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Governance approaches for organizations using generative AI

Information systems science

Master's thesis

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Generative artificial intelligence (GenAI) has been increasingly gaining presence as a tool in everyday life, as applications such as ChatGPT, Microsoft CoPilot and Midjourney have taken their share of the markets during recent years. The use of GenAI in organizational processes however has raised concerns about various ethical challenges relating to for example authenticity and truthfulness, bias and fairness, transparency, responsibility and accountability, security, and human competencies.

It is possible, that the challenges of GenAI could be mitigated through organizational AI governance practices. While the GenAI technology is rapidly evolving, the governance practices of it are still a relatively unexplored area of research. Previous literature has attempted to define organizational AI governance and what ethical principles should the use of AI follow. Even though potential ethical challenges are recognized by both the users and AI designers, only few concrete solutions for reducing them are available.

This thesis aims to find governance practices that organizations could implement to ensure responsible use of AI especially focusing on the recent developments made in generative applications. Modern-day organizations might require an approach to AI governance that supports innovation and value creation while at the same time addressing ethical, social, and legal challenges of AI.

This thesis examines the challenges of GenAI that organizations nowadays face and how these challenges are mitigated through governance practices in large organizations located in Finland. Through qualitative expert interviews analysed with the Gioia method, various GenAI governance means were found and multiple challenges, ethical and others, were explored. This thesis participates in a recently growing discussion about AI governance and offers solutions for organizations utilizing the technology to design and implement it ethically and responsibly to their operations.

Key words: Generative artificial intelligence, GenAI, ChatGPT, governance, ethics

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Generatiivinen tekoäly teknologia on kasvattanut suosiotaan lähivuosina monessa eri kontekstissa, kun sen sovellukset kuten ChatGPT, CoPilot sekä Midjourney ovat saapuneet markkinoille. Generatiivisen tekoälyn käyttö organisaatioiden prosesseissa on kuitenkin nostanut esille eettisiä huolia, koskien muun muassa aitoutta, reiluutta, läpinäkyvyyttä, vastuullisuutta, turvallisuutta ja ihmisten taitoja.

On mahdollista, että generatiivisen tekoälyn haasteita organisaatioissa voitaisiin minimoida tekoälyn hallinnoinnin keinojen avulla. Generatiivisen tekoälyn hallinnointi on vielä suhteellisen tutkimaton aihealue, samalla kun tämä teknologia on kehittynyt nopeaan tahtiin. Aiempi tutkimus on pyrkinyt määrittelemään, mitä organisaatioiden tekoälyn hallinta on ja mitä eettisiä periaatteita käytön tulisi noudattaa. Vaikka käyttäjät ja tekoälyn kehittäjät tunnistavat useita potentiaalisia eettisiä haasteita tekoälyn käytössä, konkreettisia ratkaisuja niiden vähentämiseksi on ollut vähän saatavilla.

Tämä opinnäytetyö pyrkii löytämään niitä hallinnoinnin keinoja, mitä generatiivista tekoälyä hyödyntävät organisaatiot voisivat hyödyntää minimoidakseen tämän teknologian haasteita ja edistääkseen vastuullista toimintaa. Nykypäivän organisaatiot saattavat tarvita tekoälyn hallinnointiin lähestymistavan, mikä tukee innovaatioita sekä arvon luontia samalla kuitenkin ottaen huomioon eettiset, sosiaaliset ja lailliset tekoälyn haasteet.

Tämä opinnäytetyö tutkii, mitä haasteita Suomessa toimivat isot organisaatiot kohtaavat generatiivisen tekoälyn käytössä ja miten näitä haasteita voitaisiin lieventää hallinnoinnin keinojen avulla. Laadullisia asiantuntija haastatteluita hyödyntäen, useita generatiivisen tekoälyn, sekä eettisiä että muita, haasteita ja niiden hallinnoinnin keinoja löydettiin. Tämä opinnäytetyö osallistuu lähiaikoina lisääntyneeseen keskusteluun generatiivisen tekoälyn hallinnoinnin ympärillä ja pyrkii tarjoamaan mahdollisia ratkaisuja organisaatioille eettiseen ja vastuulliseen tekoälyn hyödyntämiseen.

Avainsanat: Generatiivinen tekoäly, ChatGPT, hallinnointi, etiikka

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1 Introduction

1.1 Background

Generative artificial intelligence (GenAI) has been increasingly gaining popularity as a tool in everyday life, with applications such as ChatGPT, Microsoft CoPilot and Midjourney taking their share of the markets during recent years. After its breakthrough in late 2022 with OpenAI's ChatGPT, GenAI technologies have been used in various sectors even more than before - from education and research to different industries such as healthcare and finance (Sætra, 2023). The use of GenAI in business has been studied to possibly increase productivity, improve customer trust, spread knowhow among employees and elevate workplace contentment (Brynjolfsson et al., 2023).

However, the use of GenAI has raised concerns for example in relation to labour markets, environment, power relations, bias, manipulation, and human relationships (Sætra, 2023). Ethical challenges concerning GenAI are recognized to relate to themes of authenticity and truthfulness, bias and fairness, intellectual property issues, transparency and explainability, responsibility and accountability, economic and social impacts, privacy, security and the erosion of human skills (Zlateva et al., 2024). Organizations have an important role solving these issues and promoting responsible GenAI use. Not paying attention to these challenges in GenAI utilization could cause harm for organizations themselves but also for the surrounding community and society.

The use of artificial intelligence (AI) in organizations is managed through governance. This in practice is executed through various rules, policies, and technological tools to align the use of AI with the organization's strategy, objectives, and values; to follow legal requirements; and to meet ethical principles. The ethical principles, like fairness and responsibility, should be transformed into concrete governance processes of AI. (Mäntymäki et al., 2022.) In other words, governance is used to ensure fair and goal-oriented use of AI. It is through governance practices that responsible utilization of GenAI could be ensured in organizations. Therefore, this thesis focuses on finding concrete governance means for organizations that promote good ethical practice and help mitigate challenges posed by GenAI.

1.2 Motivation

This thesis examines through the expert interview method, what are the ethical challenges of GenAI faced by today's organizations and how these challenges can be managed through concrete governance practices. It is of interest to explore scientific literature published during 2023 and early 2024 about ethical challenges of GenAI and compare the results to what the experts say are the challenges of GenAI for their organizations.

While the GenAI technology is rapidly evolving, the governance practices of it are still a relatively unexplored area of research. There have been attempts of defining organizational AI governance (see for example Mäntymäki et al., 2022) and what ethical principles should the use of AI follow (see for example Farina et al., 2024; Ferrari et al., 2023; Zlateva et al., 2024). Still, research done about GenAI has mostly focused on the possibilities, concerns, history, and technological aspects of the tool. In addition, large number of research done in this field are conceptual studies and made to define ethical principles rather than to study how those could be translated to concrete governance action. Even though potential ethical challenges are recognized by both AI designers and users, only few concrete solutions for reducing them are available (Casal & Kessler, 2023).

It remains essential to investigate organizational practices that can be implemented to ensure the responsible use of AI, with particular emphasis on recent advancements in generative applications. Principles and ethical guidelines rarely lead into concrete action themselves since they can be for example too broad or interpreted differently between different groups (Whittlestone et al., 2019). This is why a study exploring concrete means of action made beyond principles could have its place in promoting ethical processes and providing guidelines for organizations to govern their AI use.

There have been few attempts of exploring concrete activities of ethical AI and its governance in organizations (see for example Papagiannidis et al., 2023; Seppälä et al., 2021). There is however a gap in research if the ethical challenges and governance of 'traditional' AI differ from the ones of GenAI. Literature about GenAI technology has been increasing rapidly during 2023 when applications such as ChatGPT and Midjourney caught the attention of the public. These are the reasons why the author has

chosen to explicitly study ethical challenges considering GenAI and study if this branch requires special attention of researchers and decision makers.

1.3 Research questions and scope

The two research questions for this thesis are:

RQ1: *What are the ethical challenges of generative artificial intelligence for organizations?*

RQ2: *How can organizations take the challenges of generative artificial intelligence into consideration in their AI governance?*

The scope of this thesis is to explore generative artificial intelligence governance through the perspective of experts that have artificial intelligence experience and have an understanding how to utilize the technology in the operations of their organization. The research is limited to large organizations in Finland.

The research questions are answered through empirical material gathered with the qualitative expert interview method. These interviews follow a broad structure but are designed to foster free discussion for the purpose of finding unique insights. To explore the ethical challenges of GenAI, a small-scale systematic literature review is conducted in the theoretical part of this thesis and later this review is compared to what the experts say are the challenges for their organization.

This thesis bases its research to an approach where no pre-existing theory is tested. This means that no prior developed theory is used to guide the empirical data collection and the goal is to find novel insights about the topic. This approach is usually implemented to novel research areas. GenAI is still an emerging technology and ethical governance of AI is finding its path in research, which makes this topic suitable for this type of research.

1.4 The structure of this thesis

This thesis will begin with exploring prior literature about GenAI, ethical challenges of GenAI, and AI governance. Short conceptualizations for both GenAI and its governance are provided since those are important themes for the research topic. The ethical challenges are explored through the literature review method.

After defining important themes for this thesis, the methodology, qualitative interview method, and data collection and analysis processes are explained. In the next section, the results of this research methodology are presented. The results can be divided into two main topics: the challenges of GenAI for organizations and the means of GenAI governance for organizations. After going through the results, the next sections discuss the results, explore the limitations of this research, provide suggestions for future research, and conclude the research.

2 Generative artificial intelligence

This section conceptualizes what is meant by GenAI technology and explores what makes it different from traditional AI. According to Ferrari and others (2023), we need to firstly assume that GenAI is something that can be governed and for something to be understood as a governable object, we must be able to understand what exactly it is that we try to govern. There are many papers made that explore the possibilities (see for example Brynjolfsson et al., 2023; Park, 2024; Westphal & Seitz, 2024), history (see for example Feng et al., 2024; García-Peñalvo & Vázquez-Ingelmo, 2023) and technical aspects (see for example Kalota, 2024; Yang et al., 2024) of GenAI, in which this thesis does not delve into. The purpose of this section is to briefly conceptualize GenAI, so that the ethical challenges and governance of the technology can be understood later.

2.1 Conceptualization

Artificial intelligence (AI) is a term that many have attempted to define in the literature, but no general agreed upon definition has been made. Generally, it could be described as a technology that attempts to replicate human intellect, reasoning or action. Adams and others (2012) describe that AI aims to be:

> "a system that could learn, replicate, and possibly exceed human-level performance in the full breadth of cognitive and intellectual abilities."

If we start by thinking about the word "generative", it already can give us an idea about the type of technology GenAI is and what it can be used for. "Generative" as a word can mean to create or to produce something, in this case some form of content like images or text. GenAI is defined by Tong (2023) as follows:

> "The current generative AI technology refers to the technology that generates text, images, sounds, videos, codes, and other contents based on algorithms, models, and rules, and is characterized by high intelligence, big data dependency, and wide applicability."

GenAI has thus been described as new material generating technology that has been trained with large quantity of data with machine learning techniques. For example, Midjourney is an image generating application that produces images based on the user-given prompt. ChatGPT on the other hand is a large language model (LLM) based on natural language processing that provides answers to user prompts. In addition to

images and text, GenAI is used to create for example code, sounds, music and videos. (Sætra, 2023.)

Strobel and others (2024) classified GenAI into five categories: generators, reimaginators, synthesizers, assistants, and enablers (Figure 1). Generator type GenAI focuses around creating new content with the intention of innovation by combining the pretrained model and user prompts (e.g. text-to-image generators like Midjourney). Reimaginator type GenAI is used to reinterpret data and modify user input. Existing content such as images are transformed by for example changing the style or expanding them. Synthesizers create synthetic data for use cases like the training of AI models or IT testing. Assistant type GenAI supports its users in an application domain with domain specific information or capability. Here the model is trained with domain specific datasets and requires sophisticated user input data (for example GitHub Copilot that can be fed source code). Lastly, enablers offer the necessary infrastructure for supporting processes like training, fine-tuning, or hosting generative AI applications. AI enablers aim to make applications easy to use without any technical prior knowledge and provide platforms for companies to integrate GenAI to their systems. (Strobel et al., 2024.)

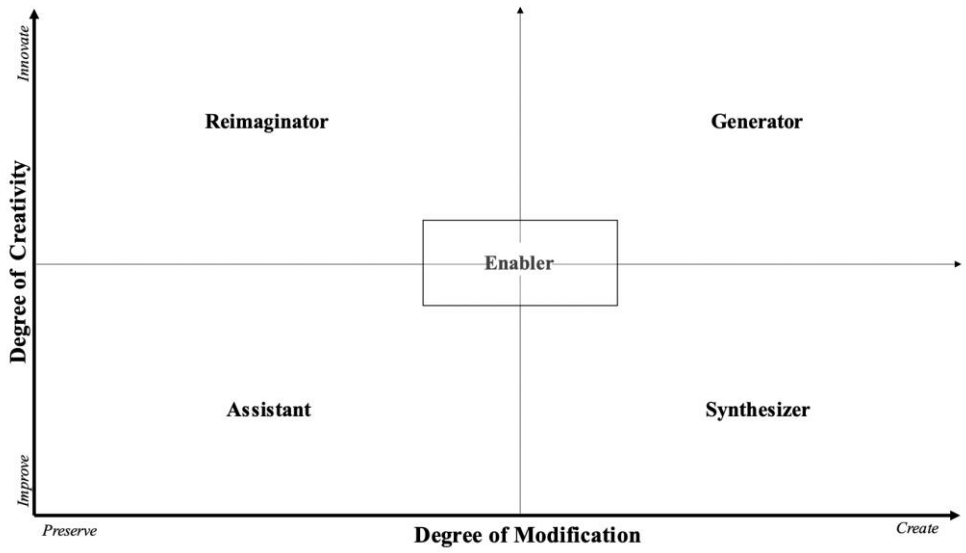

Figure 1 GenAI types positioning framework by Strobel and others (2024)

Feuerriegel and others (2024) in turn divide GenAI technology into three levels: model level, system level and application level (Figure 2). The model level consists of machine learning architectures and AI algorithms that are behind the content creation. These models can require more fine tuning for specific tasks and use cases. Similarly to

Strobel and others' (2024) enablers, the system level is about where the model is implemented to enable user interaction. It consists of the AI model, underlying infrastructure, user-facing components and their modality and corresponding data processing. Lastly the application level describes the possible areas and use-cases where GenAI techniques could be applied to, like education and software development. (Feuerriegel et al., 2024.) Governance can be aimed towards any of these levels, in other words to the underlying model, the system, the platform, the application or to the surrounding elements such as the people using the technology.

