbots and integrated AI Assistants. For financial management, GenAI can assist in optimizing the financials. In many of the popular generative multimodal AI tools, the AI is trained to analyze pictures and make suggestions. Companies could use AI to analyze their bookkeeping and financial statements, to discuss financial strategy or find cost-saving opportunities.

HR and recruitment: When the company decides to open a new position, GenAI chatbots can be utilized as a HR partner throughout the recruitment and assist with tasks like defining ideal candidate characteristics, planning of interview questions, evaluating candidate CVs, drafting email replies to the candidates, and planning the onboarding.

4.2.3 Marketing and content creation

GenAI tools can assist in ideation and creation of marketing material in many languages and make necessary changes to the content and tonality, which makes the content more effective for the target audience, country, and culture. For marketers, generative AI tools have great impact on daily activities involving creativity and content creation and has many use cases of which some are provided below.

Marketing plans and strategy: Using GenAI chatbots for sparring, the company can plan for differentiation and exploring new ways of reaching customers. Many GenAI chatbots have been trained on lots of marketing literature and can provide useful insights and tips on how to make an effective marketing plan, along with timeline, theme, and content suggestions.

Marketing text: GenAI tools can generate effective and innovative texts for a wide range of social media activities. For marketers, GenAI tools are an easy way for brainstorming on new social media posts and other ways of marketing the business online or offline. The text can be prompted and tweaked to resonate with the audience whilst taking the platform, product, and business needs into account.

Supporting media: Image, video, and sound generation is an interesting and growing field within GenAI and can be utilized for a wide range of marketing purposes. For example, the

content created could be included in social media posts and marketing by supporting the marketing text or enriching product images. Short video clips could be generated for webpage backgrounds, or as footage clips for supporting other video content. Image- and video-generating tools are developing especially fast, so it is wise to explore several popular image-generating tools, as each has its own strengths. Voices and sound generation enable the creation of voice-overs and music that can be used in marketing context without royalties or licensing fees.

Marketing automation: Today, many workflow automation tools have integrated GenAI capabilities, which can generate content based on automation triggers. Explore tools like IFTTT (2024), which enable businesses to create custom workflow automation processes. For marketers, Generative AI could be used on IFTTT to automatically draft a short summarizing text for social media purposes whenever articles on a specific topic are published on a selected news website.

4.2.4 Branding, Customer service and Communications

Business can use GenAI technology to improve branding, after-sales services, and communication towards customers and within the company. AI-generated insights on communication can help businesses becoming more articulate and appearing more professional towards external and internal stakeholders alike. Some of the use cases within branding, customer service, and communication are found below as inspiration.

Branding strategy: Like the previous chapter delving into the opportunities within marketing strategy, businesses can improve company image and branding through AI-assisted optimization of branding and developing a well-formulated branding strategy. Competent AI chatbots like ChatGPT or Gemini are trained on branding strategy literature as well as recent market trends and can therefore provide useful insights in how a company can use branding to stand out from its competitors.

AI-generated voice for businesses: For businesses that utilize announcements and voices in their business model, AI-generated and customized voice-over with company “tone” can streamline daily business activities. In combination with marketing activities, AI-generated voice could benefit businesses that have frequent announcements to customers, such as timetable or gate changes in public transportation or guiding customers through self-

service steps. However, is important to maintain the humanness in voice communication, for ensuring that brand image remains intact.

Customer-directed AI chatbots: Many businesses have also explored AI-chatbots on their websites, functioning as customer support, shopping assistant and communication channel. A garbage sorting company could onboard a GenAI-powered chatbot on their website, which helps them figuring out how to sort their garbage (mattresses, construction material etc.) at the station, using a conversational and friendly approach. Although AI-chatbot on the business website is a good use case to explore in an early phase, integrated AI-chatbots require integration with the website or service before being effective.

External communication: In situations where clarity, impact, and professionalism are key, GenAI-driven chatbots can be a very useful tool for communicators. A financial manager could utilize tools like ChatGPT or Gemini for drafting the company annual report and highlighting milestones and achievements. Team members communicating with vendors, clients, and other stakeholders, for example through email, can draw inspiration from the suggestions made by the GenAI tool. However, be sure to add a personal touch to it, as AI-generated text can sometimes be easy to spot and could harm the company image.

Internal communication: Even in small companies, it is important to communicate clearly, so that messages have the correct tone and are interpreted as intended by the recipients. Managers and employees can especially benefit from utilizing AI-chatbot suggestions in hard topics, such as when giving constructive feedback to a colleague or when announcing bad news within the company, as refining the text can help make the message come across as less harsh.

4.2.5 Product development

Product design: Generative AI tools pose great benefits for product development. Brainstorming and ideation for new products, features or improvements can be generated with text generating tools like ChatGPT or Gemini, as part of product development conversations. In Figure 17 below, Booth (et.al, 2024) describes the possibilities of integrating generative AI into the product development lifecycle.

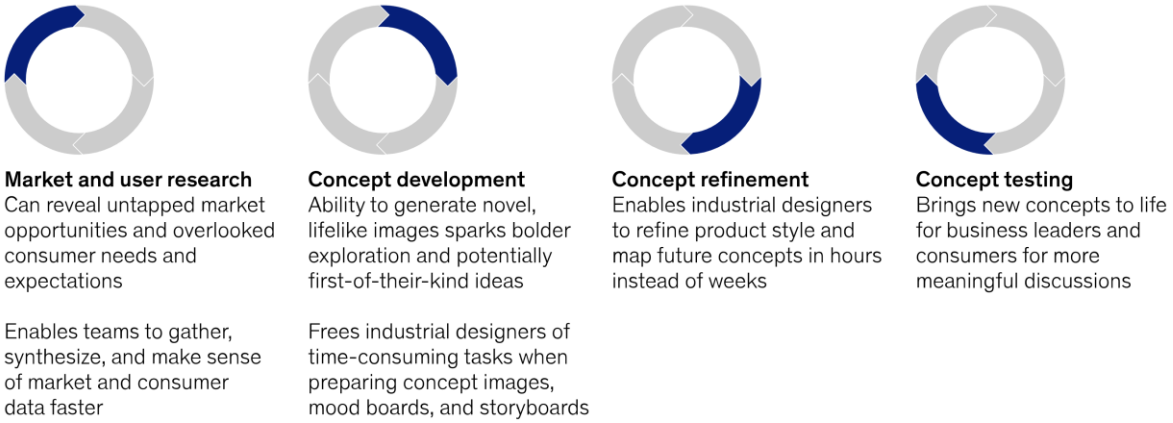

Figure 16 Generative AI ushers in a new era of creativity and productivity across the product design life cycle. (Source: Booth, Donohew, Wlezien, & Wu, 2024)