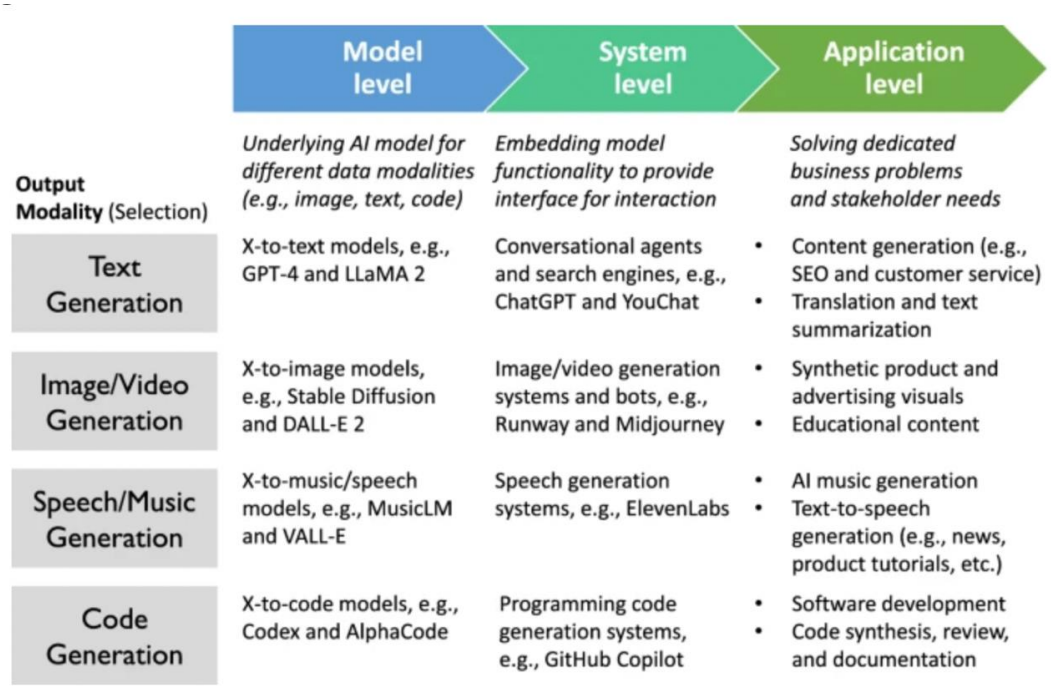

Figure 2 A model-, system-, and application-level view on generative AI by Feuerriegel and others (2024)

2.2 GenAI and traditional AI

GenAI combines the ingredients of traditional AI, like machine learning and neural networks and few others in models like LLMs. This has been made possible by the proliferation of big data, increased computational power, and algorithmic advancements made in the technology field. (Kirova et al., 2023.) In the past, the capability of AI has been mainly understood as analytic and suitable for decision-making assistance. Today, AI is also able to perform generative functions and is used for creating content. (Feuerriegel et al., 2024.)

Like previously mentioned, ‘Artificial intelligence’ is considered to be an umberella term for algorithms that are capable of performing tasks that typically have required human intelligence. ‘Traditional’ type of AI consists of machine learning and deep learning techniques that are usually developed for one specific use case. These are more data-driven tasks such as predictions, classifications, and recommendations, unlike tasks associated with GenAI that aim more towards the generation of unique, realistic, and creative content (Banh & Strobel, 2023). The GenAI models have thus more of a pervasive nature and are more widely modifiable for different use cases than the traditional AI technology developed for specific use cases.

Echoing the above, Helberger and Diakopoulos (2023) argue that generative AI systems differ from ‘traditional’ AI systems in at least two important ways: dynamic context and scale of use. GenAI models can be applied to variety of contexts and are not necessarily built for one specific use case. These systems have certain type of openness and ease of control that allow for extensive scale of use. These systems are also designed to be easy to understand and therefore lower the threshold for the ordinary user to utilize them. (Helberger & Diakopoulos, 2023.) It is these aspects that prompt the question if the differences between traditional and generative AI also affect the governance means and ethical challenges faced by organizations. These aspects give a reason for this thesis to focus on GenAI specifically and not just the umbrella term AI.

3 Ethical challenges of GenAI

3.1 Literature review process for finding ethical challenges of GenAI

The goal of this section is to find literature exploring the ethical challenges of GenAI published after the release of ChatGPT (November 2022) and recognize the ethical challenges of this technology that are discussed. The reason for this time period is that it is assumed that GenAI became a widely talked about subject in the public after the release of the accessible and easy to use ChatGPT tool. The final period for the search was literature published from March 2023 to February 2024.

I started the literature review process by exploring literature surrounding the topics of GenAI and governance of AI. The purpose was to find suitable search words for the actual literature review. The search terms were created based off my knowledge of the terms used in literature after familiarizing myself with the topic and by consulting the professor guiding this research. We decided to focus especially on literature made about GenAI and exclude the terms “AI” or “artificial intelligence” without using the word “generative”. It is possible this limited the scope of the literature search but was easier for me to handle.

The literature search was executed using Google Scholar using the following phrasing:

“allintitle: (ethics OR ethical OR governance) ("generative artificial intelligence" OR "generative AI" OR ChatGPT OR "Large language models") -medical -medicine -healthcare”.

Already at the beginning it was decided to focus on key words that were included in the title of the literature and to exclude medical or healthcare related literature since they often tend to touch topics that are quite area specific and technical related to that field. This decision might have excluded views concerning generative artificial intelligence impact on for example mental health or otherwise wellbeing on individuals.

This search gave me 297 search results of which I narrowed down to 30 articles by excluding other area specific papers, such as chemistry, early childhood education and massage therapy and also pre print or working papers. I read through the articles and excluded papers that seemingly talked about ethical challenges or governance areas in the title but did not actually study them any further. These papers usually explored

GenAI as a technology from the mechanics aspect and had one paragraph touching on ethics.

Without including ChatGPT as a search term, the number of papers dropped down to third of the count. It was therefore essential to include it as a search term to get a wider representation of research surrounding the topic of GenAI. Although the research is about GenAI technology and not only the ChatGPT application, it could be possible that the data used is biased towards ChatGPT or large language model technology for this reason.

Most of the papers did not utilize any empirical material. Out of the 30 articles chosen, only 7 used some type of material, like surveys or interviews, in their study and the rest were conceptual studies. This could be an indication that the research surrounding GenAI requires more studies utilizing empirical material.

3.2 Literature review results: ethical challenges

Inherently the ethicality of GenAI should be evaluated within different societal areas and assess it in the domain it is used in, situated in a context, and under different standards (Schlagwein & Willcocks, 2023). In other words, the ethical issues and challenges can be different depending on the context and use case the technology is being used in. The challenges can be different for example when used in recognizing illnesses from x-ray images, producing illustrations for slide shows, or providing customer service with bots.

Not all ethical issues can be fully accounted for during the conceptualization or design phase of a technology. Ethics permeate the entire hardware and software development process. (Rousi et al., 2024.) Ethical challenges can therefore occur in any part of GenAI systems' lifecycle. Organizations, being the users or developers of the technology, can therefore have a big part in tackling ethical issues through governance means when they take part in GenAI projects or use the technology in their operations.

The results of the literature review can be seen in figure 3. A table that includes all the references and further examples included in these categories can be found from appendix 1. There were 14 categories of ethical challenges identified from the literature and these findings are explained in the following subsections.

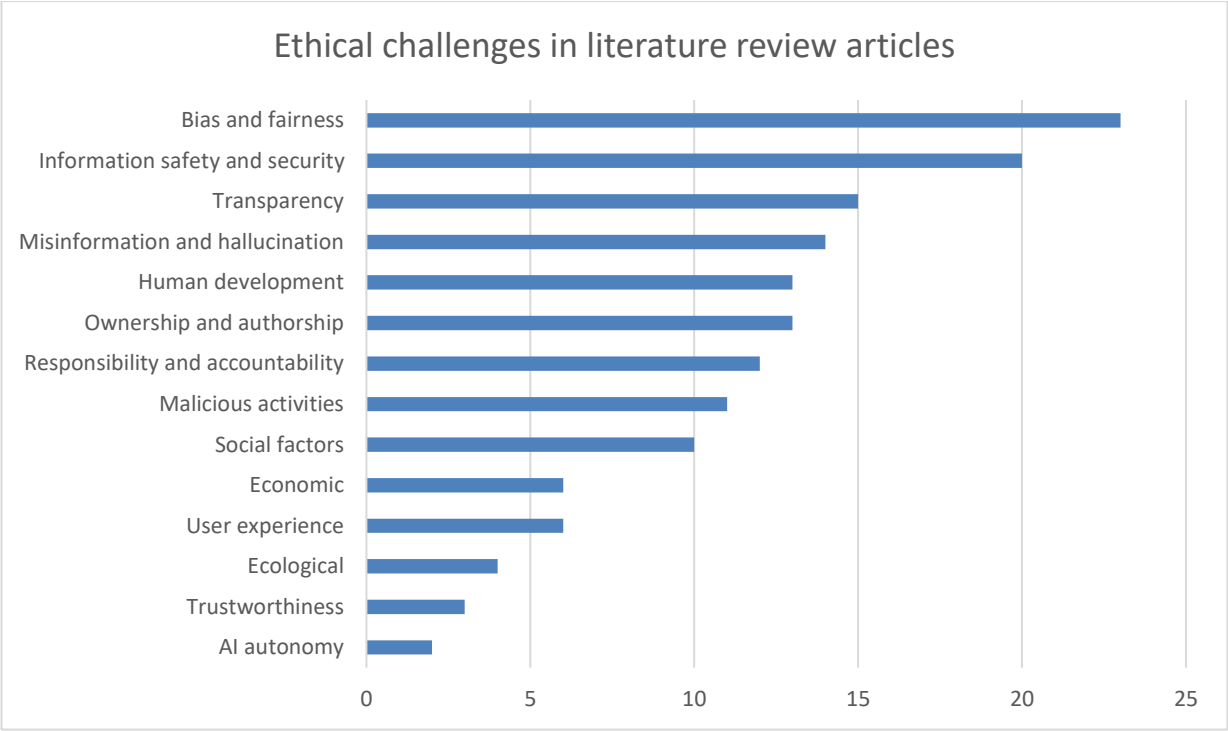

Figure 3 Ethical challenges found from the literature

3.2.1 Bias and fairness

Most of the articles mentioned bias and fairness as a challenge of GenAI. This category describes GenAI producing biased, discriminatory, and possibly harmful content that is based off the training data of the model. Since GenAI is trained based on large amounts of different data, it can enforce stereotypes and produce different types of bias reflected in this training data. These can include cultural bias, linguistic bias, temporal bias, political bias (Hua et al., 2024) and ethical bias (McGrath, 2024). For example, ethical bias is incorporated into the GenAI training model, making output contents only represent the moral values of some societies or cultures (Rao, 2023).

Chavanayarn (2023) explained, that ChatGPT for example, operates on statistical patterns and pre-existing data, lacking any personal experiences or intuition that on the contrary humans possess. While the statements generated by ChatGPT might seem reasonable, they are not necessarily accurate or reliable. The credibility of the statements the LLMs provide can be influenced by the quality and biases present in the training data. Bias generated by AI could also reinforce the biases of people using the technology, forming filter bubbles and echo chambers by confirming bias and creating this biased disinformation ecosystem. (Chavanayarn, 2023.)

According to Tokayev (2023), completely removing bias might be an unattainable ideal given the complexities of human language and society. However, according to them, efforts are needed to minimize biases, ensuring that GenAI would serve as a fair tool for the betterment of society. It would thus be ethical to strive for minimizing bias produced by GenAI and by doing so adhering to the principle of fairness. Bang and others (2023) further explained that if a system shows unfair or biased behaviour, like favouring certain groups or maintaining societal biases, it indicates a violation of the fairness principle. According to them, AI needs continuous monitoring and evaluation to minimize biases towards users.

3.2.2 Information safety and security

Second most mentioned challenge was information safety and security. This challenge includes aspects such as privacy infringements, data breaches, invasions of privacy, organizational security exposure and individual information security rights such as informed consent and the right to be forgotten. These vulnerabilities in information security can also expose organizations to a variety of malicious activities, like impersonations, scams, and deepfakes, that are described as a separate issue later.

The primary source of privacy concerns also lies in the nature of GenAI training data. These models are typically trained on large and diverse datasets that can include personal information, like names, addresses or phone numbers. During the training process, GenAI can also learn to associate specific tokens with individuals, even when the data itself is anonymized or pseudonymized. This can lead to the unintended disclosure of private information when these tools generate text or other responses. (Liyanage & Ranaweera, 2023.)

Some have raised concerns regarding individual information security rights like the right to be forgotten (see for example Zhang et al. (2024)) and informed consent (see for example Gerke et al. (2020)). It has been recognized that LLMs may memorize personal data, a phenomenon called training data memorization, and this data may appear in their output (Zhang et al., 2024). This can be a concern for organizations, that try to protect their business and customer information.

3.2.3 Transparency

The transparency aspects of GenAI include terms like blackbox, explainable AI, human-like interactions, and integrity. Human-like interactions and integrity relate to transparency since it is not always clear and transparent if interaction is done with a GenAI application or a human. Integrity means truthfulness about using GenAI in one's operations and being thus transparent about GenAI use.

The blackbox -problem of AI means that we might understand the GenAI model's general principles and rules, but the underlying reasons behind specific decisions remain unclear (Schlagwein & Willcocks, 2023). The decision process and the basis for the models' outputs is thus left in the darkness. This creates a challenge, where it is difficult to audit the decision making process of the technology (Schlagwein & Willcocks, 2023). Often the explainability of these models is seen as a challenge in result of the blackbox nature of AI.

Bang and others (2023) argue that transparency of an AI system aims to make the behaviour and decision-making process of the model easy to comprehend. However, according to them, some organizations might choose to prioritize commercial secrecy over being transparent about their AI solutions to safeguard their technology and business models. This brings out the dilemma of how far organizations are able to adhere to transparency principles if creating value and guarding assets is the primary goal.

3.2.4 Misinformation and hallucination

Misinformation and hallucination refer to GenAI producing possibly false information or making up outputs and presenting them as facts. This challenge includes for example the Reverse Polanyi Paradox, successful faking, timeliness, and accuracy. Often misinformation can be the result of inaccurate or outdated training data. Hallucination on the other hand is a phenomenon where LLMs generate text that seems semantically or grammatically correct but is in fact inaccurate or meaningless (Hua et al., 2024).

Schlagwein and Willcocks (2023) describe AI as shallow and tone-deaf technology, that produces claims without for example understanding, empathising, reflecting, feeling, or learning in any way. They further explain that AI falls into so called 'Reverse Polanyi

Paradox', where it tells (far) more than it knows and even far more than it does not know. They also emphasize that AI is faking every bit of information and that it can only simulate creativity, emotions, and all other humane attributes, which it often does successfully. GenAI can therefore seem humane and is able to fake human-like interactions, but at the end of the day it is a technology that is prone to fabricate information based on past data and does not actually understand the complexities of the human life and experiences.

3.2.5 Human development

The human development category includes many different aspects of human evolution and the effect GenAI could have on the development of human competence or skills. This includes themes such as human skills erosion, reduced criticality, problem solving and innovation, loss of interpersonal relationships, individual autonomy and agency, technical dependability, human oversight, effects on identity, and devaluation of expertise.

According to Farina and others (2024), AI creators have been obsessed with imitating and replicating human intelligence rather than finding ways to utilize the technology to allow people to improve their skills and capabilities. Maybe in the process of pursuing business value and making technology seem humane, the actual human development aspects and effects on skills can be left unnoticed. As Chavanayarn (2023) explains, if GenAI is treated as an equal information source to humans or even as an expert itself, we risk devaluation of human expertise and reliance on flawed or biased information.

3.2.6 Ownership and authorship

The ownership and authorship category includes themes, such as IPRs, credits of AI created content, copyright, plagiarism, trademark and patent laws, authenticity, and unauthorized use of sources. These essentially create a challenge with the rightful and honest utilization of AI-created content. Plagiarism and credits of AI-generated content challenge organizations to recognize AI-created content and who has the rights to the content. This is especially recognized to affect the academic community (Hua et al., 2024).

The utilization of GenAI can lead to legal challenges such as the possible violation of intellectual property rights and the applicability of copyright, patent, and trademark laws to AI-generated work. According to Gupta and others (2023), businesses need to be aware of these dangers before they can use generative AI to its full potential.

3.2.7 Responsibility and accountability

One ethical challenge is the responsibility of developers and users of GenAI to ensure that the technology is ethically and correctly used (Esmaeilzadeh, 2023; Zlateva et al., 2024). This includes considering the potential impacts of GenAI on society and taking measures to mitigate any negative effects (Esmaeilzadeh, 2023). Responsible GenAI utilization includes designing, developing, deploying and monitoring the AI system. (Zlateva et al., 2024.)