Generative AI can be leveraged to come up with new visual design ideas for business purposes. Branding, logos, product design and other mockups can easily be drafted using image generating tools and good prompt engineering. In Figure 18 below, Booth (et.al., 2024) provided an example on how GenAI can be used for generating multiple variants of product design. Even though the designs may not be perfect, they will provide inspiration for designers, who can choose to continue to prompt the tools for better results or add final touches outside of the tool.

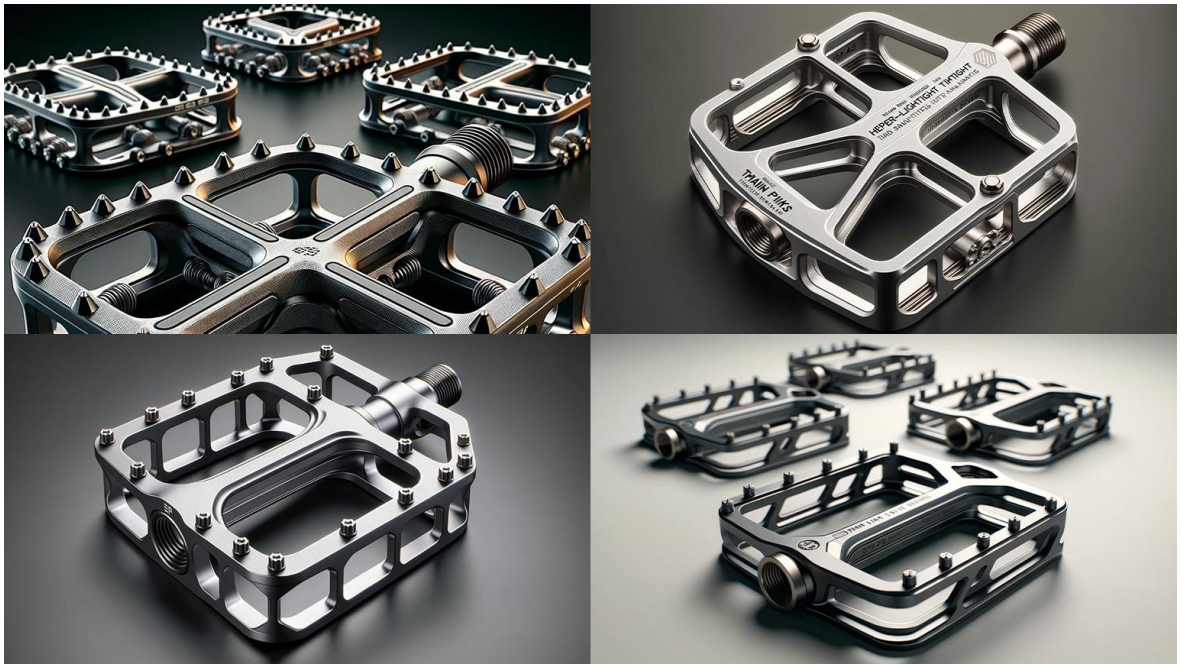

Figure 17 AI-generated product design suggestions of a bicycle pedal. (Source: Booth, Donohew, Wlezien, & Wu, 2024)

Software development: Explore the great benefits of programming assistants, like GitHub Copilot, which is currently already used worldwide by over 50000 small and large businesses (GitHub, 2024). Thanks to the chatbot-features of AI-assisted programming, companies can lower the threshold for testing out new and custom ideas. Developer assistants are trained on a wide range of programming languages and are competent in code generation, reviewing and sparring. As a result, AI-assisted programming increases both productivity and quality. Through code review capabilities, business can also reap the benefits of increased privacy and security of the code generated.

Supporting sounds: Many businesses need supporting music or sounds to elevate the user experience and value of their product or service. AI-generated music is an easy way to create the ideal and required atmosphere for the purpose. Likewise, AI-generated voices can be created to improve the user experience of the product. For a business that makes products that interact with the user, the voice could be configured and generated using AI, instead of hiring an actor to do it. However, be careful not to make the voice, music sounding too much like copyrighted material, to avoid any potential legal issues.

4.3 Develop a GenAI strategy

This chapter of the handbook discusses the transition from the exploration phase to using it in daily business. The aim is not to give specific steps or technical advice on exactly how to integrate the technology, but rather to provoke thoughts and ideas on the ways to proceed with integrating GenAI technology into the business. In a Gartner webinar poll of more than 2500 executives, results indicated that the primary focus of GenAI initiatives is to improve customer experience and retention, illustrated in Figure 19 below. Although the poll does not provide information on the size nor the nationality of these companies, it can still function as an indicative example of how businesses think about GenAI strategy.