Accountability refers to the action of accepting ownership of the results produced by the GenAI system (Gupta et al., 2023). If an AI system makes a mistake or causes harm, there should be a way to resolve who or what can be held accountable for it. Liability is a concept that determines who is the one responsible when AI goes wrong – it could be decided to be held by the developer, the company, the user or even the AI itself. (Zlateva et al., 2024.)

3.2.8 Malicious activities

This category describes GenAI activities that are meant to cause harm for organizations and when the technology is used with ill intentions. This category goes further than just organization information safety and security since information can be exposed through AI also without necessarily having malicious intentions behind it. This category includes all malicious or illegal activities and intentions, both to attack organizations and ethical use of the technology by organizations. These are for example Illegal activities, misuse and abuse, manipulation, bullying, creating misleading content, impersonation, data fabrication, propaganda, scams, deepfakes and deception.

Some experts have raised concerns on the possibility of using AI to fabricate data. It might be fairly easy to go to ChatGPT and simulate research data based on appropriate descriptions and presenting it as one’s own. (Casal & Kessler, 2023) These tools can make it also easier to create misleading content by providing them with appropriate

prompts. This easy content and data creation can aid spreading propaganda and executing scams, deception, manipulation, and bullying. Impersonation and deepfakes can create several detrimental consequences and challenges for organizations, like reputational damages, distortions in market competition, and the spread of misinformation by hackers, rivals and governments (Mariani & Dwivedi, 2024).

3.2.9 User experience

This category of challenges has aspects affecting the user experience of GenAI tools. It includes themes such as GenAI tools' difficulties handling ambiguity, lack of common sense and world knowledge, contextual understanding, over-reliance on quality prompts, lack of emotional intelligence, understanding of inappropriate language and bot humanization.

Many of these themes relate to the humanization and GenAI abilities to take part in humane action. As it was previously stated, GenAI can only simulate humans. However, this technology essentially lacks contextual understanding, common sense, and actual world knowledge which can have effects on user experience as well as creating misinformation (Hong, 2023). Distorted, rude or hard to access information can result in bad user experience for example with customer service bots.

3.2.10 Social, economic, and ecological factors

The use of GenAI technology has been recognized to result potentially to socio-economic and sustainability related issues. Economic challenges posed by GenAI include job displacement or employment loss, automation of tasks and human replacement. Social challenges are for example digital divide, cultural homogenization, equality, corporate dominance, accessibility, harms to society, social solidarity, inclusion, and changes in social relations and social structures.

GenAI could have potential impacts to the labour markets and shift the way we see some sectors of work. On the other hand, it is possible that the automation created by these models could also lead to new types of jobs. (Liyanage & Ranaweera, 2023.) The bias embedded in LLMs could potentially result to cultural homogenization and diminish cultural diversity (Tokayev, 2023). These models are usually trained with data derived from dominant languages and cultures, which could lead to lack of

representation of minorities in their outputs. While these technologies have enormous potential, they also require access to advanced technology. This could create digital divide between communities and therefore also contribute to already existing inequalities. (Liyanage & Ranaweera, 2023.)

It has been recognized that AI has the potential to indirectly impact the environment, which has yet to be received much attention globally (Wu et al., 2024). Ecological challenges describe the possibility of GenAI impacting the environment and companies' ability to adhere to sustainability demands. As LLMs grow in size and complexity, more computational resources such as specialized hardware and electricity consumption are required (Tokayev, 2023).

3.2.11 AI autonomy and trustworthiness

The last two ethical challenges of GenAI in the literature were AI autonomy and trustworthiness. AI autonomy refers to the possibility of strong AI and the extent to which we can hand over our power or decision-making capability to AI. The question is, if AI could potentially have autonomy or consciousness (Rao, 2023) and how it could affect not only organizations but the society as well. Trustworthiness is a principle relating to reliability; How far can we trust the decisions and outputs the GenAI tools generate? These concerns relate also to transparency and explainability aspects of AI.

4 Organizational AI governance

4.1 Conceptualization

For this research, we need to assume that GenAI is something that can be governed. Ferrari and others (2023) explain, that before GenAI technology can be governed as a material item, it needs to be adequately accounted how it is rendered observable, what layers of information about it is made inspectable, and how it can or should be modifiable. This means that the whole system and its functions needs to be understood before it can be governed properly. Roles for governance practices need to be assigned and what aspects about the system are governable need to be comprehended (for example are we able to govern algorithm, data, people, organization, or platform).

For now, we can take the stance that AI cannot be held itself accountable as a moral agent. It has been debatable whether today's AI applications can be considered as enough of a moral agent, but as far as the author knows it is still widely accepted that moral agents are human (not technology itself) and thus responsibility and accountability of actions should rely on humans. Governance can be therefore seen as a way for humans to steer GenAI utilization in responsible direction. One insight is that GenAI should be viewed as a construction and the functions and effects of it will be shaped by people's decisions and the way they utilize the technology (Brown et al., 2024). Governance is a tool to make sure that this utilization is made in such a way that it follows good practice.

There is no agreed upon definition for the governance of AI or GenAI, but conceptualizing it is essential for this study. There are broad definitions for AI governance that focus on the system and rules, like the one by Chhillar and Aguilera (2022):

> "The governance of AI as the structures, processes, mechanisms, and strategies that lead to the production and implementation of formal and informal rules to direct and regulate the use of AI and enforce its accountability."

AI governance can also be described as an organizational process situated amongst data governance, IT governance and corporate governance. A definition made by Mäntymäki and others (2022) describes AI governance as follows:

> "AI governance is a system of rules, practices, processes, and technological tools that are employed to ensure an organization's use of AI technologies aligns with the organization's strategies, objectives, and values; fulfils legal requirements; and meets principles of ethical AI followed by the organization."

The former definition emphasizes that governance practices lead to rules that guide AI use and the latter sees rules as one part of governance action amongst practices, processes, and tools. The goal of governance is therefore seen differently between these definitions. The difference between these two can be envisioned that the latter is more focused on the organizational perspective, which is the more relevant angle for this thesis, and the former is more broadly defined to cover the whole AI system lifecycle. The latter also has a bigger emphasis on ethics and principles.

The rules, processes, structures, mechanisms, practices, strategies, and technological tools all describe concrete action made by an organization to govern AI use, which I will describe as governance means in this thesis. The means describe governance practices taken to mitigate challenges and concerns, to fulfil organization's mission and to adhere to ethical principles. In this thesis, similarly to Mäntymäki and others (2022), the use of GenAI is understood as all engagement with GenAI technologies in the organization's operations throughout the system's life cycle.

Schneider and others (2024) call these governance means as governance mechanisms in their preprint article about GenAI governance for companies. In their categorization, these mechanisms include structural, procedural, and relational means of governance, that have targets (who or what is being governed) and scope (in what context is the governance situated) and result to consequences and are steered by internal and external antecedents (figure 4).

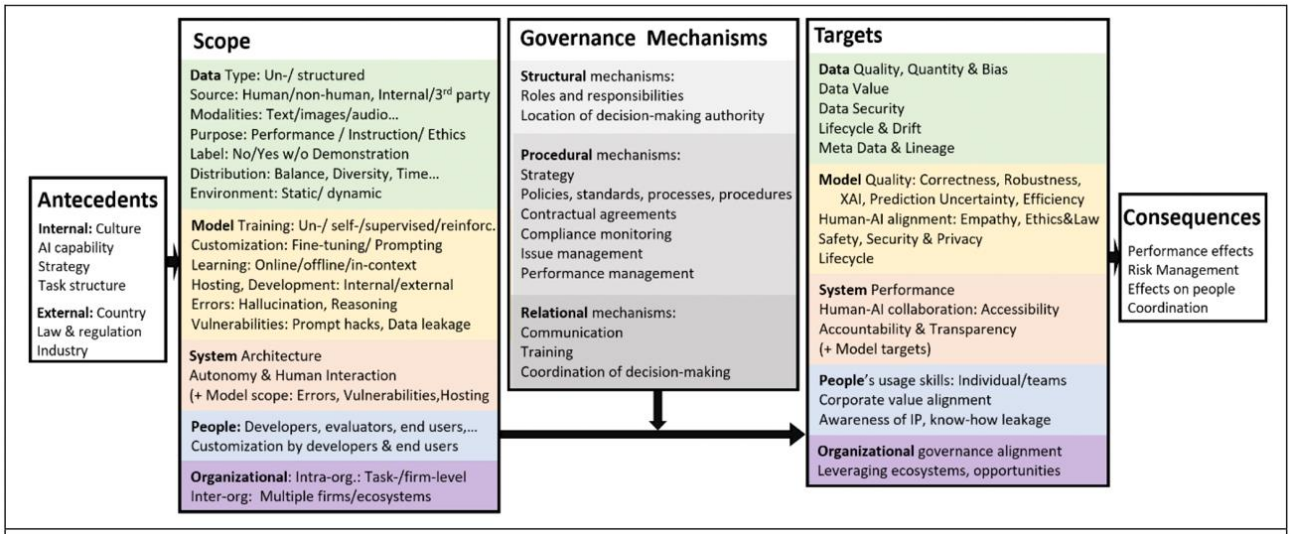

Figure 4 GenAI governance framework for organizations by Schneider and others (2024)

4.2 Different approaches

Regional priorities in AI governance have been studied to differ from one another and no cohesive approach has not been formed around the globe. Capacities and strategies in tackling the diverse challenges posed by GenAI are different between regions. While progress is actively being made globally towards responsible GenAI governance, according to Luna and others (2024), efforts are still needed to bridge the gaps and foster a more cohesive framework that aligns with technological advancements and societal norms. (Luna et al., 2024.)

Governance of AI can be categorized as risk, rules, principles or outcomes-based approaches, that are not necessarily mutually exclusive from one another (World Economic Forum, 2024). For example The EU AI Act can be described as risk-based regulative governance approach, that categorizes AI systems based on their potential for societal impact and harm, at the same time prioritizing human-centric values and fundamental rights protection (Hu & Li, 2024; World Economic Forum, 2024).

Governance can be thought as a regulatory process or organizational process, in which this thesis focuses on. It can be enforced by the developer, regulator, or user, in which this thesis focuses on the user, organizations, point of view. There have been attempts for building AI governance frameworks, industry standards and best practices (see for example Papagiannidis et al., 2023; Schneider et al., 2024) but as previously stated, no cohesive or universal way has been declared. Although different strategies and regulations between regions may vary in their scope and emphasis, according to Wang

and Wu (2024) they all seem to recognize the need for a balanced approach to AI governance that supports innovation while at the same time addresses ethical, social, and legal challenges posed by AI.

5 Research methodology

5.1 Research approach

This thesis started as an assignment for the Digital economy and society research group at the University of Turku. This thesis utilizes the qualitative research approach, which involves qualitative data, like interviews, for the purpose of understanding and explaining social phenomena. The qualitative research approach is usually selected when a phenomenon requires interpretation, and the research is done in a relatively new research area. (Basias & Pollalis, 2018.) Although AI is not a new concept, the recent developments made in the field of GenAI and calls for its responsible governance have raised interest in research in a new way.

Typically, a research question that is answered through the qualitative research approach starts with a word what, how, when or where (Basias & Pollalis, 2018). The research questions RQ1 and RQ2 presented in the introduction of this thesis are fitting for this requirement. The goal is to describe these phenomena, GenAI challenges and governance, through the perspective of the interviewed experts. It is thus important to recognize that the results of this thesis are interpreted through the subjective experiences of them.

This thesis bases its research to grounded theory approach. This methodology requires constant comparison, which means that the empirical data is analysed through finding similarities and differences between activities. Through comparing, the researcher can form a concept. This approach utilizes both induction and deduction and often verification in the theory development process. (Eriksson & Kovalainen, 2008.)

5.2 Empirical data: interviews with AI experts

5.2.1 Data collection

This thesis uses the expert interview method for empirical data collection. An expert is someone who has relevant information or has been involved in a process related to the research problem at hand (Soest, 2023). This process is important to define properly to find the right people for this research. An expert in the artificial intelligence field could have important first-hand information that cannot be found from the literature. For this research, an expert is someone who works in a leading role in an organization that has

utilized generative AI in their operations or projects and who has general knowledge about artificial intelligence and its recent developments through their role.

Ten interviews were scheduled for May 2024, of which I conducted nine interviews in total using remote connections. One interviewee did not show up for the interview occasion. The duration of one interview ranged from 35 to 44 minutes. All the interviewees worked in large organizations based on the number of personnel. Experts worked in a leading role in various fields, like IT, healthcare, logistics and education. I met all the interviewees for the first time during the interview occasions and scheduled these interviews via email exchange with them beforehand. Detailed information about each interview is presented below in table 1.

Table 1 Interview information

Interviewee	Title	Industry description	Interview duration
I1	Head of ICT	Broadcasting	35 min
I2	Chief Executive Officer	IT-services	35 min
I3	Chief Product Officer	HR	43 min
I4	Chief Digital Officer	Higher education	38 min
I5	Data & Analytics Director	Logistics	42 min
I6	Chief Information Officer	Healthcare	44 min
I7	Chief Digital Officer	Public service	40 min
I8	Chief Executive Officer	Data & technology services	38 min
I9	Senior Vice President	IT-services	38 min

The experts were interviewed with open ended questions for the purpose of gathering information about their experiences, views, and perspectives of concrete governance practices and perceived challenges of GenAI for their organization. The interview type was semi-structured. This means that an incomplete script was prepared beforehand and room for improvisation was left for the interview occasion (Myers & Newman, 2007). The script included an opening, introduction, key questions for each theme covered and a closing but I was also prepared to engage in a conversation surrounding the themes.

There were three main themes covered during the interviews: The use of AI in the organization, challenges of AI in the organization and governance of AI in the organization. Like said, I had prepared questions under each theme to guide the conversation during the interviews. This was easier for me since this was the first time I had interviewed anyone. Nevertheless, the goal was to foster conversation under those three main themes and not to rely too much on the prepared questions even though they helped me to stay in topic and guide the conversation when needed. The conversations went well and, at least in my perspective, the interviewees had a lot of free space to express their thoughts. The interviews were held in Finnish, so the questions prepared were also in Finnish. If desired, the prepared question form is available upon request from the author.

By interviewing experts, one can learn about decisions made in practice and find connections from the data gathered. It is said that the goal of this method is to gather specified information about a specific problem, development, or event. Problems of this method and data gathering include not having clear specifications for selecting the interviewees, not exploring and showcasing the biases of the interviewees, and not gathering the data systematically. (Soest, 2023.) Other pitfalls have been recognized to be for example lack of trust or time and artificiality (Myers & Newman, 2007). Since I was a stranger to these experts, which can lead to artificiality or lack of trust according to Myers and Newman (2007), some information considered to be “sensitive” for the organizations could have been left unsaid. I tried to create an open environment by being polite and creating a respectful atmosphere with for example introducing myself, explaining anonymity and purpose of this research, and commenting the things the interviewees said during the interviews. There was no strict time limit under any discussion theme, even though the occasions were scheduled to be one hour long. I tried to emphasize that the interviewees could take their time answering and were allowed to think about their answers since an hour was plenty of time to go over the three themes.

5.2.2 Data analysis

The data gathered from the interviews can be analysed by organizing the information into first order codes by combining citations and finding similarities between the answers. After this the data is analysed further into second order themes and thirdly combined into further aggregate dimensions. (Gioia et al., 2013.) In other words, I used

the Gioia methodology for analysing the data. I had a goal of constructing a clear visual representation of the means of GenAI governance. The goal of the analysis process is to get deep into the interpretation of a phenomena, form coherent conclusions from the data gathered, and produce a clear visual representation of the data.