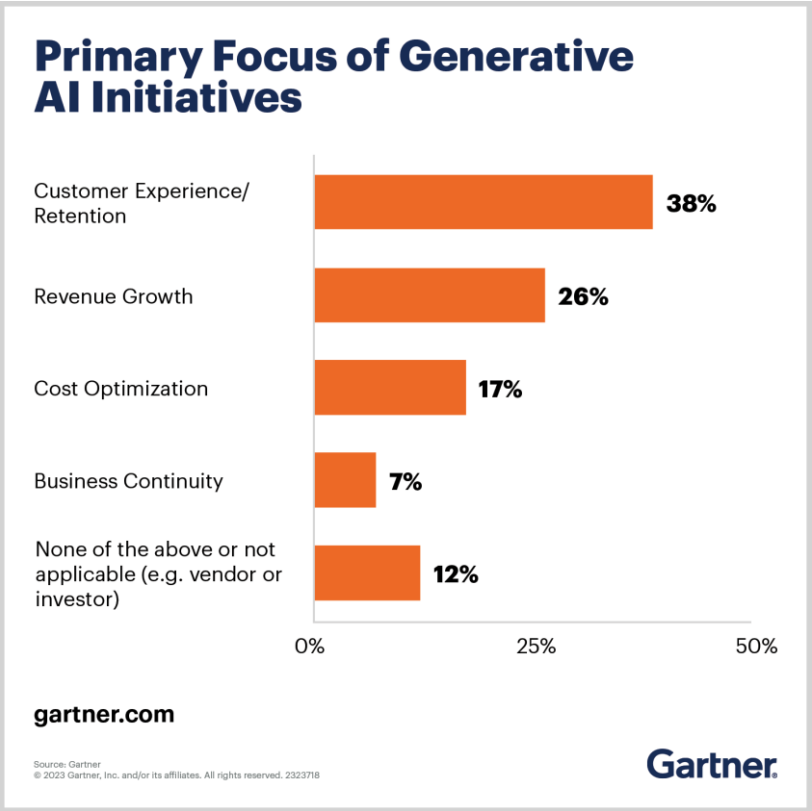

Figure 18 Primary focus of Generative AI Initiatives. (Source: Gartner, 2023)

4.3.1 Review insights and lessons learned

Review of the experimentation with GenAI should be the first step in the development of a GenAI strategy. Once the initial exploration of use cases in the business has been finalized, gather, and discuss the new insights and lessons that have been learned on the opportunities the business has in GenAI technology utilization. Bring attention to which use cases were successful and beneficial, as well as the use cases that did not work and why so. Analyze and categorize the use cases, to identify the tools, use cases and activities, where your business is interested in proceeding.

4.3.2 Compare license and subscription options

Generative AI tools are provided either as free or paid versions. Many products are free to use but tend to have limited performance and functionality. Paid subscriptions and licenses can be purchased either as single-user or multi-user versions. The business benefits of multi-user versions often include increased collaboration access and higher tool performance, leading to increased productivity. For instance, on OpenAI's ChatGPT,

businesses can currently upgrade to a Team subscription plan, which allows for a more collaborative environment within the tool (OpenAI, 2024).

In addition to the standalone solutions on the market, businesses that are already using common tools and product suites such as M365 have a low threshold for purchasing and subscribing to AI capabilities as an add-on. It is therefore wise to explore which of the company's commonly used software providers offer such opportunities. Overall, based on insights from the exploration phase, prioritize GenAI applications and subscriptions that offer the most strategic value for the business.

4.3.3 Evaluate integration options

A common question for businesses adopting technology is whether to build a customized solution for maximizing value to the company or to outsource it by buying it from somewhere else. As recommended by Gartner (2023), companies have three routes to pick between when it comes to starting with generative AI:

1. **Utilizing off-the-shelf** foundational models directly using prompts. This method requires minimal configuration effort and provides flexibility to change between models and tools with ease.

2. **Program and connect software** to and leverage a foundational model. This method gives significantly more value to the usage of the generative AI tool(s) but requires technical know-how to successfully connect and configure the software.

3. **Build a custom** foundational model from scratch, which gets trained on internal company data. This option might not be relevant for most micro and small companies, due to their likely smaller IT infrastructure and data amount. Although this method provides the most flexibility and customization possibilities, it comes at a high cost, as training and building the model is complex and resource intensive.

Even in micro and small businesses, the decision of route depends on multiple factors, including the company's technical skill level, AI strategy, and ambition. Businesses with strong technical know-how and ambitions for getting much value out of GenAI technology can try integrating relevant LLMs with their software, using API-integrations. This allows for more use cases and customization. On the other hand, for businesses with little to no

technical presence or expertise, API-integrations are not as justified. For these businesses, it could be wise to start off light, by utilizing existing off-the-shelf models and tools. Further down the road, customization might become relevant, as the company matures in its AI adoption and integration to business activities.

4.3.4 Develop the Roadmap

The roadmap for GenAI adoption in the business can be seen as the culmination of lessons learned so far throughout the GenAI exploration journey. Using the gained knowledge about the GenAI technology, insights from explored tools and use cases and the strategic decisions made in alignment with the and overall business goals, craft a roadmap for GenAI adoption in the business. The roadmap will need take into consideration preparatory activities such as policy setting, piloting, and training, but also onboarding of selected GenAI solutions and business-specific activities that are aligned with long-term business objectives and goals. Emphasize transparency, flexibility, and scalability, to ensure that the roadmap supports continuous growth and sustainable digital transformation. As GenAI adoption can be seen as an introduction to AI strategy, embed continuous learning and exploration into the roadmap as well.

4.3.5 Risk Management

The GenAI strategy should also properly address risks that the company faces directly or indirectly caused by GenAI adoption. Conduct a comprehensive risk assessment to identify and understand potential issues with the tools, processes, and usage of technologies in business activities. If GenAI tools are involved in critical operations, develop a continuity plan that ensures that no data is lost if a disaster occurs. Also consider financial and reputational risks that are associated with GenAI technology usage and mitigate the risks accordingly. Lastly, ensure proper cyber security posture by regularly assessing the of the company.

4.3.6 Policies and guidelines

Before generative AI is taken into full use in the business, define and set policies and guidelines for GenAI usage, to set proper expectations and restrictions on when and how employees can use the technology in a business context. In addition to setting ethical

guidelines to support responsible use of AI, a strong recommendation is to highlight in the policy that company secrets, personal data or otherwise sensitive information should not be uploaded or mentioned during GenAI usage, as it sometimes gets saved and used by the tool as training data. Common policy frameworks can be found online, and further inspiration and recommendations can also be found in conversations with chatbots like ChatGPT. As new legislation and regulation, such as the EU AI act, is applied on national and international level and is expected to be modified over time, ensure that the company's AI policies, guidelines and tools can meet these requirements and guidelines. Especially treatment of GDPR data is strictly governed in the EU and breaching GDPR regulations may result in severe sanctions for the business.

4.3.7 Initiate Piloting and Monitoring

Before any GenAI solution is fully taken into use in the business environment, keep it in pilot mode and monitor its usefulness. Like A-B testing on websites and in marketing, find and compare different options and evaluate their performance in a business context. Do not rush while onboarding the solutions; Gartner recommends taking it slow and keeping functionality in beta for an extended period of time, to temper expectations for perfect results (Gartner, 2023).

4.4 Training the crew

4.4.1 Build engagement

As the GenAI onboarding journey transitions from exploration to adoption, things are getting more tangible and formalized for the business and its employees. It is therefore important to involve teams and stakeholders in discussions around the technology and the company strategy. Sharing the GenAI roadmap will provide an overview and understanding of how the company is planning its digital transformation journey and will hopefully spur interest and excitement amongst employees. When presenting the roadmap within the company, it is important to make it relevant and tangible for the audience, to increase engagement. Equally important is to address directly questions or concerns that might arise amongst the employees, whether it is regarding the impact on their job security, privacy, or business sustainability. Promote and foster a positive cultural shift that encourages learning, collaboration, and openness to change. The aim is to create an organizational

culture that is more adaptable, resilient, and inclusive, setting themselves up for long-term success in a setting that is dynamically unstable and uncertain (Bozkus, 2023).

4.4.2 Training

In addition to leading the cultural change in the company, organizations must invest in training, skill development, and change management initiatives to ensure employees are equipped to navigate the dynamic landscape shaped by technology (Bozkus, 2023). Facilitate educational workshops, led by an external trainer or by someone within the company that is knowledgeable in the topic. Another alternative is utilizing online courses (free or paid) that provide an on-demand and up-to-date training package for the workforce. Regardless of the choice of training method, the training should provide a sufficient understanding and overview of GenAI technology today, its benefits and use cases in daily business activities, and enable hands-on experience and insights in how to do prompt engineering to get optimal results.

The training should also delve into the weaknesses and risks associated with GenAI, such as hallucinations, biases, ethical risks, integrity, privacy, IPR, GDPR, and cyber security. This will enable the business to use GenAI responsibly. Once trainings have been held, ensure that the workforce has been trained sufficiently and are equipped with the required skills to work with GenAI technology in daily business activities, regardless of whether the activities is external-facing or not.

4.5 Staying up to date with generative AI

This chapter of the handbook focuses on how small businesses can maintain their relevance and competitiveness as GenAI technology continues to mature. Since AI and GenAI technology is developing at a rapid pace, new tools may emerge on the market at any time, which may impact or shorten the lifecycle of existing solutions. Knowing which AI solution providers, tools, and news sources to focus on can be hard, since the topic is widely discussed but only relying on one source does not give a comprehensive view of the development direction. Furthermore, as GenAI is a subset of AI, many news sites are publishing news under the umbrella term AI rather than specifying those that are associated with GenAI. The sources and tips provided in the chapters below can help businesses to navigate the changing landscape of AI and GenAI. However, the list should

not be seen as exhaustive, but rather as examples which may help the business find suitable sources on their own.

4.5.1 Develop talent

As new and more superior tools are introduced to the market, existing ones may become obsolete. Likewise, new insights and ways of using AI and generative AI will emerge and enable the business to further leverage the technology. To expose the business to new opportunities, employees using generative AI tools should be encouraged to learn and grow their knowledge in AI. Facilitate formal and informal learning opportunities through workshops and collaboration with AI experts or industry peers that are using generative AI, to learn about existing use cases and best practices. Even conversations with AI chatbots like ChatGPT and Gemini can be a cost-effective way to gain new insights on the technology advancement. From the business competitiveness perspective, make sure to also address if AI-skilled recruitment will be needed to ensure that the business' GenAI strategy and ambitions can be driven forward. Many companies are releasing AI-related leadership roles like Chief AI Officer (CAIO), Chief Digital Officer (CDO) and Chief Technology Officer (TCO), depending on the business needs and the level of AI integration in the business model.

4.5.2 Stay informed

As a hyped-up technology, news and new content are released at a rapid pace. With news and announcements happening all the time on AI and GenAI technology, it is hard to know which the relevant sources are to focus on and what is credible or not. Filtering the signal from the noise is essential, as well as paying attention to the AI terminology used in the content and how it relates to your use cases. The examples below provide initial suggestions on the areas which might be relevant for micro and small businesses to keep track of.

Technology and increasing capabilities of tools: Gartner (2023) recommends staying up to date on the companies that have already invested hundreds of millions of dollars in GenAI research and building foundational models, which are widely used today by the market. Current major players in the solution providers, such as Google, OpenAI, Microsoft, Amazon, Hugging Face, and IBM. Out of these, OpenAI and Microsoft are closely intertwined, as Microsoft is now a co-owner of OpenAI. Similarly, Amazon has partnered

with Hugging Face, and both are collaborating in developing GenAI models and solutions. In addition to the foundation models by these companies, there are hundreds, if not thousands, of providers that provide tools and solutions that utilize these foundation models. Keep an eye on those tools that are relevant to your business and utilize GenAI tools review websites to get up-to-date comparison and information about the latest features.