I started this research process by familiarizing myself in literature surrounding my research topic and concluding the small literature review described in chapter 3. After this I prepared the interview themes and questions and contacted possible interviewees via email. I scheduled interviews for May 2024 and was ready with them by the end of that month.

After interviewing, I transcribed the interview recordings to written text using the university owned transcribing AI tool. After transcribing every recording, I combined the individual text files into one large file and started to read through them. I fixed spelling mistakes made by the transcribing tool utilizing the recordings and highlighted interesting points from this text with different colours by the themes. Second time around reading, I deleted any text not relating to the topic such as introductions, filler words, background descriptions, talk about arrangements, and other text not important for the topic at hand.

While reading through the material, I combined matching points made by the interviewees together and gathered citations that mentioned them. Important factor to note is that since the interviews were held in Finnish, I translated these citations and category names myself. Therefore, it is a possibility, although not intentional, that something could be lost in translation or not be expressed exactly the same way in these different languages. These gathered citations started to form the first order codes. I organized the first order codes into second order categories by thinking about the connecting and divisive aspects between them. This part requires a lot of researcher's own interpretation (Gioia et al., 2013). After recognizing these categories, I composed two main aggregate dimensions that these second order categories would fit in. This categorization formed the main contribution of this research, the data structure about the governance means of ethical challenges of GenAI presented in figure 6. While forming the data structure, I gathered citations about challenges the interviewees recognized and those are summarized in figure 5.

5.3 Research ethics

The interviewees were asked permission to take part in the research via email, were informed of the voluntary participation and about the storing and processing of the information given during the interviews. The email sent to them contained information about the purpose of this research and themes covered during the interview so they could be prepared to talk about the research topics. The interviewees were informed about the recording of the interview sessions before turning on the recording and offered the possibility to pause the process at any time.

The data gathered from the interviews (recordings of the meetings) I stored onto university Seafile cloud service. Each recording was transcribed into written text using the university owned transcribing tool. The tool, powered by OpenWhisper large-v3 AI, can create a text file of audio or video speech. The service runs inside the university network, and no data is sent to outside services or stored. These text files I stored onto Seafile as well.

GenAI was not used for content creation in this thesis. Some sentences in this thesis were given to ChatGPT for language checks and scientific formulation. Otherwise, everything was produced by the author and not created with AI.

The anonymity of the interviewees is preserved by not closing any identifiable organization information such as the organization or interviewee names. The industries have been described vaguely based on the description the interviewees themselves gave during the interview. Citations picked from the interviews are presented so that there would not be a way of recognizing the person that had given them or their organization.

One important thing is to report openly about every stage of the research process and include relevant materials made in the process into the final thesis report (like the code chart and citations), so that the transparency, credibility, and reliability of the research is maintained. This is what I have also done by including relevant materials to the appendices found at the end of this thesis.

6 Results

6.1 Background

Many interviewees highlighted that nowadays when talking about AI, people are often directly meaning GenAI and rarely include the 'traditional' type AI technologies like recommendation algorithms in these discussions. Many interviewees mentioned that they would rather see more opportunities than threats with GenAI technology usage and therefore thinking about the challenges felt strange for some at first. They expressed that they would not want to start designing AI processes by thinking first about the possible challenges or concerns the technology might cause.

The rise of ChatGPT was seen as an awareness, interest, and excitement builder for each organization. In a way, as a starting point for wider GenAI utilization. In some organizations this was what prompted them to start developing their own LLMs. One interviewee mentioned that only after the release of ChatGPT they had prioritized ethical instructions with AI. Seven out of nine interviewees mentioned having CoPilot as a suggested tool in their organization for GenAI use generally. Many also mentioned having restrictions for ChatGPT use for work nowadays.

It is important to note that all interviewed experts came from different types of organizations. GenAI can be applied to many different use cases and the organizations used it in many ways like for example in customer service, coding and testing assistance, illustrations, and document summarization. As interviewee 6 pointed out:

> "Important difference is in the use cases. It is different to utilize AI for making decisions that concern humans or summarize Teams conversations that do not influence anyone." I6

The utilization of GenAI depended also on the industry. For example, in the medical or public industries it was seen that with GenAI not much innovation can be done due to strict regulation. Then on the other hand, organizations in the IT field saw more possibilities and already had some services utilizing the technology. Still no central or essential use cases for GenAI that would be consistently in use or would have made significant improvements to efficiency had been implemented in any of the organizations or were not mentioned during the interviews. Many had projects that were

in the pilot stage at the time of these interviews and one interviewee mentioned having 30% of customer service cases handled with a bot utilizing GenAI.

6.2 Challenges of genAI in organizational contexts

The first research question for this thesis intended to find out ethical challenges of GenAI that organizations currently face. When discussing about the topic of GenAI challenges for their organizations, the interviewed experts came up with many challenges, ethical and others, which I gathered and categorized together during the analysis process. In figure 5 we can see these mentioned challenges and how many interviewees pointed them out. Later, in section 6.2.9, these challenges are divided into ethical and other organizational challenges (table 2) based on a comparison to the literature review. Clearly the most mentioned challenge was information security and safety. 17 challenges were brought up all together and all of these are explored in the next sections. Full table of citations, that are the basis for these categories, can be found from appendix 2.

Figure 5 Organizational GenAI challenges

6.2.1 Information safety and security

Almost every interviewee mentioned information safety and security (I1, I2, I3, I4, I6, I7, I8, I9) as a challenge of GenAI. This reflects the literature review results, where

privacy and security were the second most mentioned ethical challenge. Security was a concern from many different angles. It was a challenge to know where the information goes if it is given to an AI tool and what the model uses the information for, as described by interviewee 1:

> "If we use AI, does it stay inside or will our information leak. It will gather information about us for learning purposes but how can we know that the information does not leak into public use." I1

The concern for privacy and security was also on different levels comparing what industry the expert worked in. If an organization operated with highly sensitive information, like in recruitment or healthcare, they were more likely to be challenged with AI tools to keep the information safe and were more hesitant to utilize GenAI tools because of this. Although the interviewees were experts in their field, it was not always clear what practices are safe and what is allowed to do with the technology, as was pointed out by interviewee 3:

> "We operate closely with personal information and recruitment and such so understandably one must be careful. -- the most common question is that if something is allowed to do regarding safety. Which is sometimes very hard even for me to figure out an answer to even though I have familiarized myself with information security instructions." I3

On the other hand, one interviewee pointed out that the commercial services have the same privacy challenges be it AI or other technology that is being used from them. The risk can be more apparent if an organization would develop their own tools or utilizes open AI solutions.

> "Then there are the information security aspects. But again, the standard services like Microsoft, if you can use email in their cloud, you can use their AI services. They will leak all the same. The security aspect is more of a challenge if we use our own models or open models and if the information is secure enough there." I9

6.2.2 Level of human competence and rapid development

The second most mentioned challenge was the level of human competence (I3, I4, I5, I7, I8). This category included if people are generally aware of the possibilities, permissions, ethical aspects, and boundaries of GenAI technologies and are people interested in them. Competence relating to GenAI has been described in the literature to cover for example knowledge about GenAI models and the capacity and limitations of

these tools, skills to use it, ability to detect AI created content, skills of prompting and knowledge of contexts, ethical and legal aspects (Annapureddy et al., 2024). Sometimes people are not able to comprehend what is possible to do with GenAI nor are they necessarily even willing to do so.

> "The people that work with these things are in a bubble. Large part of people do not even necessarily care about AI. And it needs to be taken into consideration when we interact or create services." I3

> "In our industry, every middle-aged man and woman should always be awake and interested. Some people think that this will pass, but I have said that it might be that this becomes the daily routine. We cannot think that this comes and goes. It is already here." I8

Competence can, in addition to knowhow, relate to courage of using the technology in the right way, as pointed out by interviewee 7:

> "With competence I do not mean technical competence, but more like doubt or hesitation about if something is permissible or ethical." I7

The position of the third most mentioned challenge was tied between four challenges: rapid development, regulation as a limiting factor, trustworthiness, and misinformation. The latter three are explored in the later sections but the first one, rapid development (I3, I4, I5, I8), can be associated with competence. The fast evolution of AI makes it hard for the human skills to evolve at the same pace. Interviewee 3 backed this up by saying that even the professionals have a hard time keeping up with the advancements:

> "The field is so multidimensional, and it develops quickly. Even the people that do this for a living can be unsure of the current situation and developments." I3

Since everything is moving so fast, according to interviewee 5, it is challenging even for the leading companies, and thus everyone else, to follow the progress. Things are first developed and later documented or modified if concerns or problems occur.

> "We try to follow what is coming and have noticed that sometimes even Microsoft, who typically quite well takes care of things, does not have time to document everything. Things are implemented, and later we are told what has been done. It is a challenge to follow." I5

One challenge related to rapid development is that clients or users are much faster to deploy GenAI solutions, which are freely available online, than the organizations can provide safely through their services. The consumers can expect certain level of

expertise from the organizations with GenAI solutions since those are freely available on the market already. Interviewee 4 explained this challenge as follows:

> "We are always a little bit behind. Our users, in our case the staff and students, have already used GenAI by themselves with free versions online and afterwards it raises questions about what we should as an organization do about it. On the other hand, we get questions why we don't already have it since they are available elsewhere." I4

However, the organizations feel like they cannot afford to stay behind with the progress even though it is a challenge to follow. Interviewee 8 pointed out, that if one falls behind with the progress, they could potentially lose in efficiency, visionary and many more value adding aspects.

6.2.3 Regulation as a limiting factor

Four interviewees (I1, I2, I5, I9) were challenged by regulation limiting the possible innovativeness of GenAI. It was a concern if the EU is regulating too much compared to other parts of the world and thus falling behind in development and utilization of GenAI. Interviewee 1 summarized this by saying:

> "Regulation might be done for good purposes but if for example China, Russia or USA are not with it, is it right that we are? Also, Great Britain that does not belong in the EU. We have quite a large market outside of these regulations. -- Are we limiting innovation and are we going to fall behind them?" I1

For many it felt wrong that one would start developing GenAI solutions by thinking about the risks or threats first, which regulation often promotes to do, and for this reason some of the possibilities that GenAI offers could go unnoticed. Interviewee 2 was as concerned as interviewee 1 about the limitations that regulation brings:

> "We easily start from the risks and threats and does the GDPR or data act or AI act allow us to use AI for something and that can easily kill the innovation. -- I am very conflicted about governing beforehand since it kills innovation, and we are falling behind here in Finland and Europe from the Americans and Chinese." I2

One challenge for some organizations is that regulation differs between individual countries as well. Legislation, standards, and regulation also develop all the time and multicultural organizations must be very alert and active followers to be able to keep up with this changing field.

> “Our field has many different regulations around Europe. Different regulations between countries and a lot of documentation and different models. We need to do double or even triple checks if the tools really work or if we can publish them internally or even externally.” I5

6.2.4 Trustworthiness and misinformation

Trustworthiness (I1, I3, I5, I6) and misinformation (I1, I4, I7, I8) can go hand in hand as a challenge for organizations. Since GenAI can produce faulted information, can it be trusted to make decisions or be involved in important processes? The possibility for misinformation makes it hard to give decision-making power for AI tools. The interviewees did not see it as a possibility to give such authority to AI for this reason.

> “We cannot allow it to make big decisions. It might hallucinate or give wrong advice, which would be wrong for our students.” I4

Like explored in the literature review, the experts also recognized that misinformation results from faulty data behind the GenAI model. There was scepticism among the experts about the credibility of answers GenAI provides. It was considered as a challenge to recognize facts from fiction from these outputs.

> "If the data behind it is bad, then the result will be bad. The algorithm can produce a wrong estimate or results. This might very well be a possibility for us in some applications." I7

> "You can not blindly think that the answers that it gives are necessarily facts. The information it gives needs to be checked." I8

On the other hand, few interviewees pointed out that the conclusion that a machine cannot be responsible for making decisions is somewhat flawed, as it has been proven to make better decisions than humans in some cases. Regarding the black box and explainability of AI, Interviewee 3 compared it to a human explaining the thought processes behind its decision making. Why would it thus be ethically challenging to give AI decision-making authority if it makes better decisions, and this process is as explainable than the human decision-making process?

> “Is it more dangerous for the machine to make decisions? It is quite a funny question, since it is quite clearly testified that the machine makes better choices than a human.” I6

> “On the other hand, you cannot be sure with humans either. You can ask the reasons behind someone’s decisions, and they answer something, but is it

> really the biggest factor that influenced the decision? You don't know that." I3

6.2.5 Transparency

Three interviewees mentioned transparency (I3, I4, I6) aspects as a challenge. Mostly this challenge related to AI being a black box and the lack of human control of the technology. It was seen that a part of the problem with transparency of AI is that humans would surrender part of their control to a machine. Interviewee 3 brought up that the question is not whether AI makes bad decisions, the challenge is transparency and the unknown of how it comes to a conclusion:

> "It is not black and white that AI would be worse, or it would be bad at the humane parts. Maybe the biggest challenge with it is that we do not know on what basis it does things. It is a black box and if we used it as a tool to make decisions, we would surrender part of our power to it." I3

The black box makes it hard for organizations to rationalize and justify why an AI solution is needed and developed. Since you cannot clearly state how the tool works, it is hard to get it certified. Interviewee 6 mentioned this hardship in AI development:

> "It is hard for us to develop AI solutions and get them certified or accepted since it is hard to rationalize where the solutions come from, it is like a black box." I6

6.2.6 Malicious activities

Three interviewees also brought up the possibility of GenAI being used for malicious activities (I1, I8, I9). Criminals and other malicious entities are quick to deploy AI and GenAI solutions to attack organizations and this weakens safety and security. Interviewee 1 was concerned about the fast criminal deployment of AI technologies:

> "All these new innovations are firstly in the hands of criminals or quick profit organizations. These will use the technology ruthlessly before any limitations or working information safety is in place." I1

Since the experts worked in a leading role, it can be a concern for them that GenAI could enable impersonation and be used to copy someones voice, look, and mannerisms. These malicious acts could be in a form of for example videos or recorded messages sent to the organizations. A challenge would be to recognize these attempts. Interviewee 8 brought this up with an example:

> “I will never send an email, recorded teams call or a message to accept invoices or anything. Those things can happen these days. My face or voice can be copied. For example take my moves and send them to our finances that they should accept a million worth of invoice that has been sent to us.” I8

The organizations are challenged by finding solutions to strenghten their safety protocols to combat the possible maliciousness of an attacker that uses AI or GenAI. Interviewee 9 thinks that it will be a battle between AIs on the good side and the bad side:

> “What is a threat and is already real is hacking and the safety side. We can see that there is AI based attack methods -- We need solutions at the good side to combat these. It will be a battle between artificial intelligences. The malicious one tries to be smarter than the defendant and both will be using AI.” I9

6.2.7 AI hype

The big hype of AI (I1, I2, I5) itself was perceived as a challenge. The rise of GenAI technologies was felt to even further the hype and create overall excitement even amongst those that have not typically been interested in these types of technologies. This might also cause unrealistic expectations and demands in some cases. Organizations might try to calm down the possible over excitement that the hype can bring, as expressed by interviewee 1:

> “In some way we have tried to calm down the hype. This is just a little more advanced support tool to find information. It will not replace anyones job at our workplace but it will make working easier.” I1

The big hype can bury the real possibilities and values GenAI could provide for the organizations. When organizations develop GenAI solutions in the heat of the hype, the real value and focus could be buried under this development that might be made just for the sake of development. Interviewee 5 was concerned about the value aspect:

> “The hype is strong. AI is everywhere and it saves the businesses and the world. But in practice we need it to produce added value and efficiency. -- Often people start to develop technical solutions too quickly and do not use enough time to think about the value.” I5

6.2.8 The rest of the challenges

The last eight GenAI challenges were mentioned by one or two interviewees: corporate dominance (I4), proliferation of materials (I6), costs (I9), responsibility and accountability (I3, I7) language barriers (Finnish) (I1, I3), AI pervasiveness (I2, I4), bias (I3, I7) and authorship and ownership (I4, I9). Corporate dominance was referred as GenAI solutions staying in one big corporations' hands and smaller organizations not being able to enter the market. Proliferation of materials refers to when everyone has access to use GenAI tools, different types of documents and data multiplies, and the data controlling becomes much more difficult. The costs of GenAI solutions were recognized as a challenge. Cost distribution, smaller organizations' ability to participate and future foresight of cost increase were discussed about relating to this issue.