Insights from research and consulting firms: For up-to-date and readily digested insights, follow reputable organizations that provide business-focused strategic learnings about emerging opportunities from research and data analytics. Many organizations and institutions worldwide are building their business on deriving insights from market analysis and consulting operations. Top management consulting firms like McKinsey (mckinsey.com) share valuable and easily digestible insights on relevant topics, including AI and GenAI, on their website and on social media. Similarly, research- and advisory-focused firms like Gartner (gartner.com) share valuable insights and expert guidance on their website and events, with an emphasis on strategy and value. Lastly, reputable educational institutions and affiliated publishing companies, such as Harvard Business Review (hbr.org), often discuss emerging technologies like AI on articles, which can be of great value for businesses on their GenAI and AI journey.

Industry insights: Industry first movers can be gaining significant competitive advantage. Observe your competitors and overall industry development to learn how GenAI is used by forefront runners. Research into what new use cases are emerging in your industry by attending relevant events that discuss AI and the future of your sector. Network and spar with competitors and partnerships, to learn about how GenAI is used and what research is ongoing on their side. Many industries also have magazines and news sites that share industry-specific news and can likely discuss emerging technologies like AI, in a knowledge-sharing fashion. Furthermore, the Finnish Center for Artificial Intelligence (FCAI) is a collection of Finnish researchers, that collaborate to tackle AI problems and create new types of AI which benefit the Finnish industry (FCAI, n.d.).

Thought leaders and social media: YouTube (youtube.com), Spotify (spotify.com) and other social media platforms often include GenAI related documentaries, recordings of presentations, interviews, and events. Many companies choose to stream or share their

product news and announcements on such platforms, which enables the audience to get insights of the improved features and capabilities of GenAI tools. Likewise, reputable spokespersons and influencers on AI, like Andrew Ng and Erik Brynjolfsson can provide new insights on the latest advancements of AI technology and its implications for businesses. When consuming content on social media, pay attention to the publication date, as videos and recordings may lose their relevance over time, as technology matures and the world changes.

Regulation and standards being set on many levels regarding how companies are allowed to use AI tools. It is important to read up on new requirements and laws of using GenAI, to stay compliant as a business, as well as to follow recommendations on responsible AI usage. As a highly regulated country, Finland, together with the EU, has set comprehensive laws that provide for acceptable use of AI, digital services, equality, non-discrimination, privacy and data protection (GDPR), and the use of data (Suomi.fi for Service Developers, 2024). Furthermore, The European Parliament adopted the Artificial Intelligence Act in March 2024, to regulate AI usage that affects European citizens (European Parliament, 2023). As regulations associated with AI will be tweaked over time, stay up to date with announcements on the European Parliament's website on AI, as well as Finland-specific announcements on government sites like Suomi.fi (2024) and Traficom (2024).

4.5.3 Reflect on strategies and policies

As AI impacts and changes the way businesses operate and what customers expect, many business models and strategies need to be adjusted. Reflect on the learnings during the exploration phase, the internal feedback from the adoption of GenAI technology into the business, as well as the insights gained from following the market development. Regularly revisit the company AI and GenAI strategy, and adjust when needed, to keep it relevant and aligned with company ambitions and value expectations. Furthermore, gathering feedback and metrics on how GenAI usage has benefited the company will help to track the impact and return on investment (ROI) so far from onboarding GenAI into the company.

4.5.4 Explore next steps

R&D: To stay competitive and ahead of the curve as a business, continue to allow the company to experiment with GenAI and AI solutions and explore emerging use cases.

Establish a research and development feedback loop for gathering new insights and improvements which could benefit the business. Ask industry peers, experts, and AI chatbots for advice and tips regarding useful use cases for your unique context.

Scale up GenAI integration and usage in your business through API integrations, custom solutions, and premium subscriptions If your organization is large enough, explore enterprise versions of generative AI tools. Like many other large-scale service providers on the GenAI market, ChatGPT offers an enterprise plan, which includes secure and segregated workspaces, as well as tailored solutions that fits your organization's needs. In Figure 20 below, OpenAI provides an overview of how the enterprise version looks like from a technical perspective.

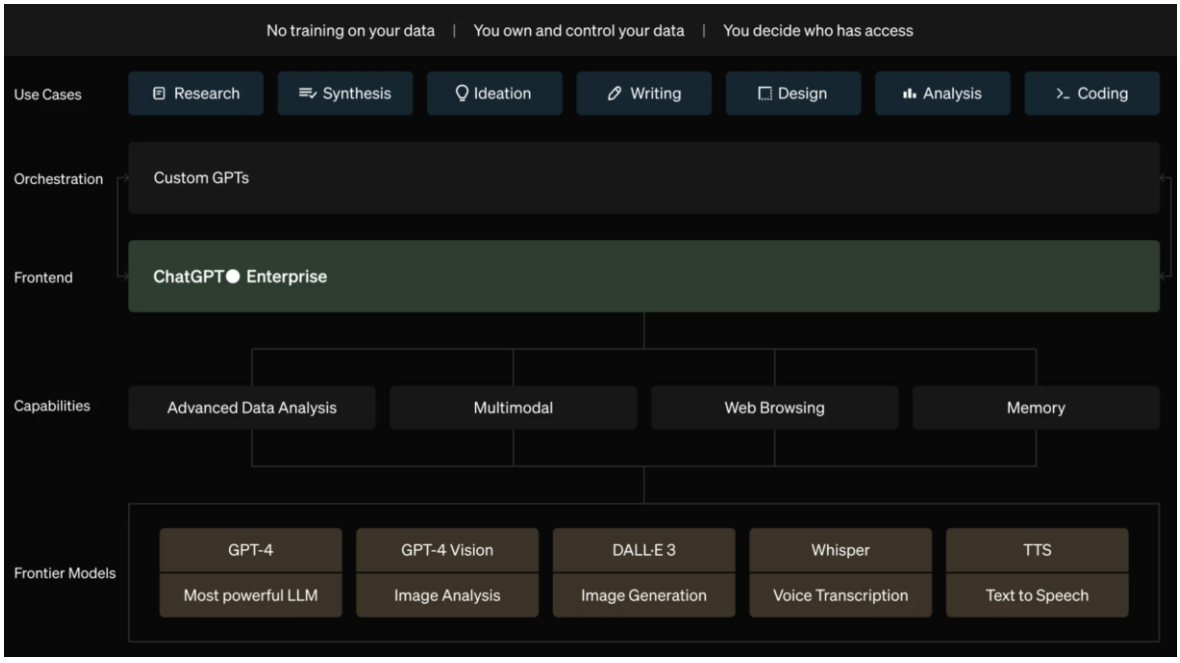

Figure 19 Overview of ChatGPT enterprise version, from OpenAI's website 10.5.2024 (OpenAI, 2024)

Expand the scope and exploration to other technologies under the AI umbrella, such as computer vision, machine learning algorithms, which may provide additional value-add for the business. As new use cases and opportunities arise, invest in AI solutions and technology that will take your business to the next level.

5 Future of Generative AI

Although GenAI is an easy way for businesses to get familiar with AI technology, conversations on all subsets of AI are heavily discussed and the hype and increasing capabilities and applications of AI technology has triggered a wave of innovation and development in businesses and whole industries. The rate of AI technology adoption is astounding and is expected to continue for some time, meaning that businesses alike will likely be increasingly pressured to get onboard the AI train, to maintain their competitiveness. Gartner (2024) predicts that by 2025, 30% of enterprises will have implemented an AI-augmented development and testing strategy, up from 5% in 2021. It can be argued that AI technology will continue to increase its footprint in organizations worldwide. In his TED talk, Microsoft AI CEO Mustafa Suleyman (2024, 12:35) encouraged everyone to see AI as a new digital species, resembling a partner and companion for everyone and every business regardless of size.

5.1 Emerging trends

The examples provided below are some of the many areas where generative AI is developing at the time of writing, affecting the ways of working by businesses worldwide. Additional leaps in technology on micro and macro level can be found through the sources provided in the previous chapters.

AI Agents: At the time of writing, AI agents is an emerging field within AI technology and is often described as the next step int the level of generative AI. AI agents can be seen as a team of AI workers with own roles and tasks. For example, some agents are reviewers, others are researchers or subject matter experts using specific tools. Additionally, each agent can communicate with other agents, use required tools, and execute tasks independently. In his TEDx talk, Daoud Abdel Hadi (2024, 4:52) described that AI agents plan tasks to execute, reflect on outcomes, and use tools to accomplish goals. When given a task or request, these AI agents work together as a team in an iterative manner, to produce the best quality output as possible. Compared to traditional LLMs, the quality and accuracy of this “Agentic” approach has already been proven to be much higher, as Andrew Ng shows in his presentation at Sequoya Capital (2024). Although the benefits for businesses are great, they come with significant risks. Gartner (2023) predicts that by 2030,

decisions made by AI agents without human oversight will cause $100 billion in losses from asset damage.

No-code: With increasing capabilities and applications of GenAI, software and website development using AI-driven tools is likely becoming increasingly common. AI-assisted programming is already possible today and can enable creation of new software without touching the code itself. Bubble (bubble.com), one of the industry leaders in providing no-code solutions, enables businesses to create apps from start to finish without any code interaction, with 3.3 million apps already built on its solution to date. Nvidia CEO Jen-Hsun Huang has reportedly been speaking on numerous occasions, including the World Governments Summit about the diminishing need to learn coding skills, thanks to the rapid advancements on AI (2024, 18:32).

Intra-business assistants: LLMs and GenAI tools are expected to increase their performance over the foreseeable future, and it is expected that more and more industry-specific and customized solutions will be introduced to the market. Large enterprises are already creating own AI tools, which are trained (partly or wholly) on internal data, enabling creation of accurate and relevant content. Example use cases include chatbots which provide help with questions that link to company policies, or report drafting using specific company standard templates. The increase of foundational models like RAG (Retrieval Augmented Generation) has great potential for businesses that require accuracy and reliable answers, as RAG enables LLM to retrieve information from separate data sources, and not just base its output on current general internal training data. This improves the reliability and accuracy of the LLM output. The increasing popularity and capability of intra-business assistants is likely to take other shapes as well in daily business activities. Companies may soon see a rise in a range of augmented AI assistance in business activities, which improve quality and performance at work. As an example, highlighted by Erik Brynjolfsson (2024), AI assistants may help customer service employees by giving real-time suggestions on how to approach the customer, based on best practices and tacit knowledge learned from other successful customer service calls. In this way, even the new, or less skilled, customer service employees might get significantly better outcomes from their calls and, hence, improve the productivity gap between less skilled and highly skilled employees.

Artificial General Intelligence (AGI)

Hype and talks about general-purpose AI tools have increased throughout recent years, as capabilities, performance and accuracy have increased amongst LLMs and foundational models. AI systems today are referred to as “narrow AI” or “weak AI”, since they are only able to tackle specific tasks. AGI, which stands for Artificial General Intelligence, is not limited to specific tasks but is rather multi-talented and can understand the complexity to the extent that it can be used for almost all purposes, just like humans. Amazon Web Services defines AGI as a field of theoretical AI research that attempts to create software with human-like intelligence and the ability to self-teach (AWS, 2024). Although AGI technology that exceeds human capabilities could pose a risk for humankind, this technology is not imminent any time soon. Opinions vary between experts and business leaders, but the overall consensus seems to be that AGI is not likely to happen during this century. With advancements and breakthroughs in technology rapidly propelling humankind forward towards a more automated world, reaching AGI levels of technology can be considered not as a question of “if”, but rather as “when”.

6 Discussion

In the section of the thesis, the information provided throughout the thesis will be discussed and connected to the research problem and research questions. As the rising capabilities of GenAI technology enable businesses of all sizes to increase their productivity and quality, adopting it can help small businesses to maintain their competitiveness. Hence, the research aimed to introduce generative AI as a technology for micro and small businesses, highlighting its impact and providing a hands-on approach for adopting the technology into the business. The central three questions for this research were as follows:

RQ1: “What is generative AI and why is it relevant for small businesses”

RQ2: “How can small businesses in Finland adopt generative AI into their business activities”

RQ3: “How to utilize generative AI in daily activities as a small business”

The handbook uses the theoretical framework provided in Chapter 3 as a basis, to help the reader and business decision-maker navigate key questions and aspects of the GenAI digital transformation journey. The theory does not provide a comprehensive framework for how

to approach digital transformation but provide useful and tangible insights in how to approach key parts of it. Ultimately, every business faces unique challenges, and the theoretical framework should acknowledge the complexity of onboarding technology, especially GenAI, and leave room for interpretation, decision-making, and a dynamic approach.