Responsibility and accountability were considered a challenge by few interviewees. It was on the other hand recognized by many that accountability of the outcomes of AI solutions should always be on the human using the technology. Most did not see it as a possibility to give AI any authority to make decisions. Therefore, responsibility of AI actions would be allocated to the people in charge if used in operations and then accountability was not felt to be directly a challenge. The few interviewees that saw this as a challenge pondered responsibility allocation possibilities in their organizations:

> "One question is about ownership or rather recognizing who is a part of the process. We always have a main user or an owner for a technology." I7

> "One downside of it *(=being multienvironmental and not having a centralised controlling entity*) is that it is on every single business leaders' responsibility to take care that we don't operate illegally or unethically." I3

Few were challenged by the linguistic challenges of GenAI. In time of these interviews, the tools were not operating with the Finnish language as smoothly as the experts would have wished for:

> "We operate in Finland in Finnish with mostly Finnish customers. The tools are not yet able to do that. -- One must often think carefully what it wants to say. -- It is the biggest challenge if you want to produce text in a Finnish speaking environment." I3

AI pervasiveness was considered to be a challenge by few interviewees. GenAI has only furthered this by its wide applicability and adaptability to different use cases. This challenges the organizations again to find the right angle and focus for the use of the

technology. Interviewee 4 felt that the pervasiveness of GenAI specifically created the need for outlines and policies for AI:

> "Before GenAI, there was no need to make outlines or policies about AI. It was not as pervasive. Machine learning was a thing but not in as central use cases as GenAI is in now." I4

Although bias was the most mentioned challenge in the literature review results, only two interviewees mentioned it explicitly as a challenge for them. Bias can be tied also to misinformation, which was mentioned more by the experts. It might be that the experts are more concerned with using proven factually wrong information rather than biased content, even though this was recognized to be an ethical concern to some extent. Interviewee 3 mentioned that GenAI is used as a supporting tool rather than the one making decisions, so the job of erasing bias is more on the human even though it can be hard to detect sometimes:

> "Bias can be seen, and it is based on the tools' training data. But it is a tool that cannot operate its user. You cannot make decisions in recruitment business with AI, it can only be in assisting role. -- If AI produces answers that include some type of distortion, it can be hard to notice in the rush of everyday life." I3

6.2.9 Summary of the challenges

Table 2 Categorization of challenges to ethical and others

Ethical challenges	**Other challenges**
Information safety and security	Level of human competence
Trustworthiness	Rapid development
Misinformation	Regulation as a limiting factor
Transparency	AI Hype
Malicious activities	AI pervasiveness
Authorship and ownership	Costs
Bias	Proliferation of materials
Responsibility and accountability	
Corporate dominance	

Language barriers (Finnish)	

Many challenges faced by the organizations resonate with the ethical challenges explored previously in the literature review. Information security was a top challenge in both the interviews and in the literature. Trustworthiness, misinformation, transparency and explainability, malicious activities, authorship and ownership, bias, responsibility and accountability, corporate dominance (as part of social challenges in the literature), and language barriers (as part of user experience related challenges in the literature) were all present in the interviews as well as in the literature. The challenges that surfaced during the interviews can be categorized into two categories: ethical challenges, recognized both the experts and the literature, and other challenges that were not present in the ethical challenges literature review (table 2).

What stood out in the interviews, were the other, not directly ethical, challenges such as rapid development and limiting regulation. AI hype and pervasiveness, costs and proliferation of materials were also something new compared to the literature review. In a way these all relate to the perspective, recognized also in the literature, that GenAI technology has evolved in a fast pace, is applicable to variety of contexts and is made to be easy to use for everyone. It might be that these surfaced aspects are not typically considered as ethical challenges, in which the literature review earlier and the first research question were more focused on. It seems like the organizations are challenged also in many other ways than purely ethically with GenAI technology and these challenges are important to consider in the GenAI governance field as well.

The human development or competence aspect was seen differently by the experts and the literature, which is the reason why it is situated to the other challenges category in table 2. The ethical perspective emphasized the evolution of human skills, and the impact AI could have on human development. The interviewees were more concerned about if humans are able to utilize the technology correctly and keep up with the fast development rather than the effects GenAI could have for the human skills.

The socio-economic challenges, which were discussed in the literature review, were present in the interviews as well in a form of job displacement discussion. Contrary to the literature, the experts voiced that they do not think jobs will be compromised by this

technology in their organizations and did not see it as a plausible ethical challenge for them. It is possible that since these experts want to rather see possibilities and value in this technology than threats or challenges, they see GenAI more as transformative than interceptive for the workforce. The ecological challenges were not discussed during the interviews, but as it was mentioned in the literature, those are not yet widely acknowledged challenges and could gain more attention as the technology develops and requires more computational power.

In conclusion, organizations face many challenges, ethical and others, with GenAI technology ranging from rapid evolution of the technology to faulted content. Mainly these challenges relate to ethical, innovative, value-adding, goal oriented and safe usage of the technology. How organizations could govern GenAI to reduce these challenges is discussed in the next section.

6.3 Governance means of GenAI

The second research question aimed to explore how organizations govern GenAI and take the previously mentioned challenges into consideration in this process. As a result of the analysis process, I combined these governance means into a data structure that can be seen in figure 6. The first order codes are directly taken from the interviewees' citations that can be read in more detail in appendix 3. The second order categories are categorizations of the first order codes.

I categorized the means of ethical GenAI governance into two aggregate dimensions: means related to stakeholders and means related to processes. I recognized that inside the organizations these two were the main areas that the governance practices could be applied to. Means related to processes describe the actions that can be applied to organizational processes to ensure ethical GenAI use in operations. Means related to stakeholders cover ethical signals coming from outside of the organization such as regulation, customer expectations and competitors but also what are the actions internally that organizations take to guide their employees to follow ethical GenAI use. These categories are explained more in detail with citations from the interviewees in the sections below.

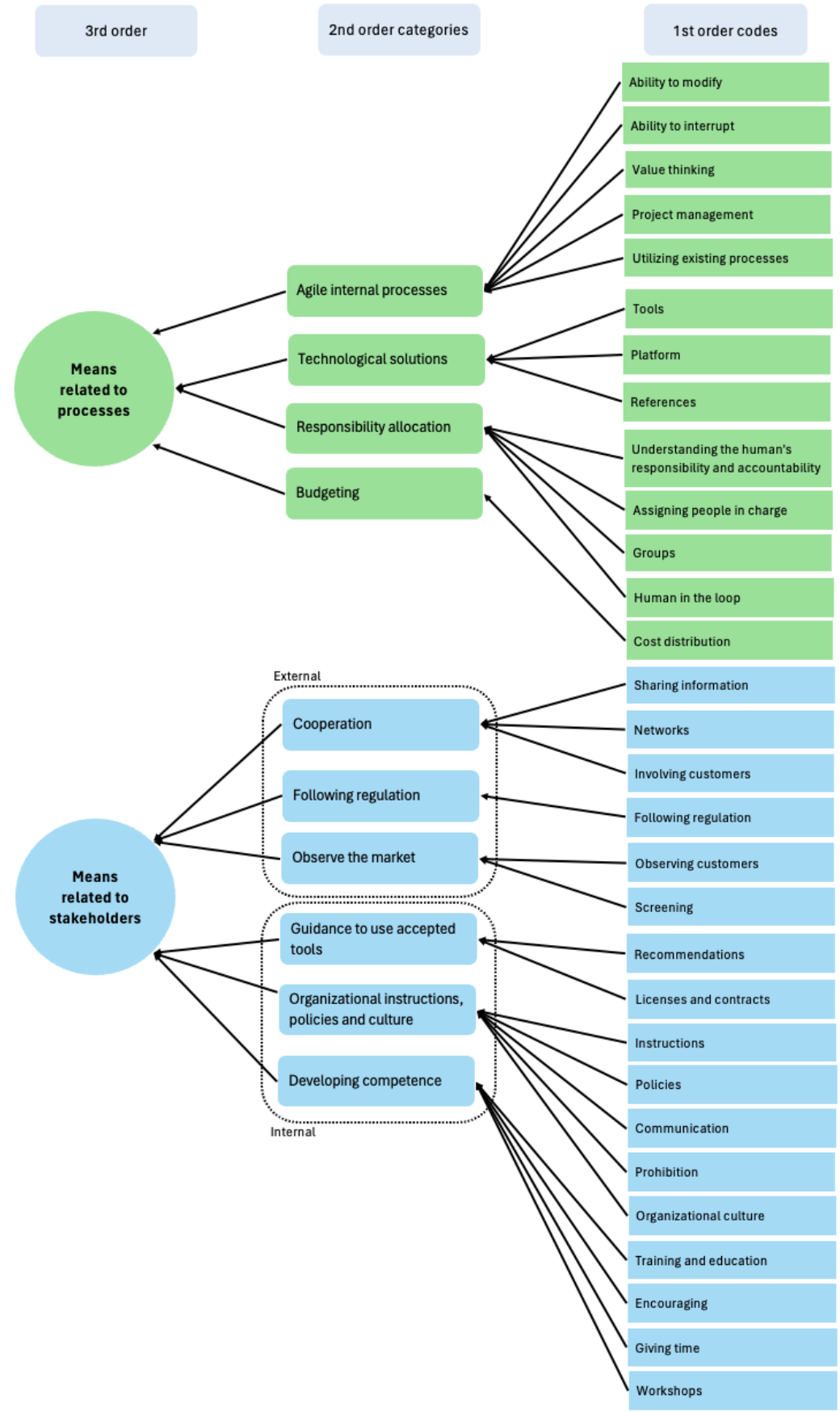

Figure 6 Organizational governance means of GenAI

6.3.1 Means related to processes

This dimension has four categories: agile internal processes, responsibility allocation, budgeting, and technological solutions. These all have in common that they are action guiding AI processes inside the organization. These include for example some form of project management practices, assessments, tools and decisions to guide AI use inside the organization.

Agile internal processes category comprises *ability to modify processes (I3), ability to interrupt (I5), value thinking (I5), project management (I5, I9) and utilizing existing processes (I7).* Agile processes can respond to the rapid developments made in the AI field and would be able to react to any underlying consequences these developments could bring with them. It is important to design organizational processes in a way that they can follow this rapidly evolving field.

Processes utilizing AI and GenAI should be flexible in a sense that if they do not produce value for the organization, or they have underlying ethical or lawful implications, the processes would be modifiable or interruptible. Organizational processes should be agile also in a way that if AI is needed, the processes are easily modified to cater such change.

> "We can change or modify our processes if they become more data driven or heavily relied on AI." I3

> "We need to think about the added value and have the ability to stop projects as quickly as possible if the value the project produces is not positive. This can often be hard for an organization since many wants to develop things and create something new. But if suddenly something does not add value, the organization must be able to interrupt it. -- We need to enforce the value thinking into AI projects." I5

GenAI projects need structure according to the experts. Such structure could be achieved through project management techniques and utilizing already existing procedural methods, such as gates, assessments, reviews, and checklists. An organization should thus choose an appropriate project management method and create structure for GenAI utilization in operations.

> "We have gates that the project must go through. One is the value case gate and if the project does not pass it, it will be stopped. After that there is governance review which includes information security and data protection and ethics. Then we evaluate what is actually done here with experts. We

> have also review sessions. -- It is not easy but we try to do this structurally. Create processes and structure because otherwise this will go out of hand." I5

> "In every project we go through these information checklists and get needed approvals. We make sure that the tool is built in the process. -- It needs to be built in there already and the solutions need to be designed safe." I9

> "If we take something into use, we conduct a risk assesment and the same thing is with AI. We utilize existing processes and decision points and checkpoints." I7

Responsibility allocation category includes aspects such as *understanding the humans' responsibility and accountability (I2, I3, I6), assigning people in charge (I7), groups (I1, I4, I6, I8), and human in the loop (I7, I9).* These themes have in common that they are ways to determine who is responsible for AI processes and GenAI technology utilization in the organization. Allocating responsibility can help with accountability and ownership issues as well as make it clear who is the one responsible for the technology and knows its operational details in the organization.

The accountability of GenAI sparked conversation about the *human responsibility,* and how at the end of the day responsibility of the use of AI is on the human. As previously mentioned, the experts felt like accountability should always be on the human that uses the technology, and AI could not be given any responsibility itself. Understanding the responsibility and accountability of humans in the processes where GenAI is used and incorporating this thinking into them aids with many ethical challenges.

> "It is always the human's responsibility in my opinion. All of the solutions will be built in a way that end of the day the human is responsible. If decisions are delegated to AI then the human has done so and will be accountable of the consequences." I2

> "We are not even imagining letting the machine alone give diagnosis. It produces a suggestion what could be done and the human in the end is the one responsible." I6

One way to determine responsibility of GenAI inside an organization is to assign the people in charge of these processes. This means the action of recognizing the people that have a part in the GenAI process and delegating responsibilities to them. Specific roles could be assigned. Examples of this are that the technology could have a main user and AI processes could be carried out with human in the loop approach (for further reading of this practice see for example: Mosqueira-Rey et al., 2023).

> "We always have an owner or main user for every technology. Regarding AI we have thought that we might need, especially if the solution is human-in-the loop type AI, to recognize the people that are included in it." I7

> "The company policy is that there will always be human in the loop. The human monitors and when there is some risk the person is in the process." I9

Groups category refers to different entities inside an organization that are responsible for AI design and use in the organization in some way. These were described as steering groups or working groups among the interviewees. The groups can consist people from different depratments and levels of organization or perhaps just IT personnel. The purpose of these groups could be to map the field of AI, coordinate the use of AI inside the organization, distribute information and form or implement AI strategy or policies.

> "We have this steering group that coordinates everything about AI. They have listings of the AI solutions we have and at the same time they oversee that we have coherent AI use in the organization. -- The same group discusses what has been done elsewhere and starts pilot projects. – This group has made sure that we follow the instructions and principles that we have together agreed upon. -- It has members of each organization department and those members' job is to carry forward information about AI to their own teams." I1

> "We are in the midst of founding an AI steering group and a working group. The purpose would be to outline an AI policy for the whole organization and form an AI strategy. To think how can we utilize AI and for what use-cases." I4

> "We have this AI working group, which has our IT personnel in it. -- They have for example made our policy document and are the people that think about these things." I6

Budgeting category comprises of one aspect: *cost distribution* (I2, I4). Since organizations can be challenged by the costs of GenAI technologies, they need to govern their expenses and come up with a cost distribution model for GenAI use in their processes. Especially if an organization decides to utilize commercial services, like Copilot, they must think about who they are able to provide licenses.

> "Budgeting is one thing. How much will it cost if we for example buy licenses for Copilot for every employee?" I2

> "One way to govern is to govern the expenses. -- It needs to be thought out with what cost distribution model we can offer the tools and to whom." I4

Technological solutions category comprises *tools (I4), platform (I6), and references (I9)*. Although technological tools are a part of AI governance, according to Mäntymäki and others' (2022) definition, not many examples surfaced during the interviews. Perhaps not many technological tools have yet been taken in to use to govern GenAI, or the experts were not aware of them during this interview process. Technological solutions can be incorporated into the AI model or process like selecting the platform where the AI solution runs or adding references in the application or be separate technological tools like the Turnitin plagiarism detection system.