6.1 Summary of key findings

Through the material presented in the literature study, the reader was given information that built a foundational understanding of generative AI as a technology, as well as the unique context of micro and small sized businesses in Finland. Furthermore, the business impact of the rise of GenAI is discussed throughout the thesis, including its benefits, weaknesses, risks, and opportunities for small businesses. Thus, the information shared in the thesis collectively provides an answer to the first research question RQ1. As a continuation, the theoretical framework discussed key concepts related to how businesses work with technology, shaping the frame of the handbook later discussed in the thesis.

The handbook for onboarding generative AI functions as a guiding manual for businesses to use when approaching the technology for the first time in a business context. With the foundational GenAI knowledge taught in the previous chapters, the handbook guides the reader through initial assessment, exploration, strategy, and business integration, using a systematic and structured approach. The handbook also provides means of staying up to date as the GenAI technology develops and as the market moves accordingly. Combined with practical examples of use cases, the content of the handbook gives a comprehensive overview of key steps a small business should take when onboarding GenAI, and thereby answering the second research question RQ2. Additionally, the thesis continues beyond this question by discussing the development and future of generative AI, along with examples of emerging topics at the time of writing, with the aim to equip the reader with the mindset and understanding that adopting generative AI is not a one-time effort.

The way GenAI technology is used in daily business activities varies greatly between industries and the type and size of company. The literature study shared practical insights in how the capability categories and input/output types of generative AI can be utilized in daily business. It also delved into best practices, weaknesses, and risks associated with the

technology, to equip the reader and businesses alike with necessary knowledge to navigate the technology appropriately. Furthermore, the handbook provided examples of use cases that businesses can utilize cost effectively, along with integration options for small businesses, depending on their adoption needs and limitations. Ultimately, the third research question RQ3 is answered in the thesis by looking both at the practical ways small businesses can use GenAI on a daily basis as well as how small businesses can approach GenAI from a business strategy perspective.

6.2 Interpretations

The thesis introduces generative AI as a technology for small businesses and builds an understanding of it throughout the thesis chapters, which enables businesses to assess how to approach the technology, onboard it and use it in daily business activities. As such, the thesis does not provide a comprehensive understanding of GenAI, but rather an introduction to it, with enough information to build a sufficient and healthy relationship to it, which also inspires the reader to explore relevant use cases independently. Using the definitions and insights from reputable sources, the literature study of the thesis builds a solid foundation and introductory understanding of GenAI by introducing relevant terminology, capabilities, and output types. It also introduces crucial aspects that are relevant for businesses, such as benefits, weaknesses, opportunities, and risks of the technology. Furthermore, the literature study discusses the role of technology in small businesses, to help formulate the context needed further in the thesis. Although businesses are facing different and unique challenges, such as culture-driven resistance to change,

The result of the literature study and the theoretical frameworks discussed is a handbook for onboarding GenAI into the business. The handbook uses a sequential and structured approach for guiding small businesses through their GenAI digital transformation journey and includes key steps like preparation, exploration, strategy, training. It also equips businesses with means of staying proactive and up-to-date, competent, and competitive, as the technology keeps on developing and maturing. The content of the handbook aligns with recommendations and insights from reputable companies, institutions, and industry influencers.

6.3 Implications for small businesses in Finland

Technological advancements in AI and in GenAI are rapid, as both companies and customers are integrating GenAI tools into their daily activities and routines. Indecision on whether to onboard GenAI solutions to the business or not poses a risk of reducing competitiveness, as business competitors are likely already exploring the potential. Small businesses can use generative AI in activities across its value chain, which may improve work performance, costs, and efficiency, and generally enabling an increase of output quality by humans. The common opinion amongst experts and industry-leading companies is that AI technology will elevate human potential to the next level. Examples and use cases demonstrated in the thesis highlight the increasing competence and value of generative AI tools for businesses. In practical terms, working with GenAI tools can be compared to having a personal assistant, who is deeply knowledgeable in many areas and can conduct multiple tasks with high quality, given that proper instructions have been given. Decision-making can be improved through sparring and reflection with AI assistants that collect the vast library of human knowledge, or data, which thereby enable relevant and useful suggestions and ideas. Innovation and creativity process can be sped up using digital tools, driven by generative AI. In many situations the whole creativity process can be automated, without human intervention.

Whilst onboarding GenAI tools into the business, leaders may face resistance by the employees, which could slow down adoption. With AI technology often portrayed as a job-killer and discussed with a negative tone in many news, this may often lead to employee concerns about job security or even reluctance to approach the technology. On the other hand, not onboarding GenAI solutions poses the risk of falling behind, as competitors increase productivity, quality and improve the financial bottom line with Generative AI. Managers will need to assess and define the GenAI strategy accordingly, as well as lead the organizational change that improves employee engagement and openness towards this digital transformation.

Be mindful not to get too reliant on generative AI tools or their output. Although the output of LLMs (and neural networks overall) may sound very plausible, it may actually be completely wrong, as they are not picking information from a database but are rather essentially predicting the next probable word or pixel, explains Michal Woolridge on his

lecture at The Royal Institution (2023). Critical and independent thinking is required, to keep quality, digitization, and automatization in balance. In his article on Forbes, Bernard Marr (2023) underlines that striking a balance between AI-assisted decision-making and human input is vital to preserving our cognitive abilities.