One example of a tool, that aids in authorship and trustworthiness challenges, was the use of Turnitin plagiarism detection system that can recognize AI created content. This technology is in use for example in educational institutes for recognizing GenAI use in schoolwork.

> "Nowadays Turnitin recognizes also text made by AI and thus prevents plagiarism." I4

Especially from the information security and safety point of view, it is essential for the organizations to think about the platform that GenAI technologies can be executed on. This might be especially important if developing their own GenAI solutions.

> "On which platform can the services run. Can they be on public cloud or in their own spaces on our own computers?" I6

References implemented into GenAI tools or processes can be important for recognizing misinformation and advancing trustworthiness. One interviewee pointed out that the use of references, provided information where the GenAI tool gets its information from, is important when one wants to fact check GenAI responses.

> "I see that an important feature is that the tool gives references and you can find the original documents yourself if you need to." I9

6.3.2 Means related to stakeholders

This dimension has six categories divided into internal and external stakeholders. Themes relating to external stakeholders are cooperation, following regulation and observing the market. Internal stakeholder themes are guidance to use accepted tools, organizational instructions, policies, and culture, and developing competence.

Cooperation category comprises *sharing information (I1, I7), networks (I4) and involving customers (I6).* These have in common that they are action aimed towards involving entities outside the organization for the purpose of working together towards proper use of GenAI technology. Such collaboration can aid with developing organizational competence, fostering innovation, and keeping up with the recent developments of GenAI technology.

Cooperation can be done with other operators through networks and sharing information to one another. Especially if organizations operate in cooperative industries, like some public organizations or educational institutes, they could share information and work together to map the field of GenAI. This aspect can help with multiple challenges like the rapid development, hype, competence, and pervasiveness of AI, since organizations can combine expertise and gather multiple insights to better their own AI use.

> "We had this AI day that we invited our partners to present different use cases. We have tried to share and educate information." I1

> "We co-operate with other public administrators. We are in that way in a good position that we do not have to compete with others and we can work together." I7

> "We are part of an IT-leaders network which holds meetings about AI related things. The purpose is to map the field together, what does the AI avalanche mean for us and what should be done and outlined by the IT departments. At the same time I noticed how very different perspectives organizations have about AI." I4

Cooperation can include also involving customers and making sure GenAI use in the organization is in line with their expectations and demands. This was expressed by an interviewee from the healthcare industry which is a closely customer centric field. Keeping customer perspective with AI process development is important for mitigating challenges such as rapid development and responsibility demands.

> "Keeping the customers with the discussions is important and hearing their needs. Our doctors are worried that they lose the connections with their patients and it can be harmful for the patient. It is not useful to leave patients to be taken care of by a machine alone." I6

Following regulation (I1, I2, I5, I9) is a category by itself. Regulations that were mentioned to affect GenAI use in organizations were the European AI Act, Nis-2 directive, GDPR and country specific regulations. Although regulation raised concerns

about its restrictive nature and impact on innovativeness, it was seen as a necessary guide for AI governance in organizations. Understanding these regulations and what they mean for the organization is essential for ethical innovation and utilization.

> "We have read through the AI act and the next step is to understand it. What it means for us and how will we react to it. How to take it into consideration in our policies and instructions. -- Usually, we need to consider other countries' regulations as well." I5

> "We operate on a very regulated field, of course we follow quite strictly what is regulated by the law. -- We do not have a lot of our own freedom in that regard." I6

Observe the market category comprises *observing customers (I3) and screening (I5).* In addition to cooperating with customers, it is important to scan the behaviour of them and adapt to the changing behaviours with AI use. Mapping the market landscape by screening what others are doing can be a good idea for keeping up with the accelerating development and intensifying competition. Especially for smaller organisations with less resources, it might be a good idea to pay attention what the industry big players are up to.

> "We try to observe how our customers' activities are changing and how we must be able to respond to that." I3

> "We get a lot of signals from around the world that could happen and what are the risks -- We have technology related challenges, for which we do screening. We have to follow quite a lot what OpenAI or Google or Microsoft is doing in practice since they have such a rapid development speed and resources that we can not keep up with." I5

First category of the internal means related to stakeholders dimension is named *guidance to use accepted tools* which comprises *recommendations (I1, I3, I7, I8, I9) and licenses and contracts (I1, I4, I7)*. These both have the purpose of directing GenAI use inside the organization by bringing in accepted tools and giving guidance to follow accepted methods of GenAI utilization. By guiding employees to use tools that are evaluated and accepted, the organization gives permission for the employees to develop their competence in an environment that is found secure and as trustworthy as possible.

Recommendations are not necessarily official policies or instructions, but general guidance done by the organization to steer GenAI use in the desired direction. These can be general directions such as recommending certain tools or enabling the use of

these accepted tools through strategy and design. Many interviewees explained that they have recommended or even prohibited ChatGPT for work use due to for example security challenges and concerns.

> "We have recommended that people use CoPilot instead of ChatGPT" I1

> "We have tried to mitigate our AI use prohibition by bringing in tools that operate in a protected environment -- To some extent we want to make sure that suitable tools are available" I3

> "Our employees use systems that are accepted. They can not use anything that is not allowed. One employee can not take in to use any system that our architecture group has not approved of." I7

> "You must not use ChatGPT for work. Or you can but you can't put any company specific information in it. It is nowhere written but is commonly known. We have recommended this but it is not necessarily a policy." I8

Licenses and contracts are also a way of steering GenAI use inside the organization. By bringing in efficient tools that are evaluated and accepted by the organization, the use of potentially unsafe or misleading technologies for work can be minimized. Also by getting licenses or contracts with an experienced GenAI provider, the organizations, especially those that do not have their own resources for building their own solutions, can benefit from this technology. These technologies can be more reliable and easy to use but also the costs, value and integration factors need to be addressed if these solutions are bought outside the organization.

> "We have enabled AI use. We have extensive Microsoft contract in which came CoPilot which was easy for the staff to bring into use with M365 credentials." I4

> "We have made a decision to basically use AI always as a part of an app. We are not that kind of organization to have our own coders so we buy it as a part of Microsoft Office package or Power BI license or Power Platform Package. So it is built in there." I7

Organizational instructions, policies, and culture category comprises i*nstructions (I1, I3, I5, I8), policies (I2, I5, I6, I9), prohibition (I3, I5), organizational culture (I2) and communication (I5, I7)*. General policies and instructions can be aimed to tackle any challenge and steer the use of technology in the right direction. But as it has been addressed previously, principles and ethical guidelines rarely lead into concrete action themselves (see Whittlestone et al., 2019). However, this does not mean that creating instructions or policies is for nothing and organizations should not use these ways of

governance in practice. Instruction topics can range from how to use the technology, who to ask about it, what tools to use, how to follow regulation and ethical practice to customer interactions about GenAI.

> "We have a general AI guide for our employees which has been published to our intranet. It has guides about where to ask about AI and what to consider when using common AI tools. -- We have this general type of ethical instruction how AI should be used and what it sould not be used for." I1

> "We have a general policy and the same ethical policies and such that come from regulation. -- Information security and safety and other already existing policies need to be in line with the use of AI" I2

> "We have made an AI policy document where we have discussed in written form how things go in our organization. It is a very high-level document. -- the policies range from the decision makers' responsibility, how to justify the decisions, how to evaluate risks -- also how to keep the customer in the process, when to tell them about AI use and so on. -- Also examples where AI can be used." I6

Instructions and policies, in addition to general guides, can be formed as action specific rules. These rules can be aimed towards the entire staff or even to specific roles inside the organization, like interviewee 8 pointed out below.

> "We have made clear instructions for my own position. I will never send emails, recorded teams calls or messages to say for example to accept invoices." I8

> "We have instructions to use internal GPT or Microsoft products. Do not use public services without them being company approved through governance review." I5

> "We have AI policies regarding what tools one should use and is allowed to use. We try to standardize the things we do. Mostly our goal is that people do not just use anything without knowing how to use their own data and how the company data is being used." I5

An instruction could also be straight prohibition of certain practices or tools. These banning instructions could be aimed towards the use of certain tools or the use of them for a certain use case, like to ones handling sensitive personal information.

> "We have basically prohibited AI use in recruitment processes if one is not absolutely sure what they are doing with it." I3

> "We have blocked ChatGPT. Our employees are not allowed to use it." I5

Organizational culture and effective communication inside the organization were seen as essential building blocks for AI governance. Sharing information both outside and inside the organization seemed to be a recurring theme for every organization even though not explicitly mentioned as a governance mean when asked. Organizational values are what build the setting for AI governance.

> "I see that the company culture, leadership and values are the starting point for how and where AI is used." I2

> "We have tried to push communication in every possible channel. Tried to remind to be careful and not to try everything on the market." I5

> "We have these information events where we talk about AI and also we utilize every internal communication channel to raise awareness and distribute new information for every employee." I7

Developing competence category comprises *training and education (I2, I3, I5, I9), encouraging to try (I3, I6, I8), giving time (I5) and workshops (I4)*. This category has in common that all means aim to assist employees' ability to use GenAI technology. In doing so, organizations combat challenges such as safety, rapid development and misinformation in addition to improving human competence levels.

> "Developing know-how, learning, sharing information and encouraging to use the technology. Around this theme we educate, train and encourage our employees." I3

Training and education is essential for developing competence inside an organization. This can mean arranging courses, events and generally raising awareness about GenAI. Training can help setting realistic expectations what can and can not be done with AI and thus aid with the AI hype challenge. Themes of AI education could be for example data analytics, data security, general information about GenAI or AI systems.

> "We have an internal data academy to which every employee can take part in. We have courses relating to data analytics, AI and GenAI in there. Utilizing e-learning people can familiarize themselves with the subjects and deepen their knowledge based on their role and interests." I5

> "We have both mandatory and optional training. We have had many about AI for our company." I9

Encouraging employees to try GenAI tools was a recurring theme amongst the interviewees. Although promoting careful approach and that one should know what they

are doing when using GenAI, the experts wanted to encourage everyone to try different tools and develop competence that way. Systematically encouraging people to try and use these tools for their work can create excitement for the usage of these tools along with developing knowhow. Arranging specific times and places to try like Teams groups or workshops lower the treshold for employees to familiarize themselves with these technologies.

> "Our viewpoint has been more enabling than prohibitive. Remember to be careful but try it out. Absolutely do not do anything dumb but remember to use it to your benefit." I3

> "Encouraging to try CoPilot with limited people that use it, has created overall excitement and not just hype about the benefits of the technology. It is a part of training to understand what the possibilities of the technology are." I6

> "We want to encourage that people use it. If our customers use it, we have to too. We do not want to question it, we want to encourage people to try and learn." I8

> "We have arranged workshops and Teams groups to engourage staff to try AI out. We have had a physical room that one could come in where there has been a computer with a GPT tool. One does not have to put their own credentials in it or buy it but they could just try it out. There has been an expert present for help. This is to better the competence of our staff and to give them support to stay with the development." I4

One interviewee pointed out that a part of developing competence is allocating time for doing so. Giving dedicated time during the workday encourages people to familiarize themselves in these technologies. By arranging time during workdays for familiarizing oneself in the technology, the organization can keep on top of recent developments and in addition strenghten their employees' knowhow.

> "We have a dedicated team that does these things and has to follow actively. We allocate time by telling them to take 30 minutes of their day to Google and see what is going on. Use CoPilot or other similar tool and find new areas to use them on. There are no shortcuts to developing competence." I5

7 Discussion, limitations, and future research

7.1 Discussion

Many interviewees highlighted that they want to think about the possibilities and value GenAI could bring rather than envisioning ethics or responsibility challenges. This could indicate that the organizations' utilization of GenAI is driven by the possibility of value creation and efficiency improvements. Responsible GenAI use could start from organizational values and culture, like also expressed by the interviewees, but it can sometimes be a challenge to balance the ethical and value creating practices. Andrieux and others (2024) point out that organizations that place a high value on positive societal outcomes might resort to making trade-offs in a way that the utilization satisfies societal goals. The interviewees did not recognize trade-offs in their GenAI use during the interviews, but one mentioned that those could surface more in the future when the technology develops further. Lu and others (2024) expressed that existing agile development methods of AI processes mostly focus on business value and largely neglect the AI ethics principles. Through effective AI governance, organizations could ensure that the use of GenAI is both following ethical principles and adding value.

The ethical challenges of GenAI found in my research were aligned with the challenges that are discussed in the literature (see for example Al-kfairy et al., 2024) and explored in chapter 3 of this thesis. On the other hand, the interviewed experts recognized also other challenges than strictly ethical ones, which were not explored in the literature review. The other challenges include the rapid development of GenAI, limiting regulation, costs, proliferation of materials, AI hype and pervasiveness of the technology. These challenges were discussed further in section 6.2.9. Many of the surfaced challenges related to the value adding aspects of GenAI and how this rapidly evolving and pervasive technology could be harnessed to create value while conforming to regulations, ethical principles, and organizational values.

Since GenAI governance is quite a novel research area, not much earlier studies have been made and thus comparison to earlier studies is limited. However, my results are relatively similar to few preliminary studies about GenAI governance frameworks (See for example Reuel & Undheim, 2024; Schneider et al., 2024; Sharma, 2023). These frameworks also call for adaptive and responsible GenAI governance, including

governance means such as collaborating, monitoring, informing, anticipating, training, and innovating.

My results correlate with the governance mechanisms presented by Schneider and others (2024) (figure 4). Their structural, procedural, and relational mechanisms overlap governance means presented in this thesis. My division to means relating to processes and stakeholders differ from their presentation into the three categories. However, both contain similar functions, like deciding roles and responsibilities, policies, contractual agreements, management approaches, communication, and training. For example, responsibility allocation is situated as a structural mechanism in their framework, but I have situated it as a part of organizational processes. My research would add the means of budgeting, agile process approaches, and encouragement to their framework.

GenAI governance means found in this thesis contain some similar and some differing aspects compared to what Minkkinen and Mäntymäki (2023) found in their research about AI governance practices. Competence and knowledge development, explainability and transparency practices, impact assessments, organizational policies and ethics guidelines, regulatory compliance, risk management, stakeholder collaboration and validation, testing and verification were all aspects that were also reflected in my research data.

Practices related to data, like data governance and data management, which were expressed in the research of Minkkinen and Mäntymäki (2023), were not surprisingly as present in my research even though a few of the experts pondered the challenges of faulty training data causing biased content or misinformation. Since the interviewed experts were mostly working in organizations deploying GenAI solutions and not developing or designing them, it could be that they do not have that much control over the training data used by the developers of these technologies, or in general they did not have experience on data related governance activities. One interviewee mentioned that in order to create their own GenAI solutions and utilize their own data in them, they should be able to label their data. But, since they are still in the midst of changing their paper processes into computer ones, labelling the data for AI solutions is not yet a current issue. The governance practice for the GenAI deploying organizations could therefore be viewed as more preventive which resorts to choosing the right GenAI

solution providers, evaluating, and monitoring rather than controlling or overseeing the source data.

What stood out in my research compared to the earlier studies presented above were the insights of finding the right tools for operations and encouraging people to try these technologies alongside developing their competence. These might stem from the increasing popularity of GenAI tools and the challenges those have brought with them. These tools are more accessible for both technical and non-technical users compared to the past with traditional AI tools and can be applied to variety of contexts, like explored in chapter 2 of this thesis (see for example Helberger & Diakopoulos, 2023). The technology is more pervasive and rises concerns for example regarding security and responsibility. Choosing the suitable tools amongst the supply and encouraging employees to use these for their work are seen as essential governance practices for mitigating challenges.

7.2 Limitations and future research

Many interviewed experts worked in an organization that was still in the first steps of utilizing GenAI in their operations. It could turn out beneficial to interview experts that are possibly the ones developing GenAI solutions or have extensive experience about already using GenAI efficiently in their operations. The results of this study are interpreted through the perspective of the experts interviewed, that have their own interpretation of governance and challenges. This is not necessarily the most objective approach to this topic since the experts' own interpretations or biases can be reflected in the research data and analysis. The results should be thus interpreted as indicative.

This research was executed in Finland with large Finnish organizations utilizing GenAI. Therefore, the results might not be applicable to organizations everywhere around the globe. The result might be different if this study were to be executed in any other part of the world or with different types of organizations than this study had. As expressed in this thesis, regional priorities in AI governance differ from one another and cohesive approach has not yet been formed around the globe. It is also a possibility that an universal organizational governance approach is not attainable, considering the differences between organizations and their goals. For these reasons, future research could focus on different types of organizations from different regions, cultures, sizes or sectors to get a wider representation of this field.

As was previously stated, the ethicality of GenAI should be evaluated within different societal areas and assess it in the domain it is used in, situated in a context, and under different standards (Schlagwein & Willcocks, 2023). This became apparent during this research since the interviewees were from different industries. For example, healthcare can be much more regulated and follow completely different standards and expectations than IT companies that can have more freedom with innovation. In the future it could be useful to focus on one type of organization (for example, healthcare, public or IT), to get much more generalizable results for that industry.

Time has passed since these interviews were held and processes in organizations regarding GenAI governance might have developed further after May 2024. Further studies are needed to refine concrete practices for organizational governance in this rapidly evolving field. As heard also from the interviews, AI technology is rapidly evolving, and it is hard to keep up with everything it brings with it. During the writing of this thesis (the year 2024), advancements in this area could have been made that might not be reflected in the research data.

In the future it could be useful to test these governance means in action and if they truly mitigate the challenges GenAI pose effectively. This study aimed to find out what the challenges were and how those are mitigated in the organizations, but true confirmation whether these means truly work or not was left in the darkness. Future studies could study these mechanisms and provide further information what are the true best practices for GenAI organizational governance through different methods like case studies, longitudinal studies, or surveys.

The governance means framework of this thesis could be further developed similarly to Schneider and others' (2024), where also the scope, targets and underlying antecedents are defined. This research purely focused on finding these means and providing concrete possible practices for organizations to govern their GenAI use. Additional means could also be found in the future when the technology and its utilization in organizations gain their shape.

8 Conclusion

GenAI technologies have increasingly entered organizations during recent years creating both opportunities and challenges. Limited research has been made in the field of GenAI governance and only few concrete practices for organizations to execute their GenAI use responsibly are available. In this setting, this thesis aimed to find an answer to two research questions:

RQ1: *What are the ethical challenges of generative artificial intelligence for organizations?*

RQ2: *How can organizations take the challenges of generative artificial intelligence into consideration in their AI governance?*

During the research process, nine semi-structured interviews were conducted in large organizations and based on these interviews the two RQs were answered. The interviews were analysed through the Gioia method and two figures were formed through this process: the GenAI challenges for organizations and a data structure of GenAI governance means.

In conclusion, it can be said that organizations face many challenges, ethical and others, with GenAI use and different governance approaches have been established to mitigate the surfaced challenges. These governance means can be applied to processes or stakeholder interactions. The results were found to reflect the results of earlier preliminary studies.

This thesis participates in a recently growing discussion about AI governance and provides guidance for organizations to design their AI governance during this time, when the GenAI technology field is rapidly evolving. This thesis used a slightly different approach to organizational AI governance that has been done before, focusing on challenges surrounding GenAI, and finding concrete practices for mitigating them.

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Appendices

Appendix 1 Literature review results: ethical challenges of GenAI

Challenge	Mentions in articles	References	Examples
Bias and fairness	23	(Andrieux et al., 2024; Bang et al., 2023; Bang & Park, 2023; Casal & Kessler, 2023; Chavanayarn, 2023; Coltri, 2024; Esmaeilzadeh, 2023; Gupta et al., 2023; Hong, 2023; Hua et al., 2024; Khan & Umer, 2024; Liyanage & Ranaweera, 2023; McGrath, 2024; Piñeiro-Martín et al., 2023; Rao, 2023; Ray, 2023; Rivas & Zhao, 2023; Schlagwein & Willcocks, 2023; Stahl & Eke, 2024; Tai et al., 2023; Tokayev, 2023; Wu et al., 2024; Zlateva et al., 2024)	Biased, discriminatory, and harmful content, enforcing stereotypes, many types of bias (e.g. ethical, racial, gender, algorithmic), filter bubbles and echo chambers
Privacy and security	20	(Alawida et al., 2023; Andrieux et al., 2024; Bang et al., 2023; Bang & Park, 2023; Coltri, 2024; Esmaeilzadeh, 2023; Gupta et al., 2023; Hua et al., 2024; Khan & Umer, 2024; Liyanage & Ranaweera, 2023; Piñeiro-Martín et al., 2023; Ray, 2023; Rivas & Zhao, 2023; Rousi et al., 2024; Stahl & Eke, 2024; Tai et al., 2023; Tokayev, 2023; Tong, 2023; Wu et al., 2024; Zlateva et al., 2024)	Infringement, data breaches, data privacy, cybersecurity, invasion of personal privacy, organizations' security exposure, informed consent, right to be forgotten
Transparency	15	(Andrieux et al., 2024; Bang et al., 2023; Gupta et al., 2023; Khan & Umer, 2024; Liyanage & Ranaweera, 2023; Nam & Bai, 2023; Piñeiro-Martín et al., 2023; Ray, 2023; Rivas & Zhao, 2023; Schlagwein & Willcocks, 2023; Tai et al., 2023; Tokayev, 2023; Wu et al., 2024; Zlateva et al., 2024)	Blackbox, explainable AI, human-like interactions, integrity
Misinformation and hallucination	14	(Chavanayarn, 2023; Farina et al., 2024; Ferrari et al., 2023; Gupta et al., 2023; Hong, 2023; Hua et al., 2024; Khan & Umer, 2024; Liyanage & Ranaweera, 2023; Piñeiro-Martín et al., 2023; Ray, 2023; Rivas & Zhao, 2023; Schlagwein & Willcocks, 2023;	Reverse Polanyi Paradox, successful faking, timeliness, accuracy

		Tai et al., 2023; Tokayev, 2023)	
Human development	13	(Bang & Park, 2023; Chavanayarn, 2023; Esmaeilzadeh, 2023; Gupta et al., 2023; Hua et al., 2024; Liyanage & Ranaweera, 2023; Nam & Bai, 2023; Piñeiro-Martín et al., 2023; Ray, 2023; Rivas & Zhao, 2023; Tokayev, 2023; Vetter et al., 2024; Zlateva et al., 2024)	Human skills erosion, reduced criticality, problem solving and innovation, loss of interpersonal relationships, individual autonomy and agency, technical dependability, identity, devaluation of expertise
Ownership and authorship	13	(Bang & Park, 2023; Casal & Kessler, 2023; Ferrari et al., 2023; Gupta et al., 2023; Hua et al., 2024; Khan & Umer, 2024; Nam & Bai, 2023; Ray, 2023; Tai et al., 2023; Tong, 2023; Vetter et al., 2024; Wu et al., 2024; Zlateva et al., 2024)	Intellectual property rights (IPRs), credits of AI created content, copyright, plagiarism, trademark and patent laws, authenticity, unauthorized use of sources
Responsibility and accountability	12	(Andrieux et al., 2024; Bang et al., 2023; Chavanayarn, 2023; Esmaeilzadeh, 2023; Gupta et al., 2023; Khan & Umer, 2024; Liyanage & Ranaweera, 2023; Ray, 2023; Stahl & Eke, 2024; Tokayev, 2023; Tong, 2023; Zlateva et al., 2024)	Moral responsibility, unintended consequences
Malicious usage	11	(Bang & Park, 2023; Casal & Kessler, 2023; Esmaeilzadeh, 2023; Ferrari et al., 2023; Gupta et al., 2023; Hong, 2023; Liyanage & Ranaweera, 2023; Ray, 2023; Rousi et al., 2024; Schlagwein & Willcocks, 2023; Tokayev, 2023)	Illegal or malicious activities, misuse and abuse, manipulation, bullying, malicious intentions, creating misleading content, impersonation, data fabrication, propaganda, scams, deepfakes, deception, truthfulness
Social factors	10	(Coltri, 2024; Farina et al., 2024; Gupta et al., 2023; Hong, 2023; Liyanage & Ranaweera, 2023; Rao, 2023; Rousi et al., 2024; Stahl & Eke, 2024; Tokayev, 2023; Vetter et al., 2024)	Digital divide, cultural homogenization, equality, corporate dominance, accessibility, harms to society, social solidarity, inclusion, changes in social relations and social structures, potential to replace human interaction and support
Economic	6	(Farina et al., 2024; Gupta et al., 2023; Khan & Umer, 2024; Rivas & Zhao, 2023; Tokayev, 2023; Zlateva et al., 2024)	Job displacement or employment loss, automation of tasks and human replacement
User experience	6	(Andrieux et al., 2024; Hong, 2023; Piñeiro-Martín et al.,	Difficulty in Handling Ambiguity, Lack of Common Sense and World

		2023; Ray, 2023; Rivas & Zhao, 2023; Rousi et al., 2024)	Knowledge, Contextual Understanding, over-reliance on quality prompts, lack of emotional intelligence, understanding of inappropriate language, bot humanization
Ecological	4	(Hua et al., 2024; Ray, 2023; Stahl & Eke, 2024; Wu et al., 2024)	Impacts on the environment, sustainability
Trustworthiness	3	(Chavanayarn, 2023; Rousi et al., 2024; Vetter et al., 2024)	Reliability
AI autonomy	2	(Rao, 2023; Rousi et al., 2024)	AI consciousness

Appendix 2 Interview citations: challenges

Information safety and security	8	"ChatGPT cannot guarantee that the company's information stays safe -- If we use AI or AI is used of us, does it stay inside or will our information leak. It will gather information about us for learning purposes but how can we know that the information does not leak into public use. " I1 "What data can be put into GPT. If it is customer data for example, where does it go and where will it end up? Is there a risk there?" I2 "We operate closely with personal information and recruitment and such so understandably one must be careful. -- the most common question is that if something is allowed to do regarding safety. Which is sometimes very hard even for me to figure out an answer to even though I have familiarized myself with information security instructions." I3 "Most concerns are regarding if it is allowed to use AI at all. I think it is allowed as long as it is made sure that the information is deleted. Made sure that the data inserted to it does not include any identifiers, names, IDs or anything like that." I3 "Information security is one of the biggest challenges. It is easy as long as we have tools that run in our own computers. But if we have lets say ChatGPT then what information can you give it? If you paid it with the organization credit card, it would use that information for developing the model. We as an organization should use solutions that have organizational contract behind them so that the service provider promises that the information is not used to train the model." I4 "Especially in healthcare information security and data are a challenge with AI. Very quickly citizens' special and sensitive information are in discussions. How to handle them is a pickle. -- As we know from these recent data breaches in the public, if information leaks it creates problems." I6 "It might be that GenAI could access files that it should not. For example a person does not have access to some files but then the AI tool can access them and it produces text that is based on wrong information." I7

		"At first people started asking very spesific information from it without thinking. It is in no way a safe or private environment, when the information security risk is big. " I8 "Then there is these information security aspects. But again the standard services like Microsoft, if you can use email in their cloud, you can use AI services. They will leak all the same. The security aspect is more if we use our own models or open models and how the information is secure enough there." I9
Level of human competence	5	"Can people comprehend what this is about and what are the limits of the technology? -- Sometimes people want to do something with AI that is clearly out of its competence boundaries." I3 "The people that work with these things are in a bubble. Large part of people do not even necessarily care about AI. And it needs to be taken into consideration when we interact or create services." I3 "There is a gap in competence levels. Older generation is not as knowledeable. It is a challenge to teach the younger generation about it." I4 "This is such a new thing and has developed so quickly. Do we have enough of experience and competence about these types of technologies? This also changes so fast and keeping up with it is super hard at the moment." I5 "With competence I do not mean technical competence but more of doubt or hesitation about is something permissible or ethical." I7 "in our industry every middle aged man and woman should always be awake and interested. Some people think that this will pass but I say that it might be that this becomes the daily routine. We can not think that this comes and goes. It is already here." I8
Misinformation	4	"It is still quite dumb -- It is a challenge how to recognize facts amongst its answers." I1 "We can not allow it to make big decisions. It might hallucinate or give wrong advice which would be wrong for the students." I4 "If the data behind it is bad, then the result will be bad. The algorithm can produce a wrong estimate or results. This might very well be a possibility for us in some applications." I7 "You can not blindly think that the answers that it gives are necessarily facts. The information it gives needs to be checked." I8
Trustworthiness	4	"Can you trust that it (AI) searches the information right or does it do its own interpretations which it should not do?" I1 "It is completely one thing to trust it. -- You can not be sure how it comes to a solution. If we make decisions that affect humans, big decisions, is it ok and when can we trust AI enough to allow it to make those." I3 "On the other hand you can not be sure with humans either. You can ask the reasons behind someones decisions and they answer something but is it really the biggest factor that influenced the decision, you dont know that." I3 "How can we get the operation of it to be trustworthy. -- We can not afford to make mistakes in our field with GenAI. We need to be very careful and we can not fully trust it yet. " I5 "How far can we trust AI to operate independently? We are still maybe too careful but for a good reason to not let GenAI have too much freedom. -- Is it more dangerous for the machine to make decisions? It is quite a funny

		question, since it is quite clearly testified that the machine makes better choices than a human.” I6
Regulation as a limiting factor	4	"Regulation might be done for good purposes but if for example China, Russia or USA are not with it, is it right that we are? Also Great Britain that does not belong in the EU. We have quite a large market outside of these regulations. -- Are we limiting innovation and are we going to fall behind them?" I1 "We easily start from the risks and threaths and does the GDPR or data act or AI act allow us to use AI for something and that can easily kill the innovation. -- I am very conflicted about governing beforehand since it kills innovation and we are falling behind here in Finland and Europe from the Americans and Chinese." I2 "Our field has many different regulations around Europe. Different regulations between countries and a lot of documentation and different models. We need to do double or even triple checks if the tools really work or if we can publish them internally or even externally." I5 "I am wondering if EU can keep up and if everything is regulated too much and intimidated. -- Can we keep up with the international competition and how can we remain with the competition. But then again the ethical side must be acknowledged. " I9
Rapid development	4	"The field is so multidimensional and it develops quickly. Even the people that do this for a living can be unsure of the current situation and developments." I3 "We are always a little bit behind. Our users have already used GenAI by themselves with free versions online and afterwards it raises questions about what we should as an organization do about it. On the other hand we get questions why we dont already have it since they are already available elsewhere." I4 "We are still in the midst of digitalization and adapting old processes from human or paper to digital. This work is still in progress with many organizations. On top of this became AI solutions." I4 "Our resources are not enough for everything and we need to choose what to do and what not to do. It has been discussed wheter it is profitable to develop our own language model since out there is a language model developed by billion people." I4 "This changes so fast and it is very hard to keep up with it. We need very active people that do this stuff almost 247 so that we could understand everything that is coming to this field. -- All the time emerges new models and algorithms. Mastering this whole thing is at the moment very big thing." I5 "We try to follow what is coming and have noticed that sometimes even Microsoft, who typically quite well takes care of things, does not have time to document everything. Things are implemented, and later we are told what has been done. It is a challenge to follow." I5 "We can not stay behind and follow what happens. If we do so, we will fall behind with efficiency, visionary and many more." I8
AI Hype	3	"In some way we have tried to calm down the hype. This is just a little more advanced support tool to find information. It will not replace anyones job at our workplace but it will make working easier." I1 "The