6.4 Validity and reliability, and limitations

The delimitations of the thesis were many and aimed to keep the focus on the right topic and the content written from Finnish small businesses' perspective. Many companies operate in industries or niches where generative AI does not produce any value, and this is a factor that is addressed in the handbook.

Sources used in the thesis are used based on their relevance at the time of writing. With preference to new sources and publications by known industry leaders, statements and definitions shared are based on the authors' opinions at the time of publication. In many areas, generative AI is a topic with many opinions and definitions. Although experts and companies provide similar descriptions and statements, there are minor differences in understanding and attitude towards the technology and its implications. As GenAI tools and technology are in the midst of rapid development, reliability of statements and facts regarding how GenAI works, or best practices can vary. Nevertheless, as this thesis aims to be an introductory and thought-provoking approach, factual correctness and reliability can be regarded as less critical. It is also fair to assume that expert opinions may change over time, with relation to the technological advancement of generative AI.

The framework also applies to larger companies with more than 50 employees or revenue over 10 million euro, as their needs are often similar to smaller companies, even though the organization and infrastructure are likely more complex. Although most of this thesis is relevant for larger companies, the content does not consider factors that apply to their size, such as enterprise subscription plans, customized and local training models, or staffing strategy. Furthermore, the scope of the thesis remains on businesses in Finland, meaning that factors regarding the needs and challenges of multi-national businesses and groups are not considered.

As time goes on, new tool updates, features, and capabilities will be released to the market. Consequently, some of the content in this thesis may become outdated or irrelevant,

despite being written from an introductory perspective. It is therefore advisable to view the content as a snapshot of the current GenAI market and maturity level. Tools and companies mentioned throughout the thesis are also reflections of current big players in the industry who are likely to be replaced over time by other, more competitive alternatives.

6.5 Key recommendations

For small businesses that are still unfamiliar with generative AI, it is recommended to gain an initial understanding of the technology and to start exploring its possibilities. Starting the exploration light is recommended, for example by using multimodal tools provided by large industry-leading companies. Creating a GenAI strategy for the business helps the organization to adopt the technology in a structured and sustainable way. Finally, businesses need to remember that adopting generative AI into business activities is not a one-time effort and will require staying up to date on technology development, industry trends, as well as changing regulatory requirements.

6.6 Future research and reading

As AI and GenAI technology matures and gets adopted by an increasing number of companies, the opinions and perspectives will change over time. Businesses that want to get an up-to-date and accurate view of the perspectives and challenges of their industry can consider conducting in-depth research and interviews with their industry peers and other small businesses. This will help them get insights on the current perspectives on GenAI, as well as how this technology is being adopted.

Generative AI is a topic which easily branches out into several sub-topics, such as LLMs, AI chatbots, responsible AI, and API-integrations. Similarly, conversations around GenAI can easily spur out into topics regarding deep learning, machine learning or digital transformation. Since the scope of the thesis is to provide an introduction to the generative AI technology and help small business navigate from unclarity to clarity when considering adopting it to their businesses, these topics have only been briefly introduced. For readers interested in deepening their knowledge in any of the associated topics, information about these can be gained by following general advice provided in Chapter 4.5.2.

7 Conclusion

7.1 Key takeaways

Getting a grasp on generative AI may not be easy for businesses that are not technically adept or that interested in technology. Nevertheless, the use cases provided throughout this thesis suggest that businesses of all sizes have potentially great benefits to gain from exploring and onboarding it to the business activities. Business leaders should see GenAI technology as an enabler, not as a business threat, even though the technology is having a disruptive effect on whole industries. In many cases, first-movers and competitors are already using it, which may lead to businesses that remain undecisive on the matter to fall behind and lose their competitiveness over time. Instead of ignoring the technology, approach it in your own way and explore its benefits. The handbook provides a structured approach on getting familiar with the use cases and ways forward in your business digital transformation with GenAI.

7.2 Future recommendations

Readers and businesses interested in expanding their operations into other areas within or beyond AI can utilize the general advice provided in Chapter 4.5.2 on staying up to date. Utilizing additional AI technologies on top of generative AI may open new business opportunities for businesses interested in utilizing AI for automated decision-making. Likewise, if the identified need is rather to improve workflow automation, capability, control, and security, consider exploring opportunities of robotic process automation (RPA) technology. As the digital landscape keeps changing, new possibilities arise. For businesses striving to stay ahead of the cure, it is wise to stay up to date as technology develops, understand the risks, and continue exploring.

8 Glossary

Below is a collection of key terminology discussed throughout the thesis, along with a brief definition. The table of key terms and their definitions is generated by OpenAI's ChatGPT 4 (accessed on 2nd of June 2024) and is based on its analysis of the thesis document and the prompt "please make a table of the top key terms used in this [attached] thesis and summarize each in a very concise and easy-to-understand way". Not only does this table highlight the multimodal capabilities of GenAI tools like ChatGPT, but also gives an insight in how these terms are defined at the time of writing, recognizing that it might change over time in this rapidly evolving digitalized world.

Term	Definition (by OpenAI's ChatGPT 4, on 2nd of June 2024)
API	Application Programming Interface, a set of rules that allow different software entities to communicate with each other.
Artificial Intelligence (AI)	Technology that simulates human intelligence to perform tasks and can improve itself based on the information it collects.
Digital Transformation	The process of using digital technologies to create new — or modify existing — business processes, culture, and customer experiences to meet changing business and market requirements.
Foundation Models	AI models that are trained on broad data at scale and are adaptable to a wide range of tasks without being specifically trained for them.
Generative AI (GenAI)	A subset of AI focused on creating new content, such as text, images, and music, from existing data.

Large Language Models (LLMs)	AI models that process large amounts of text and generate coherent, contextually relevant text based on that training.
Multimodal	Refers to AI technologies that can understand and generate information across different forms of data, such as text, sound, and images.
Prompts	Inputs given to AI models to generate specific outputs or perform tasks. These are typically instructions or data.
Prompt Engineering	The skill of crafting prompts to effectively communicate with AI models and guide them to produce the desired output.

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