		hype itself creates challenges. We should be evolving at such a rapid rate but then again no true breakthrough use cases are yet to be seen. -- The hype is so big that the focus can be easily lost with it" I2 "The hype is strong. AI is everywhere and it saves the businesses and the world. But in practice we need it to produce added value and efficiency. -- Often people start to develop technical solutions too quickly and do not use enough time to think the value." I5
Malicious activities	3	"All these new innovations are firstly in the hands of criminals or quick profit organizations. These will use the technology ruthlessly before any limitations or working information safety." I1 " I will never send an email, recorded teams call or a message to accept invoices or anything. Those things can happen these days. My face or voice can be copied. For example take my moves and send them to our finances that they should accept a million worth of invoice that has been sent to us. -- Trolling, AI enables spreading wrong information in new ways." I8 "What is a threat and is already real is hacking and the safety side. We can see that there is AI based attack methods -- We need solutions on the good side to combat these. It will be a battle between artificial intelligences. The malicious one tries to be smarter than the defendant and both will be using AI." I9
Transparency	3	"It is not black and white that AI would be worse or it would be bad at the humane parts. Maybe the biggest challenge with it is that we do not know on what basis it does things. It is a black box and if we used it as a tool to make decisions, we would surrender part of our power to it." I3 "Transparency and how black box the AI is. It is an algorithm that creates new algorithms so it is not even necessarily in human control what it does." I4 "It is hard for us to develop AI solutions and get them certified or accepted since it is hard to rationalize where the solutions come from, it is like a black box." I6
Language barriers (Finnish)	2	"Its has been quite poor to use CoPilot until now since in Finland we communicate in Finnish and only just now they released Finnish language support." I1 "We operate in Finland in Finnish with mostly Finnish customers. The tools are not yet able to do that. -- One must often think carefully what it wants to say. -- It is the biggest challenge if you want to produce text in Finnish speaking environment." I3
AI pervasiveness	2	"It will be everywhere. It will come into every role and process. We need to find the right focus and relevant angle." I2 "Before GenAI there was no need to make outlines or policies about AI. It was not as pervasive. Machine learning was a thing but not in as central use cases as GenAI is in now." I4
Bias	2	"Bias can be seen and it is based on the tools' tarining data. But it is a tool that can not operate its user. You can not make decisions in recruitment business with AI, it can only be in assisting role. -- If AI produces answers that include some type of distortion, it can be

		hard to notice in the rush of everyday life." I3 "If we talk about creating pictures, we have discussed if they represent us or is there always for example middle aged white men in the executive team" I7
Authorship and ownership	2	"It has raised a question in which context you can use generative artificial intelligence. When does that information come from you and when does it come from the language model. -- Can AI write part of your papers or research? Should it be cited as an author in the same way if multiple people wrote a paper? Should AI use in writing be transparent?" I4 "Biggest challenge is probably around property rights. Who has the rights and can it be a concern on a later date." I9
Responsibility and accountability	2	"One question is about ownership or rather recognizing who is a part of the process. We always have a main user or an owner for a technology." I7 "We have wondered if there could be wider implications than the direct ones. Generally with a traditional technology app it is quite straightforward what it does. But with AI there could be something that we have not realized." I7 "One downside of it (=being multienvironmental and not having a centralised controlling entity) is that it is on every single business leaders' responsibility to take care that we don't operate illegally or unethically." I3
Proliferation of materials	1	"Almost everyone that uses CoPilot likes to summarize and transcribe meetings with the tool. The amount of text multiplies and meeting records grow longer. When someone doesnt have time to read the meeting record, they make summarization of the record with AI and repeat." I6
Costs	1	"Right now everything is relatively cheap per user, but we see that the costs will rise. -- It is clear that these little startups can not use these tools then since they have such big monthly costs that are extra." I9
Corporate dominance	1	"The phenomenon is much wider than ChatGPT or CoPilot and by understaing it we could utilize it much better. It is my concern that in some way this stays in one big hands when there are many smaller operators that could profit as well." I4

Appendix 3 Interview citations by data structure

3rd order	2nd order	1st order	Citations
Means related to processes	Agile internal processes	Ability to modify processes	"We can change or modify our processes if they become more data driven or heavily relied on AI." I3
		Ability to interrupt	"We need to think about the added value and have the ability to stop projects as quickly as possible if the value the project produces is not

			positive. This can often be hard for an organization since many want to develop things and create something new. But if suddenly something does not add value to the organization, we must be able to interrupt it." I5
		Value thinking	"We need to enforce the value thinking into AI projects." I5
		Project management	"We have gates that the project must go through. One is the value case gate if the project does not pass, it will be stopped. After that there is governance review which includes information security and data protection and ethics. Then we evaluate what is actually being done here with experts. We have also review sessions. -- It is not easy, but we try to do this structurally. Create processes and structure because otherwise this will go out of hand." I5 "In every project we go through these information checklists and get needed approvals. We make sure that the tool is built in the process. -- It needs to be built in already and the solutions need to be designed safe." I9
		Utilizing existing processes	"If we take something into use, we conduct a risk assessment, and the same thing is with AI. We utilize existing processes and decision points and checkpoints." I7
	Responsibility allocation	Understanding the human's responsibility and accountability	"It is always the human's responsibility in my opinion. All the solutions will be built in a way that end of the day the human is responsible. If decisions are delegated to AI, then the human has done so and will be accountable of the consequences." I2 "The responsibility of ethical practices remains on the human." I3 "We are not even imagining giving the machine alone permission to give diagnosis. It produces a suggestion what should be done and the human in the end is the one responsible." I6
		Assigning people in charge	"We always have an owner or main user for every technology. Regarding AI we have thought that we might need, especially if the solution is human-in-the loop type

			AI, to recognize the people that are included in it." I7
		Groups	"We have this steering group that coordinates everything about AI. They have listing of the AI solutions we have and at the same time oversees that we have coherent AI use in the organization. -- The same group discusses what actions have been taken elsewhere and starts pilot projects. -- It is made sure that we follow the instructions and principles that we have together agreed upon. -- It has members of each organization department and those members job is to carry forward information about AI into their own teams. I1 "We are in the midst of founding an AI steering group and a working group for that. The purpose would be to outline an AI policy for the whole organization and form an AI strategy. To think how we can utilize AI and for what use-cases." I4 "We have this AI working group, which has our IT personnel in it. -- They have for example made our policy document and are the people that thinks about these things." I6 "We have our own GenAI development groups for domestic and global operations that do research." I8
		Human in the loop	"The company policy is that there will always be human in the loop. The human monitors and when there are risks, the person is in the process." I9
	Budgeting	Cost distribution	“Budgeting is one thing. How much will it cost if we for example buy licenses for CoPilot for every employee?” I2 "One way to govern is to govern the expenses. -- It needs to be thought out that with what cost distribution model we can offer the tools and to whom." I4
	Technological solutions	Tools	"Nowadays Turnitin recognizes also text made by AI and thus prevents plagiarism." I4
		Platform	"On which platform can the services run? Can they be on public cloud or in their own spaces on our own computers?" I6
		References	"I see that an important feature is that the tool gives references, and

			you can find the original documents yourself if you need to." I9
Means related to stakeholders	Cooperation	Sharing information	"We had this AI day that we invited our partners to present different use cases. We have tried to share information and educate." I1 "We co-operate with other public administrators. We are in that way in a good position that we do not have to compete with others, and we can work together." I7
		Networks	"We are part of an IT-leaders network which holds meetings about AI related things. The purpose is to map the field together, what does the AI avalanche mean for us and what should be done and outlined by the IT departments. At the same time, I noticed how very different perspectives organizations have about AI." I4
		Involving customers	"Keeping the customers with the discussions is important and hearing their needs. Our doctors are worried that they lose the connections with their patients, and it can be harmful for the patient. It is not useful to leave patients to be taken care of by a machine alone." I6
	Following regulation		"We need to react to the AI act and of course follow it. Another one is the NIS-2 directive." I1 "We must take note of the regulation. We do not have any other choice." I2 "We have read through the AI act and the next step is to understand it. What it means for us and how will we react to it. How to take it into consideration in our policies and instructions." I5 "Usually, we need to consider other countries' regulations as well." I5 "We operate on a very regulated field, of course we follow quite strictly what is regulated by the law. -- We do not have a lot of our own freedom in that regard." I6 "I see that GDPR and registers are the same for here." I9
	Observe the market	Observe customers	"We try to observe how our customers' activities are changing and how we must be able to respond to that." I3
		Screening	"We get a lot of signals from around the world that could happen and

			what are the risks" I5 "We have technology related challenges, for which we do screening. We have to follow quite a lot what OpenAI or Google or Microsoft is doing in practice since they have such a rapid development speed and resources that we cannot keep up with." I5
	Guidance to use accepted tools	Recommendations	"We have recommended that people use CoPilot instead of ChatGPT" I1 "We have tried to mitigate our AI use prohibition by bringing in tools that operate in a protected environment" I3 “To some extent we want to make sure that suitable tools are available" I3 "Our employees use systems that are accepted. They cannot use anything that is not allowed. One employee cannot take in to use any system that our architecture group has not approved of." I7 "You must not use ChatGPT for work. Or you can but you cannot put any company specific information in it. It is nowhere written but is commonly known. We have recommended this but is not necessarily a policy." I8 "We use tools that are approved by AI-strategy and AI-architecture." I9
		Licenses and contracts	"We have bought licences for a pilot group" I1 "We have enabled AI use. We have extensive Microsoft contract in which came CoPilot which was easy for the staff to bring into use with M365 credentials." I4 "We have made a decision to basically use AI always as a part of an app. We are not that kind of organization to have our own coders, so we buy it as a part of Microsoft Office package or Power BI license or Power Platform Package. So, it is built in there." I7
	Organizational instructions, policies, and culture	Instructions	"We have a general AI guide for our employees which has been published to our intranet. It has guides about where to ask about AI and what to consider when using common AI tools." I1 "We have this general type of ethical instruction how AI should be used and what it should not be used for." I1 "We have talked about it and made instructions. They are more like wall boards rather than official documents to remind employees about how to use AI. such as

			remember to not use false information or do not use it for recruitment situations to make decisions." I3 "We have instructions to use internal GPT or Microsoft products. Do not use public services without them being company approved through governance review." I5 "We have made clear instructions for my position. I will never send emails, recorded teams calls or messages to say for example to accept invoices. -- The instructions can relate to the content, what you can use and what not. If you must use it for work, then it needs to be CoPilot. We make sure that the information does not go into wrong hands and that we also can get our own internal smart use of information." I8
		Policies	"We have a general policy and the same ethical policies and such that come from regulation." I2 "Information security and safety and other already existing policies need to be in line with the use of AI" I2 "We have AI policies regarding what tools one should use and is allowed to use. We try to standardize the things we do. Mostly our goal is that people do not just use anything without knowing how to use their own data and how the company data is being used." I5 "We have made an AI policy document where we have discussed in written form how things go in our organization. -- it is very high-level document." I6 "the policies range from the decision makers' responsibility, how to justify the decisions, how to evaluate risks -- also how to keep the customer in the process, when to tell them about AI use and so on. -- Also, examples where AI can be used." I6 "We have documented, it is called responsible use of technology and one part of it is about AI. -- There is said what AI can be used for and what it cannot be used for. -- We follow good practice principles of programming in our implementation projects." I9
		Prohibition	"We have basically prohibited AI use in recruitment processes if one is not absolutely sure what they are

			doing with it.“ I3 "We have blocked ChatGPT. Our employees are not allowed to use it." I5
		Organizational culture	"I see that the company culture, leadership and values are the starting point for how and where AI is used." I2
		Communication	"We have tried to push communication in every possible channel. Tried to remind to be careful and not to try everything on the market." I5 "We have these information events where we talk about AI, and we utilize every internal communication channel to raise awareness and distribute new information for every employee." I7
	Developing competence	Training and education	"We have offered training for our customers as well as employees." I2 "Developing know-how, learning, sharing information and encouraging to use the technology. Around this theme we educate, train and encourage our employees." I3 "We have an internal data academy to which every employee can take part in. We have courses relating to data analytics, AI and GenAI in there. Utilizing e-learning people can familiarize themselves with the subjects and deepen their knowledge based on their role and interests." I5 "We have both mandatory and optional training. We have had many sessions about AI for our employees." I9
		Encouraging to try	"Our viewpoint has been more enabling than prohibitive. Remember to be careful but try it out. Absolutely do not do anything dumb but remember to use it to your benefit." I3 "Encouraging to try CoPilot with limited amount of people that have access to it has created overall excitement and not just hype about the benefits of the technology. It is a part of training to understand what the possibilities of the technology are." I6 "We want to encourage that people use it. If our customers use it, we have to too. We do not want to question it; we want to encourage people to try and learn." I8
		Giving time	"We have a dedicated team that does these things and has to follow

			actively. We allocate time by telling them to take 30 minutes of their day to Google and see what is going on. Use CoPilot or other similar and find new areas to use them on. There are no shortcuts to developing competence." I5
		Workshops	"We have arranged workshops and Teams groups to encourage staff to try AI out. We have had a physical room that one could come in where there has been a computer with a GPT tool. One does not have to put their own credentials in it or buy it, but they could just try it out. There has been an expert present for help. This is to better the competence of our staff and to give them support to stay with the development." I4

Appendix 4 Research data management plan

Research data

Research data refers to all the material with which the analysis and results of the research can be verified and reproduced. It may be, for example, various measurement results, data from surveys or interviews, recordings or videos, notes, software, source codes, biological samples, text samples, or collection data.

Research data type	Contains personal details/information	I will gather/produce the data myself	Someone else has gathered/produced the data	Other notes
Interview recordings		x		

Processing personal data in research

I will prepare a Data Protection Notice and give it to the research participants before collecting data ☐

The controller for the personal details is the student themself ☐ the university ☐

My data does not contain any personal data ☒

Permissions and rights related to the use of data

Data type 1: Interview recordings

I will inform the participants about the use of their data, ensure their free will to participate and ask permission to use the data collected.

The participants are asked permission for further use of their data for Digital economy and society research group at the University of Turku, if the permission is not granted, the data stays with the author.

Storing the data during the research process

Where will you store your data during the research process?

In the university's network drive ☐
In the university provided Seafile Cloud Service ☒
Other location, please specify: ☐

Data documentation

To document the data, I will use:

A field/research journal ☒
A separate document where I will record the main points of the data, such as changes made, phases of analysis, and significance of variables ☒
A readme file linked to the data that describes the main points of the data ☐
Other, please specify: ☐

Data arrangement and integrity

How will you keep your data in order and intact, as well as prevent any accidental changes to it?

I will keep the original data files separate from the data I am using in the research process, so that I can always revert back to the original, if need be. ☒

Version control: I will plan before starting the research how I will name the different data versions and I will adhere to the plan consistently. ☒

I recognise the life span of the data from the beginning of the research and am already prepared for situations, where the data can alter unnoticed, for example while recording, transcribing, downloading, or in data conversions from one file format to another, etc. ☒

Metadata

Metadata is a description of you research data. Based on metadata someone unfamiliar with your data will understand what it consists of. Metadata should include, among others, the file name, location, file size, and information about the producer of the data. Will you require metadata?

I will save my data into an archive or a repository that will take care of the metadata for me. ☐

I will have to create the metadata myself, because the archive/repository where I am uploading the data requires it. ☐

I will not store my data into a public archive/repository, and therefore I will not need to create any metadata. ☒

Data after completing the research

What happens to your research data, when the research is completed?

I will destroy all data immediately after completion because I have no need for it myself.

The data could be used for the Digital economy and society research group's own research. The data is then sent to them and the responsibility of it is transferred to its participants.